

Christof Nägele, Barbara E. Stalder and Natasha Kersh (Editors)

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Editorial

This year has been special. The European Conference on Educational Research ECER 2020, which was to take place in Glasgow, Scotland, was cancelled. We would have loved to meet in person to discuss recent research findings and to share new and innovative ideas. Due to Covid-19, this was not possible. Given the special situation, we are even more pleased to present the 2020 edition of the ECER proceedings, Trends in Vocational Education and Training Research, Vol. III as a contribution to support communication amongst researchers and to contribute to policy and practice. The present publication includes more than 30 papers that illustrate planned, ongoing and completed VET research. All papers are based on double-blind peer-reviewed abstracts that were accepted for presentation at the ECER in Glasgow. Final papers were commented by VETNET board members and supported authors in revising their contributions.

The papers address initial, continuing and higher vocational education and training, the advancement of individual careers, the education and training of VET educators, and the regional, national and international development of VET through diverse measures. The wide scope of topics positions VET research as a multi-thematic and multi-disciplinary endeavour. VET research addresses questions at the societal, organisational and individual levels – without losing the focus on what's important: to educate and train people and to allow them to fulfil their potential through vocational education and training.

VETNET is a network of researchers interested in exploring societal, policy, governance, organisational, institutional and individual factors that shape and explain vocational education, learning and training across the lifespan. It welcomes members and contributions from all over the world. With its publications, VETNET aims to foster knowledge sharing and mutual learning among researchers and between research, practice and policy. The publications help to keep up with current projects and emerging topics in VET, encourage discussion and cooperation, and support the establishment of a visible and influential European landscape of VET research.

VETNET builds on the expertise and the commitment of its members – we appreciate all valuable contribution to the proceedings and other VETNET activities – whether in person, online or in written, let's stay in contact.

Bern and London, 10 November 2020

Dr Christof Nägele, VETNET chair / link convenor
University of Applied Sciences and Arts Northwestern Switzerland, School of Education

Professor Dr Barbara E. Stalder, VETNET chair / link convenor
Bern University of Teacher Education

Dr Natasha Kersh, VETNET programme chair 2020
UCL Institute of Education, Education Practice and Society, London

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The Individual Patterns of Learning – The Indicators of Vocational Teachers' Professional Development and Quitting the Profession

Aasa, Maret

University of Tallinn, maret.aasa@tlu.ee

Loogma, Krista

University of Tallinn, krista.loogma@tlu.ee

Abstract

This study considers how the learning patterns of vocational teachers relate to their career decision-making process. As a starting point, vocational teachers' careers involve a high level of occupational mobility. Therefore, vocational teachers have made career-related decisions related to previous studies or followed new perspectives and opportunities. According to Krumboltz's learning theory of career decision-making process, a person considers experiences which are gained through direct or indirect learning while choosing a career or studying path. Drawing on an analysis of narrative interviews with 24 vocational teachers and two previous vocational teachers, the article analyses the influence of learning experiences on becoming a vocational teacher.

Keywords

direct learning; indirect learning; vocational teachers' career; transferable skills

1 Introduction

One of the challenges for many educational systems is a question on how to recruit and keep vocational teachers who have pedagogical and practical skills and knowledge of the workplace (OECD, 2014). To solve the vocational teachers' shortage the strategy to encourage practitioners to enter vocational teaching has been launched on policy level (OECD, 2010). At the same time, the attractiveness of the vocational teacher's profession is affected by low salary levels (Misra, 2011) and lack of social recognition (Grollmann, 2008). Yet, work satisfaction may be related to personally meaningful work (Rosso et al., 2010). However, there is little known about the reasons explaining why individuals choose the vocational teachers work and how their learning patterns are connected to life career. The viewpoints of the vocational teachers' career decision-making and related learning might give an explanation about aspects, which are important in terms of recruitment and professional development of vocational teachers.

The career path of vocational teachers may involve a rather high level of occupational mobility. The fact that vocational teachers have a background in an initial occupation (Andersson et al., 2018) offers to them several career prospects on the labour market. As the skills and individual competencies acquired during the former career remain valuable, there are no barriers when switching back to the former occupation after working at vocational school. The return

to former occupation still bears the risk that pedagogical skills acquired during teaching may not congruent with the further occupational career. Although vocational teachers are sometimes considered as “low skilled” in academic terms (Andersson & Köpsén, 2015) they possess specific skills and know-how, acquired during the occupational and educational path.

Qualification requirements for vocational teachers vary by country. In most countries tertiary education is required as entry level, in some countries (the Czech Republic, Finland, France, Iceland, Norway, Portugal, Romania, Spain) a master degree is required (Cedefop, 2016). However, considering the mobility in the vocational teacher’s career path is not sufficient to confine learning narrowly by the academy or by the workplace. Instead, learning is a continuous life-long process that occurs in all contexts in which individuals have been lived (Allix, 2011). Personal histories determine individual identities and the way they engage in work and exercise their agency (Billett, 2011). Although in the identity construction process, individuals are active agents (Vähäsantanen & Billett, 2008), the colleagues play a significant part, as individual claims of belonging must be accepted by others (May, 2013). Also, individual and shared values are shaped and re-shaped by the social context of work (Beckett & Hager, 2002). Socialisation, involved mainly informal learning, broadens the awareness of colleagues and opens the door to tacit knowledge and therefore a more effective way of job performance (e.g. Eraut, 2011). In the negative line, workplace learning might lead to the realization that this is not a satisfying organisation to work for (Beckett & Hager, 2002).

As learning occurs everywhere and in each situation, vocational teachers learn from their own experience, from colleagues, from students. Also, feedback, messages from family or societal attitude towards vocational education have to be considered as indirect learning experiences. The association of these messages with occupation produces a positive or negative response, which will be relevant in future career decision-making (Patton & McMahon, 2014). To support vocational teacher’s recruitment and workplace motivation, it’s necessary to understand the patterns of individual learning in career decision-making.

2 Theoretical framework

In the centre of Krumboltz’s learning theory in the career decision-making process (1979) is the idea that individuals acquire their career predilections through the learning experiences. It is important to recognize that individual educational and occupational decision-making is influenced in a large extent by factors usually outside the control of the individual (Krumboltz et al., 1976). Krumboltz distinguishes four categories of factors which influence an individual’s career decision-making process: genetic endowment and special abilities; environmental conditions and events; learning experiences and task approach skills. It is not essential to know exactly what portion of the variance is due to genetic or environmental influencers, but it should be recognized that individuals are born with greater or lesser predispositions to profit from a certain type of learning experiences (Krumboltz et al., 1976).

In the present study, we are mainly focusing on the two types of learning experiences: direct, instrumental, and indirect, associative. Direct learning experiences are those in which the individual acts on the environment to produce certain consequences, which include the direct effects produced by the action (feedback) and the observable result of the action itself (Krumboltz, et al., 1976). The direct learning type involves genetic endowments and environmental conditions. Through these experiences, an individual learns skills relevant to decision-making about careers which in their view is appropriate to them (Patton & McMahon, 2014). The term indirect learning refers to the development of positive and negative attitudes and beliefs about occupations through a broad array of external stimuli (e.g. positive or negative message about occupation). Thus, indirect learning refers to an individual reaction to external stimuli (Krumboltz, et al., 1976), which will be relevant in career decision-making (Patton & McMahon, 2014).

In this paper we are asking:

1. Which learning patterns (direct and indirect learning) experienced during the lifespan have influenced the vocational teacher's career?
2. How has learning during the vocational teacher's career increased individual competencies and transferable skills?
3. Which direct or indirect learning aspects have increased or decreased vocational teacher's professional stability?

2.1 Expected outcomes

We assume, that becoming a vocational teacher and keeping hold of teachers' occupation is related to positive interaction between direct and indirect learning. Secondly, we suggest, that learning which has been taken place during vocational teacher's career supported the development of the transferable skills, and thus an individual's better perspectives in the labour market.

3 Methodology

The research is based on narrative life history interviews, which is suitable to find out the impact and influence of past events and individuals experiences (Bold, 2012). Altogether 24 vocational teachers and two former vocational teachers were interviewed. The youngest interviewee was 24-years old and the oldest 67-years old. The interviews with former vocational teachers aimed to gain information about the reasons for quitting and the perceived importance of gained skills for the further career path. The average length of the interview was one and a half hours. Analysing the transcribed interviews, we applied the tree-steps thematic analysis (Ryan & Bernard, 2003). First, we coded content units. Then we aggregated the content units into categories and categories into themes.

4 Results

From the narratives collected from the vocational teachers, the following themes, explaining their learning and career decision-making process emerged: 1) the genetic endowment and childhood environment; 2) the aspects and outcomes of direct learning; 3) the outcomes of indirect learning; 4) task approach and suitability of vocational teachers work; 5) transferable skills.

4.1 Genetic endowment and childhood environment

Vocational teachers do not bring out any specific abilities while speaking about their childhoods. However, some loved singing, others preferred acting or sports. Several interviewees characterized themselves as leaders, good communicators or performers.

While speaking about home and parents, interviewees mentioned they are from a "*simple family*" or "*my parents were regular workers*". Some had parents with an academic degree but there was also vocational teacher, whose father had only 6-grades of education. Remarkably, many interviewees had grown up with grandparents or foster parents. Regardless of the family type, childhood home influenced life values, behavioural norms, workplace habits. Some noted that parent (mum, father, grandfather) has been his/her greatest teacher. In several cases, people had taken the parent's vocation as a model. For example, people chose the chef's profession after stepmom. Others followed their relatives who seemed to have a seemingly profitable job.

All relatives whom I associated with have usually been studying sort of functional knowledge, so there are few theoreticians and many kinds of hands-on workers. And this is influencing a lot. (Aivar, 45)

The first career decision was made after graduating from compulsory school. Some chose the academic path and continued studies in high school, others went to a vocational school. The choices made after compulsory school were mostly influenced by the socio-economic context. Those who chose vocational school wanted to acquire skills which would ensure quick access to the labour market. Some considered personal characteristics like communicativeness or individual need for autonomy. For example, one of the interviewees explained that the need for independence made him choose electrician's profession. Decision-making was also influenced by a previous connection to a certain occupation. Vocational teachers who had chosen an academic path did not consider vocational education as an option, mainly due to the bad reputation of vocational education, which they had indirectly learnt from attitudes made by teachers or parents.

Taken together genetic and environmental components it might be assumed that, although vocational teachers cannot be characterized as genetically talented in music or artistic term, they possessed personality traits of leaders, communicators or performers. These characteristics shaped and manifested in interactions to the playmates or domestic situations. The childhood environment of interviewees, with some exceptions, was modest in economic terms but had an educative role, as values like diligence, politeness were frequently formed in the childhood environment.

4.2 The aspects and outcomes of direct learning

Becoming a vocational teacher was unplanned and connected to structural factors (such as local labour market situation), additional benefits (the chance to get a free apartment), interest in teachers' profession, mission. Despite the reasons which lead to vocational teaching, interviewees brought out that they dared to accept vocational teachers work after comparing herself/himself to acquainted vocational teacher, considering their long work-experience and acquired skills and characteristics of personal traits. Thus, the decision to become a vocational teacher bases on previous informal and formal learning outcomes and perceived personal capacities, which in turn are related to internal reflection or external feedback, which are considered as a direct learning outcome. As becoming a vocational teacher mostly happened unexpectedly, the preparation period was rather short. At the beginning of the vocational teachers' career, the qualification of teachers varied a lot. Some had an academic education some had acquired vocation without a gymnasium education.

I told that I do not even have an education, only eight classes ... I was then 27, maybe around 28. And, and then I went to school just to try because this previous teacher had gone to the hospital with heart-attack because then they needed a teacher. And as I had so much experience working at building sites then I was a proper candidate, and it was enough in their eyes. (Ene, 64)

The interviewees brought out that before practising teachers work, they thought the job was easier. To manage a role, vocational teachers intuitively used experiences gained during their studies or raising their children. While working, they started continuous and purposeful learning (seeking the material, attended courses, academic education, collaboration with practitioners) to be competent to teach/in vocational pedagogy.

And then I came to this school as a teacher. In the beginning, I thought that I have a lot of experience in building – that, what there is to teach, but theory and all that... I had never studied building. Then I started to re-learn, I'm still learning, it's never-ending, it has been a non-stop studying to teach. (Arno, 58)

As vocational teachers did not have pedagogical qualification before starting as a teacher they were sent to pedagogical courses. Interviewees saw the courses differently. Some believed that pedagogical courses gave practical support. Some found that pedagogical courses were led by academics estranged from the reality of school life, and considered, therefore, courses useless. For example, Aivar, who considers the pedagogical courses at the University his worst experience, because he was taught by lecturers who have been in front of a class twenty-three years ago.

They had absolutely nothing to teach us. Nothing ... that's because time has moved on. (Aivar, 45)

Teachers' attitude to courses related to specific speciality was without exception positive. They found that these were useful for getting information related to occupational development or inevitable for maintaining qualification. Vocational teachers brought out that students' interest, their positive results and admiration are the best form of feedback. For some, preparing students for the skills competition was considered as a life goal.

I have only one dream and aim, that this same girl, with whom we trained for skills competition ... we are already so good that we got third place and our next aim is again next year, and then we will have the first place and then to the international skills competition... (Riina, 50)

Some compared their own time of study and found that they liked the way, how they themselves had learned. In this light, they were rather critical towards lecturers, whose theoretical advice according to changed teaching approach does not work in the real teaching situations.

Sometimes I have the feeling that those trainers haven't seen a 17-year-old who isn't interested in absolutely nothing. (Kairi, 45)

Most of the interviewees noted that they longed for a mentor who wasn't appointed for them. Several brought out that there was no support from the colleagues either. Some enjoyed the support of the mentor, which increased satisfaction with the school and made teachers adapt organisational norms and behaviours.

I was accepted quite well and I was appointed to an older colleague who was a very good person... He was like a tutor or a mentor...and I can say that all in all, it's a tradition to accept people very well in this school. (Tiia, 50)

In conclusion, acceptance of vocational teachers' work was related to self-understanding, which in turn was greatly a result of past learning experiences. The reality of vocational teachers' work turned out more difficult than expected. Only a few of the interviewed vocational teachers perceived mentor's or colleagues' support at the beginning. For managing difficulties, they used personal learning experiences and educational principles acquired in childhood. All of the vocational teachers had to pass through the pedagogical courses. Several did not consider courses efficient as these were led by theoreticians who did not know the school-life reality. Differently from traditional formal learning where students receive feedback from the teacher,

feedback to vocational teachers was given by students, colleagues, school leaders. Students' accomplishments at competitions, interest in the field, reactions in classes were the most explicit signs about vocational teachers' self-efficiency. In several cases, this was the only feedback for teachers in their learning journey as a vocational teacher.

4.3 Outcomes of indirect learning

Indirect learning explains how individual views on vocational education and vocational teaching change over time and analyses aspects according to which vocational teachers value vocational schools as a workplace and see their suitability for the profession. Interviewees who had learned in vocational schools themselves evaluated vocational schools' educational opportunities well. Those who had acquired an academic education noted that for them the vocational schools were rather unfamiliar or non-existent before starting the vocational teachers work.

Actually, when I was younger vocational education didn't even exist in my reality and well because I wasn't part of it, didn't know about it. So, I didn't even know what to think about it. (Tiia, 50)

During vocational teaching, people started to revalue learning opportunities given by vocational schools. All of the vocational teachers believed that their specific field is important for the student. Still, teachers found that the limitation of general subjects in learning programmes decreases vocational education's popularity among students as it is considered as "blind alley" compared by general secondary education. Some of the vocational teachers found that vocational education enables people to have a prosperous career.

The fact that there are qualifications and occupational standards in a specific field enables people to have a career in their occupational field. You acquire an occupation learn more, vocational schools give the chance to make a qualification exam. In addition to 'regular' diploma, you have a certificate in a specific field. I think it will become more and more valuable for the employer. (Rita, 56)

Several long-time vocational teachers thought that high school/general secondary education is overrated. They found that it is easier for teachers in high school because the majority of the students who continue studies in high school have better results and a more supportive background.

An ordinary gymnasium, that one is really a factory. Some faces come in, then they give a dose of each subject and maybe later a reject will go the street. ... Here comes the reject, mostly. Here we have to make reject into the material. (Aivar, 45)

In most cases, interviewees believed that the workplace environment is better in vocational schools than in high schools. Collegial relationships, together with speciality field mission turned to be the most important aspects of work motivation.

The motivator is the hugely cool bunch, with whom we work together because the salary is not as high, ... and another thing, you just have to be, I am a fanatic. (Riina, 50)

The decrease of workplace quality (e.g. unsupportive management) harmed work, private life, overall wellbeing, sleeping quality. Changes in the workplace environment, the arrogance of the school board members were the reasons for quitting vocational teachers work.

Two years I thought that there will be some changes and the director will find something in the end... Let's be honest – teacher's job is rather stressful and workplace environment has a huge impact. (Siiri, 53)

When it came to material infrastructure in vocational schools, teachers were on different opinions. In most cases, interviewees brought out that material resources (technology, equipment, buildings) were modern and of high quality. Some teachers found that technological appliances were out of date. Some vocational teachers consciously avoided traditional pedagogical principles. Here one of the reasons was the perception gained during their studies and related indirect learning, that life-long pedagogues have become distanced from real life and see the world through their specific field. For example, Mart's experience shows how significantly indirect learning connected to the professional group shape individual understanding and influence individual practice.

Maybe my advantage is that I haven't passed a teachers' training or something like that. /.../ The way how each teacher approaches a student is their own business. I don't interfere with that if there isn't an urgent need. At the same time, I also don't let other teachers ruin my class. (Mart, 33)

In conclusion, interviewees started to value the importance of vocational schools after becoming vocational teachers. Vocational teachers pointed out the practical value of vocational education. It was brought out that relationships between the colleagues and mission to share speciality field skills are the most important motivators of work.

4.4 Task approach skills and subjective suitability for the profession

Vocational teachers related own suitability at the workplace with a former career, life experiences, self-efficacy, suitable personal characteristics. Several interviewees brought out that during their own student time or at work they were often chosen to be mentors or coaches for others student or co-workers.

A teacher chose me as a mentor for some students... There were so many of us in catering and the director sent me. I don't know whether he saw I had something in me, that something that I'll manage. (Siiri, 53)

Several vocational teachers perceived that the lack of technological skills hinders to complete duties as vocational teachers. Some of the middle-aged teachers (in the 50s and 60s) worried that due to their age they are no longer attractive as a teacher and at the labour market. They found that students need to see younger people as teachers.

I feel that there should be a younger person in front of the class. I am no longer an admirable candidate, at least in some places. (Rita, 56)

On the other hand, some teachers found that despite the changes in their physical capabilities they could still teach occupational offspring in educating the younger generation.

In sum, interviewees understanding of their suitability for vocational teachers' role bases on perceived self-efficacy related to task approach skills, which in turn are formed on interrelated aspects of environmental influences and the result of direct and indirect learning. As a result of direct learning, the individuals understand their capacities (innate teaching skills, speciality field know-how). At the same time, indirect learning plays a role. For example, vocational teachers' understanding of their suitability for the role is influenced by societal attitude (e.g. the cult of youth).

4.5 The importance of acquired skills for future career

Interviewees noted that the teacher's profession has enabled them to complement their practical skills, handle new technology etc. They believed that due to vocational teaching, they had received more professional courses and training than they would have while working in the private sector.

Most of the interviewees brought out that due to vocational teaching they are better communicators, collaborators, motivators, team-players. Teachers also noted creativity, flexibility and critical thinking. Some of these qualities were noticed also by two former vocational teachers. They found that they can utilize previously acquired skills at their present work.

Now that teacher's job and pedagogical courses, it has helped how to speak and communicate with people. To be honest, it also learnt how to influence people. (Siri, 53)

Teachers recognised the importance of courses, but the prevailing part of skills was an outcome of informal learning which in turn is the result of everyday experiences, judgements, intuitive problem-solving. Courses are related to practical or occupational and pedagogical skills and know-how; everyday actions facilitate so-called soft-skills development. Aforementioned skills are performance indicators, but at the same time, these skills are valued by employers in the labour markets.

5 Discussion

The study highlights the outcomes of direct and indirect learning, which are related to life-long experiences within particular environmental conditions. Although learning results may reveal retrospectively, they play the role of sense-making of one's professional capacity and career decision making.

As learning is a life-long process, we have to recognize the influence of genetic endowment and a childhood environment. Vocational teachers cannot be characterized as genetically talented. One reason here might be childhood environment as the family could not offer proper support to develop the specific talents. A large group of interviewees grew up with foster parents or with grandparents, where they had to do a lot of practical work. Interviewees' first career choice was influenced by a socioeconomic situation or parent's occupation. In this, individual educational decision making was dependent on external factors, which according to Krumboltz et al. (1976) is usually outside the control of an individual. However, the childhood environment paved the way for preferences, values, and working habits.

Although interviewees did not choose teaching as their first career path, they often received the role of a mentor in work or during studies. The mentor role proved to be a direct learning experience, which encouraged individuals to believe in their teaching skills. However, pedagogical qualification was acquired after becoming a vocational teacher. Teachers' attitude towards pedagogical courses was dependent on their practical usefulness for teaching work. In their work, vocational teachers used teaching skills they had acquired from multiple sources during their studies, through parenting, work experiences, reading psychological books, through formal learning.

Becoming a vocational teacher brought about the re-evaluation of views about the reputation of vocational education. Vocational teachers started to evaluate vocational education more than a high-school education and the vocational teachers' work was considered more meaningful than teachers' work in a high school. The differentiation of „we“ and „they“ indicates to the developments of the workplace or occupational identity. Here the results of our study are in harmony with Beckett and Hager (2002) explanation that workplaces as social context shape individual as far "they are becoming a certain sort of individual" (p, 27). More precisely, they

become professionals with vocational and teacher identity, who tend to value practical knowledge and have a feeling of a mission to share these skills. In order to realize their professional potential, they need a supportive work environment and a sense of belonging related to the quality of collegial relations. The deterioration of workplace relation proved to be the reason for quitting the profession.

Our study highlighted the multidimensional development and learning of vocational teachers. Vocational teachers' profession stimulated individuals to complement knowledge in their speciality field, made them better team-players, enriched critical thinking, creativity. Thus, complementary to speciality field and pedagogical skills, soft-skills or transferable skills improved. Personal development, positive feedback, workplace relations, the chance to see students' development made vocational teaching personally meaningful, increased the feeling of stability, encouraged to continue in the field.

Our findings confirm the very social nature of learning of vocational teachers. Individual learning experiences throughout the lifespan may be direct or indirect. However, the associated feedback or interpretation influences individual self-understanding and suitability for a certain career.

The study points out that an individual considers becoming a vocational teacher once a person sees oneself as a specialist and he/she perceives to have personal traits suitable for a teacher. Becoming a vocational teacher broadens the studying opportunities, diversifies the know-how and therefore, boosts personal development and satisfaction as well as perspectives at the labour market.

References

- Allix, N. M. (2011). Knowledge and workplace learning. In M. Malloch, L. Cairns., K. Evans., & B. N. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 132–148). Sage. <http://dx.doi.org/10.4135/9781446200940>
- Andersson, P., & Köpsén, S. (2015). Continuing professional development of vocational teachers: Participation in a Swedish national initiative. *Empirical Research in Vocational Education and Training*, 7(7). <https://doi.org/10.1186/s40461-015-0019-3>
- Andersson, P., Hellgren, M., & Köpsén, S. (2018). Factors influencing the value of CPD activities among VET teachers. *International Journal for Research in Vocational Education and Training*, 5(2), 140–164. <https://doi.org/10.13152/IJRVET.5.2.4>
- Beckett, D., & Hager, P. J. (2002). *Life, work and learning: Practice in postmodernity*. Routledge. <https://doi.org/10.4324/9780203994450>
- Billett, S. (2011). Subjectivity, self and personal agency in learning through and for work. In M. Malloch, L. Cairns., K. Evans., & B. N. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 66–72). Sage. <http://dx.doi.org/10.4135/9781446200940>
- Bold, C. (2012). *Using narrative in research*. Sage.
- Cedefop. (2016). *Professional development for VET teachers and trainers. Cedefop briefing note*. https://www.cedefop.europa.eu/files/9112_en.pdf
- Eraut, M. (2011). How researching learning at work can lead to tools for enhancing learning. In M. Malloch, L. Cairns., K. Evans., & B. N. O'Connor. (Eds.), *The Sage handbook of workplace learning* (pp 181–197). Sage. <http://dx.doi.org/10.4135/9781446200940>
- Grollmann, P. (2008). The quality of vocational teachers: Teacher education, institutional roles and professional reality. *European Educational Research Journal*, 7(4), 535–547. <https://doi.org/10.2304/eeerj.2008.7.4.535>
- Krumboltz, J. D. (1979). A social learning theory of career decision making. In A. M. Mitchell, G. B. Jones, & J. D. Krumboltz (Eds.), *Social learning and career decision making* (pp. 19–49). Carroll Press.
- Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. (1976). A social learning theory of career selection. *The Counseling Psychologist*, 6(1), 71–81. <https://doi.org/10.1177/001100007600600117>

- May, V. (2013). *Connecting self to society: Belonging in a changing world*. Palgrave Macmillan. <https://doi.org/10.1007/978-1-137-36726-6>
- Misra, P. K. (2011). VET teachers in Europe: Policies, practices and challenges. *Journal of Vocational Education & Training*, 63(1), 27–45. <https://doi.org/10.1080/13636820.2011.552732>
- OECD. (2010). *Learning for jobs*. OECD. <https://doi.org/10.1787/9789264087460-en>
- OECD. (2014). *Skills beyond school: Synthesis report*. OECD. <https://doi.org/10.1787/9789264214682-en>
- Patton, W., & McMahon, M. (Eds.). (2014). *Career development and systems theory: Connecting theory and practice*. Sense Publishers. <https://doi.org/10.1007/978-94-6209-635-6>
- Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, 30, 91–127. <https://doi.org/10.1016/j.riob.2010.09.001>
- Ryan, G. W., & Bernard, H. R. (2003). Techniques to identify themes. *Field Methods*, 15(1), 85–109. <https://doi.org/10.1177/1525822X02239569>
- Vähäsantanen, K., & Billett, S. (2008). Negotiating professional identity. In S. Billett., C. Harteis, & A. Eteläpalto (Eds.), *Emerging perspectives of workplace learning* (pp. 35–49). Sense Publishers. <https://doi.org/10.1163/9789087906450>

Biographical notes

Maret Aasa is a PhD student at Tallinn University. Her research interests focus on workplace learning and career development of vocational teachers.

Dr Krista Loogma is a professor of vocational education in the School of Educational Sciences at the University of Tallinn, Estonia. Her research interests focus on workplace learning and professional development, as well as educational sociology, VET governance and institutional change of VET systems.

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Teachers' Professional Development at VET – Reflections on Professional Learning Communities (PLCs)

Andreasen, Karen E.

Aalborg University, Denmark, karena@hum.aau.dk

Duch, Henriette

VIA University College, hedu@via.dk

Abstract

Recent decades teachers at Danish vocational colleges have been met with high demands in adapting their pedagogy and practice to meet the requirements of new legislation, which imply implementation of new pedagogical ideas as well as new ways of teaching and cooperating with colleagues. But teachers often find themselves lacking the necessary time to reflect on how to implement the new ideas and requirements. This condition thus represents a challenge to the success of implementing the demanded changes. In this article, we address the question of what is needed to create environments to support teachers' reflection and their professional development in VET with a specific focus at the potentials of 'professional learning communities' (PLC's).

Keywords

vocational education; professional development; teachers; communities of practice; professional learning communities (plc's)

1 Introduction

As described by educational researcher and theorist Andy Hargreaves, communication, dialogue, and reflection are some of the key factors in teachers' professional development and therefore also play an important role in school improvement (Hargreaves & O'Connor, 2017; Hargreaves & O'Connor, 2018). Recent decades have been characterized by constant and extensive demands for changes in VET education in most European countries (e.g. Cedefop, 2019). In particular, the situation in Danish VET has been characterized by reforms requiring teachers to change their teaching and pedagogy, as well as their understanding of the students and the academic content (Regeringen et al., 2018; Regeringen, 2014). Teachers in Danish VET are met with high demands in adapting their pedagogy and practice to meet the requirements of such new legislation, new pedagogical ideas, and new ways of teaching and cooperating with colleagues. However, the everyday life of teachers in Danish VET is also characterized by business and a lack of time; in other words, teachers are often not left much time to reflect on their practice or on how to implement the required changes (Duch & Andreasen, 2019). This condition thus represents a challenge to the success of implementing such changes.

Hargreaves (1998) argues that forced change can have a negative impact on motivation (Hargreaves & O'Connor, 2018; Hargreaves, 1998). He points out that teaching is not only an intellectual or cognitive phenomenon but something that educators engage with and therefore respond to emotionally when they experience pressured working conditions and stressful conditions for realizing change requirements. This can cause demotivation and a loss of commitment and joy, which can occur if teachers are not given the necessary conditions for change (Hargreaves, 1998). It creates inefficiencies as well as poor conditions for skills development.

In this paper, we will address the research question: what is needed to create environments to support teachers' reflection and their professional development in VET?

The paper focuses on findings from a research project related to development work carried out in 2018–2019 at a Danish social and healthcare college. The aim of the development work in question was to support and create space for teachers' reflection, learning, and professional development. This was done by implementing activities based on the idea of professional learning communities (Albrechtsen, 2010; Hargreaves & O'Connor, 2018; Marzano et al., 2016; Wenger, 1999). Based on our experiences with the project, the paper discusses and analyses what characterizes a professional learning environment and what plays a role for professional development. Using empirical data from the project, we take a closer look at the challenges and contradictions that appear in such processes. The theoretical framework is inspired by Andy Hargreaves' discussions of professional learning environments and Wenger's theory about communities of practice (Hargreaves & O'Connor, 2017, 2018; Thompson et al., 2004; Wenger, 1999). It incorporates research data from the development project, which includes teaching observations and interviews with the participants.

2 Changes in the area of social and healthcare education

In recent decades, teachers at Danish social and healthcare colleges have been and continue to be in a situation where, for a variety of reasons, they have to change both their pedagogy and teaching as well as their understanding of the students and the education's academic content. The reason for this is a number of reforms in the vocational education sector that have been implemented in recent years due to political concern about a future shortage of skilled labour. One of these – passed in 2014 – thus aimed, among other things, to get more young people to choose a vocational education (Regeringen et al., 2014). The reform meant that the student cohort at social and healthcare colleges changed, with an increase in the number of young people coming directly from secondary school and starting a youth education programme. At the same time, more academically 'strong' students should be attracted to vocational education through new educational programmes. In 2018, the Danish government passed further initiatives aimed at motivating young people in secondary school to apply for vocational education (Regeringen et al., 2018).

The reforms mean that vocational colleges have simultaneously gained both a new student cohort in the form of academically strong students, but also younger students, some of whom would be considered academically weak. This creates a pressure on change at the social and healthcare colleges, which means that the educational programmes, and thus the teachers, must renew the pedagogy of the programme for these new groups of students.

In addition, vocational education programmes are undergoing changes as a result of changed working conditions for employees (Beskæftigelsesministeriet, 2013), and there have been savings on vocational education programmes in terms of government funding (Regeringen, 2018). These changes must also be assumed to be important in relation to the frameworks for teaching and thus teachers' pedagogy.

3 Professional learning communities

It is not new that teachers at vocational colleges are faced with demands for the development of their pedagogy. In addition to the ongoing reforms of vocational education programmes, historically there have always been various educational demands and measures that teachers have had to implement and qualify for, for example through pedagogical continuing education (Duch, 2017). Over time, there have also been different initiatives to support such development and change processes. A more recent example of this is reflected in the implementation of the idea of professional learning communities (PLCs) – a practice that has gained some prevalence in Denmark in recent years, especially in primary and lower secondary school (Albrechtsen, 2010).

PLC has its origins in theories developed in the 1990s about ‘the learning organisation’ as described, for example, by Peter Senge, and in system theories linking organizations and individuals (Giles & Hargreaves, 2006; Thomson et al., 2004), theory of learning processes and reflection (Albrechtsen, 2010), as well as in Andy Hargreave’s ideas about teacher and school development and what creates an innovative environment in schools, where precisely ‘professional learning communities’ are considered to be able to play an important role (Giles & Hargreaves, 2006). The goal of PLC is to qualify teachers’ professional development and their implementation of changes, and, even though PLC is realized in different versions, it is based on a common idea that learning occurs through collaboration, de-privatization, and reflective dialogues based on shared values.

In the literature, there are various descriptions of PLC, where, for instance, the following themes are highlighted: “(1) shared and supportive leadership; (2) shared values and vision; (3) collective learning and its application; (4) shared personal practice; and (5) supportive conditions” (Wilson, 2016). As a practice, PLC can be described as: “A system of teacher teams which collaborate on issues related to teaching, assessment and other school-related topics that aim to improve the students’ learning” (Marzano et al., 2016, p. 9).

Such understandings are based on a view that learning is situated and takes place in communities of practice, as is also evident in Wenger’s theory (Wenger, 1999). The collaboration between teachers can provide long-lasting structures for professional development, and it can contribute to “a culture where teachers feel they have more control over their work” (Marzano et al., 2016, p. 18). For students, it is claimed that PLC contributes to better learning: “Research on a wide range of areas and over decades has shown, in brief, that effective PLCs can be linked to student results” (Marzano et al., 2016, p. 22). PLC thus seeks to build on empirical studies, experiences, and recommendations (Marzano et al., 2016). PLC can be closely linked to international experiences and results, experiences from Denmark, and in some contexts is associated with data and evidence (e.g. Dufour et al., 2016).

In various local interpretations, the idea of PLC has for a number of years been tested in Danish primary and lower secondary schools in the form of municipal initiatives, where entire teaching staffs participate in continuing education programmes on the idea and its application (Aarhus Kommune, 2017; VIA, 2017). There are a number of publicly available evaluations and presentations of preliminary results of this (EVA, 2017; VIVE, 2018). This shows, for example, that the schools studied who sought to implement the idea appear to be moving towards PLC, but without it being currently possible to measure the major changes for students’ learning and well-being (VIVE, 2018). Likewise, it appears that teachers experience a barrier to such change in terms of time to change practice through PLC (VIVE, 2018). It is the latter theme that we focus on in the analysis of this article.

However, while PLC can be found in Danish primary and lower secondary schools in various local forms, it is not yet well tested in the area of vocational education (Metropol, 2018). This action research project highlights the barriers and potentials that are reflected in processes of implementation of the idea at a Danish social and healthcare college.

In a Danish context, it is especially a description and understanding of PLC, like the one below, that has been dominant, and it is also this one that the action research is based on. This understanding, in continuation of the above account, describes PLC as being based on five core elements (also called ‘pillars’). This was introduced in Denmark by Albrechtsen (2010), and there are a number of Danish-language introductions that have slightly different emphases (Albrechtsen, 2016; Marzano, Heflebower, Hoegh, Warrick & Grift, 2016). What is common in these representations is the description of PLC with reference to the following five themes, called ‘pillars’:

1. shared values and visions
2. de-privatization of practice
3. cooperation
4. reflective dialogue
5. students’ and teachers’ learning

In the specific research at the social and healthcare college, the starting point is that PLC can support teachers’ learning in the many change processes mentioned above. In addition, there are local changes. Specifically, these relate to a new “common educational didactic basis” that is developed after a merger between several colleges, and in this process there has been an interest in and a need for the understanding and development of teaching differentiation and collegial cooperation, for example, in the form of supervision (Duch & Andreasen, 2019).

4 ‘Barriers’ and ‘resistance’ – theoretical background

The implementation of PLC initiates a change that requires and implies a learning process for all involved. However, it is well known that learning processes are complicated and can also be characterized by what some term resistance and barriers (e.g. Illeris, 2012). Various theorists have developed theories on how this can be understood and conceptualized.

We have chosen to incorporate the learning theorist Peter Jarvis’s theory, in which he deals with change understood as learning. Here, he thematizes the issue, which is linked to the fact that there can be varying degrees of difference and distances between, on the one hand, the change that is desired in a given culture, and, on the other hand, the expectations and needs for change that the individual sees or experiences (Jarvis, 2012). Jarvis talks about different forms of non-learning. If there is a large disagreement, there is a possibility that “they will receive an increased awareness regarding the potential learning situation but not feel able to learn anything from it” (Jarvis, 2012, p. 599). Or they “realize that they, for example, just do not have time for this learning” (Jarvis, 2012, p. 600).

Cognitive theories, as found with for instance Piaget (eg. Piaget, 1929), and other psychological theories can be understood in the light of how people act on the basis of internal and external disagreements and thus the need for change. In general, it can be described in the way that “in every human’s development and life, there are also obstacles and challenges that cannot easily be overcome and adapted to, but on the contrary inhibit development and the unfolding of life” (Illeris, 2012, p. 620). Thus, in a workplace where the individual encounters many different demands for changes, it is not a given that these demands will have an impact on teachers’ teaching, because there are external and internal disagreements. In this article, resistance is understood as expressions of, or something that is or can be, the result of such disagreements.

5 Methods

The project was designed as an action research project. The teachers and leaders participated with an interest in improving their pedagogy and trying to understand the problems and challenges of implementing pedagogical changes to their teaching (Dick, 2015; Wilson, 2016;

Rowell & Hong, 2017). Thus, it was designed to support their involvement and influence on the activities of the project (Brydon-Miller & Aragón, 2018). The research is inspired by ethnography, and the data are collected using qualitative methods. These included observations of the participating teachers when they were planning their teaching and activities in their teams as well as teachers when they were teaching in their classes in VET (Dick, 2015). During observations, field notes were taken. These were shared with the observed teachers, who commented on them, and the observations formed the basis of dialogues with the participating teachers about their interests and shared reflections on what was observed. Some of the teachers also used the field notes more specifically in relation to the improvement and development of their teaching. In observing teaching, the observer took a position without participation (full observer position), whereas in relation to meetings and joint planning, the position varied between full participation and full observer (Gold, 1958). During the 7 months of the research project, the observer regularly visited the college thereby gaining a broad knowledge of the college and its culture. Activities by the end of the course included focus group interviews, with the team divided into two groups with six participants in each, in order to discuss their experiences of the course's activities and the strengths and challenges of this in their professional development. In addition, three managers from the school were interviewed: a staff manager for the team, another manager at the same level, and a manager with a more senior management function (Barbour, 2007). The data from the research formed the basis of an analysis, and certain findings from this analysis led to further reflections that we particularly focus on in this article.

6 Change and resistance

Based on this article's focus, we see three key themes in the empirical data, which we present in three subsections.

6.1 Roles, relationships, and values in the teacher group

The first theme is about how teachers have roles and relationships in the group of colleagues they are in dialogue with in the project and which can give rise to collegial disagreements – disagreements that relate both to demands for change and to their differences in relation to what is important to them in teaching, which could be called values.

This becomes apparent in the meetings working with PLC, and the members spent part of the time working in smaller groups, where they conducted interviews according to a set model in order to achieve reflective dialogues (Madsen, 2010). The model gave the participants fixed roles, as well as making it clear that the individual teacher was the central player. From the beginning of the PLC process, each teacher had defined how they would work with change in the form of a specific theme, which was differentiation of teaching. Work was also carried out in smaller groups, the members of which varied from meeting to meeting because there were always some people absent, and not least because it was difficult to have fixed groups based on a single common task. This dynamic organization meant that in the reflective dialogues there was also negotiation about what was talked about and who had what role.

Based on different roles, participants thus contributed with reflections regarding the development of their specific practice. In some groups, however, participants preferred to talk about the challenges that were experienced in the broad sense in the workplace. As one teacher explained in an interview: "I brought up what is important to me. I experienced being understood and heard. I could see myself through the reflective team." (Focus group interview). For the teacher in question, it made sense to better understand the difference between colleagues and what it consisted of in order to be able to understand herself. Thereby, what might otherwise be seen as barriers to shared learning gained a new meaning. In the community of practice in the specific dialogue, practical solutions must be found in order to make the meeting work.

6.2 Disagreements among teachers about the potentials of PLC

Another theme is called disagreements among teachers in relation to what is experienced as possible. Six out of ten teachers at one of the meetings (PLC meeting in January 2019) said that PLC is only something that takes place at the PLC meetings. They explain that this is because they do not have “time”, that PLC is perceived as “too big”, that there are “a lot of other things”, and that they “cannot see the possibilities”. The four teachers who experience some integration of PLC into everyday life, but not to such an extent that they see PLC as a practice in everyday life, say that “something has happened in their teaching”. They describe how the PLC activities have made working with different kinds of observations and ‘data’ from their teaching more concrete for them. The work with PLC has meant that they have “prioritized”, and they have gained good experience from the project’s “interaction” with practice. They talk about feeling as if they have received a ‘push’ that has changed something. The participants suggest that the different degree of initial work with PLC in everyday life should be seen in connection with whether the researcher has observed the teacher’s teaching, since at first sight there appears to be such an effect.

As some teachers express it in a focus group interview, observation notes become “empirical evidence and experiences that are able to make processes visible”, “something that can be the subject of analysis” (Focus group interview). At the same time, there is a large attendance at the PLC meetings amongst participants, and they can remember their individual focus in relation to teaching differentiation. In this way, it can appear that there is a division in relation to the team’s participation in, experience with, and learning through the PLC course: Some see and experience possibilities for change, others to a lesser extent. In this way, the possibility for change is linked to these observations by the individual teacher, and resistance again has the character of being something external. Therefore, change appears as being linked to a few individuals rather than the teacher group as a whole.

6.3 Organizational framework

The last theme of the three that we will discuss is about the organizational framework. The organizational context in the form of the team structure, and thus the framework for learning through PLC, was formed before the project. Along the way, roles and tasks were negotiated at PLC meetings, and various types of products were worked on in relation to the development of teaching differentiation. In the community of practice, as mentioned above, a common opinion has formed that it is not possible to work with PLC in such a way that it changes teaching without changing organizational frameworks. The team appears to see a pattern in that if you have had an observer in your teaching, then PLC will start to have an impact. In this way, observations become a thing, an event, where notes from it can create learning and give meaning to PLC. If someone has not been part of this, the participants conclude that there has been less opportunity for change and learning. Overall, barriers are thus linked to external organizational frameworks as an explanation for changes being difficult. Such themes were elaborated on at one of the concluding focus group interviews of teachers, who talk about time, about having to prioritize between many tasks themselves as teachers, and PLC can therefore be seen as the leadership’s “management tool”, where the organizational demands are “checked off” (Focus group interview). Here, the merger that took place at this workplace is also explicitly mentioned, as well as a stream of new colleagues who were seen as slowing down development – again an experience of barriers caused by the organizational framework, which is used as a reason and explanation for the individual resistance.

7 Conclusion

The analysis of the empirical data revealed that the teachers needed environments that supported and allowed them more time and space for professional reflection with colleagues. Reflections take time and require that you do not feel under pressure in order to, for instance, prepare for the next lesson, make an important phone call, attend a meeting.

A very high degree of diversity was observed regarding the themes and issues the individual teachers raised and wished to discuss. Thus, designing a learning space that matched all participants' needs also required a high degree of influence and democracy (Rowell & Hong, 2017).

However, the analysis also showed that the activities carried out created a framework and space for development and learning in a professional community for the participants. The activities initiated formed a context that supported many types of reflections, which the observations also showed resulted in specific changes. For instance, it supported teachers' development of new understandings of the students and of their own teaching, which created or initiated changes in their educational practices. Thus, it supported processes of professional development. On the other hand, it also became clear that the teachers' experience of continuously being exposed to demands for change is not only in itself perceived as extremely demanding but can also cause emotional reactions and may become a barrier to changes and improvements. Such processes are important to address and can be prevented by ensuring that educators have the necessary space for reflections and for professional development to take place.

References

- Aarhus Kommune (2017). *LOKE – Stærkere Læringsfællesskaber*. Børn og Unge. https://aarhus.dk/media/9792/boernogungenytnr182017-staerkere_faellesskaber.pdf
- Albrechtsen, T. (2010). Professionelle læringsfællesskaber - en vision for danske skoler? *Dansk pædagogisk tidsskrift*, 2010(3), 84–92.
- Barbour, R. S. (2007). *Doing focus groups*. SAGE. <https://dx.doi.org/10.4135/9781849208956>
- Beskæftigelsesministeriet, 2013 LOV nr. 409 (2012, 26. april). Lov om en aktiv beskæftigelsesindsats. Lov om forlængelse og fornyelse af kollektive overenskomster og aftaler for visse grupper af ansatte på det offentlige område <https://www.retsinformation.dk/eli/lta/2013/409>
- Brydon-Miller, M., & Aragón A. O. (2018). The 500 hats of the action researcher. In A. Bilfeldt, M. S. Jørgensen, J. Andersen, & K. A. Perry (Eds.), *Den ufærdige fremtid – Aktionsforskningens potentialer og udfordringer*. Aalborg Universitetsforlag.
- Cedefop (2019). The changing nature and role of vocational education and training in Europe. Volume 7, *VET from a lifelong learning perspective: Continuing VET concepts, providers and participants in Europe 1995-2015*. Publications Office of the European Union. <https://doi.org/10.2801/357>
- Dick, B. (2015). Reflections on the SAGE Encyclopedia of Action Research and what it says about action research and its methodologies. *Action Research*, 13(4), 4[^]#[^]#[^]+[^]#[^]#4. <https://doi.org/10.1177/1476750315573593>
- Duch, H. (2017). *Uddannelse til erhvervsskolelærere. En diplomuddannelse i et spændingsfelt mellem erhvervsrettet efteruddannelse, voksenuddannelse og professionsrettet videreuddannelse*. Aalborg Universitetsforlag. <https://vbn.aau.dk/en/publications/uddannelse-til-erhvervsskolel%C3%A6rer-en-diplomuddannelse-i-et-sp%C3%A6ndi>
- Duch, H. S., & Andreasen, K. E. (2019). How to meet the challenges of recent changes in Danish VET? Professional learning communities as an approach to supporting teachers' implementation of changes in Danish VET. In B. E. Stalder & C. Nägele (Eds.), *Trends in Vocational Education and Training Research, Vol. II. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 116–122). <https://doi.org/10.5281/zenodo.3358906>
- EVA [Danmarks Evalueringsinstitut] (2017). *Udvikling af en stærk læringskultur*. <https://www.eva.dk/grundskole/udvikling-staerk-laeringskultur>

- Giles, C., & Hargreaves, A. (2006). The sustainability of innovative schools as learning organizations and professional learning communities during standardized reform. *Educational administration quarterly*, 42(1), 124–156. <https://doi.org/10.1177/0013161X05278189> S
- Gold, R. L. (1958). Roles in sociological field observations. *Social Forces*, 36(3), 217–223.
- Hargreaves, A., & O'Connor, M. T. (2017). Cultures of professional collaboration: Their origins and opponents. *Journal of Professional Capital and Community*, 2(2), ^#^#—^#^#. <https://doi.org/10.2307/2573808>
- Hargreaves, A., & O'Connor, M. T. (2018). *Collaborative professionalism: When teaching together means learning for all*. Corwin Impact Leadership Series.
- Hargreaves A. (1998) The emotions of teaching and educational change. In A. Hargreaves, A. Lieberman, M. Fullan, & D. Hopkins (Eds.), *International handbook of educational change*. Kluwer International Handbooks of Education. https://doi.org/10.1007/978-94-011-4944-0_28
- Jarvis, P. (2012). Non-learning. In P. Jarvis & M. Watts (Eds.), *The Routledge international handbook of learning* (pp. 94 – 100). Routledge.
- Marzano, R., Heflebower, T., Hoegh, Warrick, P., Grift, G. (2016). *Næste skridt i professionelle læringsfællesskaber*. Dafolo.
- Piaget, J. (1929). *The child's conception of the world*. Routledge & K. Paul.
- Regeringen et al. [The Danish Government et al.] (2014). *Aftale om Bedre og mere attraktive erhvervsuddannelser*. Aftaletekst mellem Regeringen, (Socialdemokraterne og Radikale Venstre), Venstre, Dansk Folkeparti, Socialistisk Folkeparti, Konservative Folkeparti og Liberal Alliance.
- Regeringen [The Danish Government], Socialdemokratiet, Dansk Folkeparti, Radikale Venstre, Socialistisk Folkeparti (2018). *Fra folkeskole til faglært – erhvervsuddannelser til fremtiden*. Undervisningsministeriet [Danish Ministry of Education]
- Rowell L.L., Hong E. (2017). Knowledge democracy and action research: Pathways for the twenty-first century. In L. Rowell, C. Bruce, J. Shosh, & M. Riel (Eds.), *The Palgrave international handbook of action research*. Palgrave Macmillan. <https://doi.org/10.1057/978-1-137-40523-4>
- Thompson, S. C., Gregg, L., & Niska, J. M. (2004). Professional learning communities, leadership, and student learning. *Research in Middle Level Education Online*, 28(1). <http://www.nmsa.org/Publications/RMLEOnline/tabid/101/Default.aspx>
- VIA (2017). Professionelle læringsfællesskaber. *LIV i skolen*, 19(2). <https://www.via.dk/om-via/presse/magasiner-tidsskrifter/liv-i-skolen>
- VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd (2018). Evaluering af projekt ”Professionelle Læringsfællesskaber” i Aarhus og Randers Kommuner. <https://www.vive.dk/da/udgivelser/evaluering-af-projekt-professionelle-laeringsfaellesskaber-i-aarhus-og-randers-kommuner-7033/>
- Wenger, E. (1999). *Communities of practice: learning, meaning, and identity*. Cambridge University Press.
- Wilson, A. (2016). From professional practice to practical leader: Teacher leadership in professional learning communities. *International Journal of Teacher Leadership*, 7(2), 45–62, https://www.cpp.edu/~ceis/education/international-journal-teacher-leadership/documents/Wilson_IJTL.pdf

Biographical notes

Dr **Karen E. Andreasen** is Associate Professor in education at the Department of Culture & Learning, Aalborg University, Denmark. She is a member of the research group Centre for Education Policy Research and conducts research within the area of education, vocational education, assessment, policy and history of education.

Dr **Henriette Duch** is Associate Professor at VIA University College, Aarhus, Denmark. She is a member of the research group Centre for Education Policy Research and conducts research within the area of education, vocational education, assessment, policy and history of education.

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Capability Approach in VET as a Strategy to Reduce Dropout: The "Job High-School" Case in Italy

Arenas Diaz, Guillermo

Universidad Complutense de Madrid, guillare@ucm.es

Guzzetti, Gabriele

Politecnico di Milano, gabriele.guzzetti@polimi.it

Irigoyen, Sebastian

Rennes 1 University, sebastian_irigoyen@hotmail.com

Nardi, Paolo

Cometa Research, paolo.nardi@puntocometa.org

Abstract

Taking into account the accelerated process of technological innovation and the recent Covid crisis, the non-cognitive skills have been recognized as an essential element in the learning process today. Cometa VET school implements a 2-years VET training program called "Job High-School", aiming at former dropout students' employability, but carefully fostering their social and emotional skills. A capability approach has been developed in order to foster a human integral development. This research, funded by Fondazione SanZeno, presents the main elements of this approach and its theoretical foundations. A statistical analysis, based on data collected through 4 waves of surveys between 2018 and 2020, highlights the impact of the approach in terms of increase of emotional and productive as the Key Performance Indicators (KPIs) on a group of students attending the program during 2018-2020. Emerging results show the relevance of tutors in the VET system as key players in learners' personal development.

Keywords

capabilities, agency theory, early-school leavers, skills, dropout

1 From employability to a holistic approach in VET

The current paradigm shift the global society is experiencing shows an increasing number of major challenges: uneven industrial and post-industrial development, poverty, population growth, pollution and degradation, equity and gender disqualify. These challenges are structural aspects that directly affect the social mobility of individuals with more vulnerable incomes and social conditions, which predetermine their learning and entry into the labour market in the absence of equal opportunities (Tikly & Barrett, 2011; Hanushek et al., 2017; Kis & Windisch, 2018).

Education and training require to put skills at the centre stage to prepare young people to live an "unknown future" (Mulder, 2016), where the risks of automation in more sensitive sectors are also added to the destruction of jobs, as also aimed by Sustainable Development Goals

(SDG4). While professional skills, although their relevance, can become outdated due to the continuous changes, growth mindset and a life-long learning attitude become paramount.

The relevance of skills, then, cannot be restricted to the technical and professional ones; the impact of non-cognitive skills is positively correlated to both professional and personal development (Heckman et al., 2014; Nussbaum, 2011). As emerged in Gendron (2018), developing emotional capital, besides academic and professional skills, is crucial to empower people and to promote a real VET fullness.

In a broader sense, education (and training) should aim at the learners' personal empowerment of their agency, not only to increase their level of employability, rather to develop their growth mindset and to reduce any potential risk of future social exclusion due to economic but also cultural and psychological reasons (Nussbaum, 2011). As in the capability approach theory by Sen (Drèze & Sen, 2002), agency empowerment concerns a wide range of a person's capabilities, due to the multidimensionality of human development. Capabilities include personal and social assets, professional and foundational skills, as well as several other dimensions: human, social, psychological even "transcendent", as in Schnyder et al. (2019). The recent Covid crisis has accelerated a process of rethinking education, underlining the relevance of social-emotional learning and life skills in a newly defined set of values in current school system (curriculum, didactics, learning ecosystems).

2 The scientific debate on emotional capital in VET

As a starting point, the VET system is currently positioned and distinguished with great importance in the international community as a method capable of linking learning processes in the workplace and the classroom (Alet & Bonnal, 2012). Graduates can be linked to the labour market with adequate competencies, skills and experience, as they are learned, tested, evaluated and empirically improved during their formation phase (Domadenik et al., 2013; Eichhorst et al., 2015). Given this logic of institutional set-up, it has been distinguished as an effective strategy for both developed and developing countries to address a variety of structural challenges affecting social mobility today, such as low economic growth, skill mismatches between labour supply and demand, inequality increase and low social mobility, among others (Biavaschi et al., 2012; OECD, 2017a).

Specifically, this system is distinguished as an inclusive offer for population strata with different socio-demographic contexts, but also for those individuals who, for different reasons, do not have the same opportunities to access traditional education and who subsequently find it difficult to obtain well-paid employment (Haveman & Smeeding, 2006; Tikly & Barret, 2011; Heckman & Mosso, 2014).

On the other hand, the challenges that afflict the VET system are clear, where one of the most highlighted is the disdain and signalling that certain sectors of traditional academia and society itself generate concerning technical and technological education (Drolet, 2005; Levine & Sutherland, 2013; Billett, 2014; Rose, 2014; Abrassart & Wolter, 2020). However, several studies demonstrate the positive effects of the VET system applied to various contexts and student profiles (Alet & Bonnal, 2012; Domadenik et al., 2013; Eichhorst et al., 2015).

Taking into account the accelerated process of technological innovation (inherent in the current global economic structure), the non-cognitive skills have been recognized as an essential element in the learning process today, as they are decisive for the efficient performance of a professional career (Watts & Watts, 2009; Lippman et al. 2015; Acemoglu & Restrepo, 2018). Empirical studies indicate that interpersonal skills are particular abilities that can play a role in improving an individual's job performance and career prospects; hence, employers consider these competencies (Abdullah-Al-Mamun, 2012; Majid et al., 2012; OECD, 2017b). New approaches to the VET system propose to contemplate not only the development of professional techniques but also the construction and strengthening of soft skills (Gendron, 2018). The

development of non-cognitive skills in students allows them to enhance their training in the workplace with higher determination and interaction, giving them the confidence to work in a collaborative environment. In this sense, educators or tutors have an important role in preparing their pupils to be competitive in a highly changing and complex economic world by focusing on the development of emotional skills (Gendron, 2004; Nussbaum, 2011; OECD, 2017a).

Considering that students, regardless of their social background, receiving adequate instruction and an efficient process of emotional development, can overcome certain barriers that put their performance in the workplace at risk as their career. To integrate social and emotional development into students' academic instruction, different classifications have been proposed to refer to various skills linked to such emotional cognitive processes: as is the case of skills and competencies; attitudes, beliefs and mentalities; and character and values (Jones and Kahn, 2017); as well as cognitive, emotional, social and interpersonal skills and competencies (AS-PEN, 2019).

In addition to social and emotional development, the investigations of Gendron (2004; 2018) and Gendron et al. (2016) consider that emotional capital is key to enhancing the skills of individuals in the VET system, as well as in their transition to the labour market. The emotional capital is defined as an intangible asset that makes possible the promotion and enhancement of technical knowledge, social skills such as cultural background, since these are endemic elements in the process of developing capacities (Gendron, 2004; Schnyder et al., 2019). Moreover, it is important to consider that under the focus of the development of emotional capital, the objective of the training process is not only that the graduate enters his or her first job, or that the future worker generates a high rate of return measured by the company's profits (Nussbaum, 2008). Hereby the main objective is that the student achieves emotional, technical and collaborative development so that he can reduce social exclusion or face obstacles to enter the labour market (Drèze & Sen, 2002; Nussbaum, 2011; Tickly & Barrett, 2011; Duarte, 2016).

Furthermore, education has been one of the sectors that have suffered the most from the shocks of the Covid-19 crisis, interrupting the learning processes, and afflicting the motivation of students. Facing this crucial situation, the VET system has also tried to adapt its distance learning process where the role of the tutor has been more central in conducting learning to the student (Ozer, 2020; OECD, 2020). On the other hand, the Covid-19 pandemic has accelerated a process of rethinking education, emphasizing the relevance of socio-emotional learning and life skills in a set of values defined in the contemporary school system (curriculum, didactics, learning ecosystems, as in Burgess & Sievertsen, 2020). In this context, the VET system requires a set of strategies to protect learning processes in both their technical and emotional spheres in a context where social distance has become an imperative and the apparent new normality. The role of tutors, as developed in the Cometa case here presented, will hence be essential to ensure the transfer of appropriate knowledge and skills to students in a labour market that demands a high level of competence and efficiency.

3 Cometa VET centre: mission, method and target

Due to a quite unique origin, Cometa VET school (Como, Italy) has always been developing its educational approach of Inclusive Excellence (Nardi et al., 2018), providing the students with high-quality professional skills, but carefully fostering their social and emotional skills. The main aim of this approach, designed for former early school leavers or kids at risk of social exclusion, has always been their integral human development.

In particular for the early school leavers, the school has specifically developed a 2-years work-based training, called Liceo del Lavoro (LdL, Job High-School), providing the participants with an EQF3 certificate and a smoother transition to the job market. The specific target of this program, early school leavers, may have experienced problems in counselling and in the choice of their secondary level school after primary. Most of them show learning disabilities,

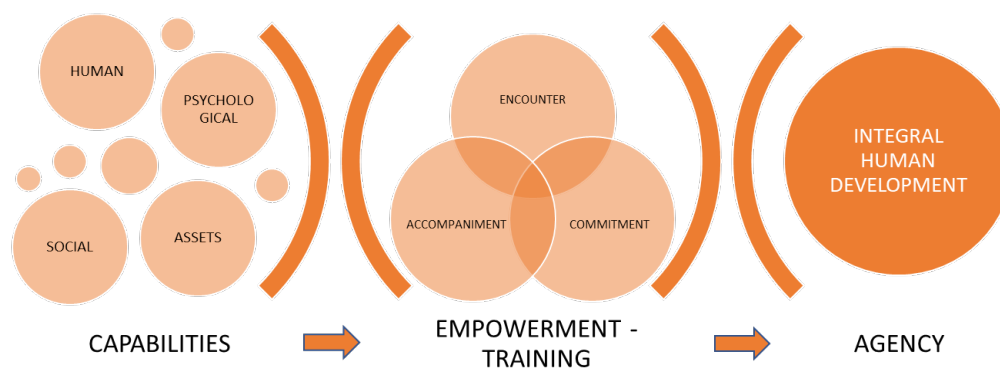
often not officially recognized, or complex familiar background which have affected their motivation, self-esteem, self-efficacy. A strong support is required, even psychological, to recover from school failures as well as to re-discover their own potential capabilities. They are usually 16-19 years old and:

- Did not complete first or second year in any secondary level school;
- Did change school once or more times during the secondary level;
- Did get an EQF2 education but their school history shows more than one failure;
- Did attend but did not complete a high school program due to emerging difficulties.

Besides the lack of professional skills, this target, more importantly, shows a need to foster motivation and soft skills to build self-awareness. A synthetic overview of this approach is shown in Figure 1.

Figure 1

Cometa Capability approach model



Note. Authors' elaboration based on Schnyder et al. (2019).

Pursuing integral human development, for a complete agency, requires a deep empowerment of existing capabilities, which Cometa realizes through a model of intervention which can be described in 3 steps:

- Encounter
- Commitment
- Accompaniment

3.1 Encounter

The first step of the method is defined as “encounter” (Schnyder et al., 2019), to underline the expected significance of the moment for both the learner and the school staff, rather than a simple “interview”. This very first moment involves the Educational Coordinator of Cometa, in charge of the supervision of the different tutors and their plans personalized on every single learner. Beyond the collection of basic information, this dialogue aims at discovering the reasons affecting the school pathway and causing the decision to drop out. Furthermore, it is an important moment to let the learners raise their own intrinsic motivation to start a new pathway, more importantly to detect extrinsic motivation including an obligation by parents.

3.2 Commitment and educational pact

The second step consists of activating the personal responsibility of the learners. During a second meeting with the Educational Coordinator and the tutor, the learner is invited to become a protagonist of the educational pathway, accepting an active role in the different proposed training and educational initiatives, including their rules. An educational pact is formally signed as a symbolic beginning of learner's commitment to this journey. The educational pact may include the family, if they represent a concrete support to the learner rather than an obstacle or, even, one of the problems causing their previous failures.

3.3 Accompaniment: tutoring and training

Tutoring is an essential function during training. The tutor plays a crucial role in defining the personalized pathway of each learner, including not only professional skills but also human development and soft skills. The basic method is the personalization: it consists of the definition of a flexible pathway for every learner, based on character, needs, capabilities and learning styles, in order to make them succeed in their program. Every educational project has to be continuously re-adapted according to the reaction of the learner. Tutor's activity includes many non-formal moments: dialogues, socio-emotional support, in order to help the learner in building a self-trust beyond professional goals.

In the Cometa capability approach, the tutor represents the main actor for a successful support to learners. Every tutor is in charge of approximately 30-40 learners, although in the case of LdL, they are usually no more than 20. Their activity is organized in 3 main areas:

- Educational care;
- Mediation among school, family, trainers, companies and learner;
- Supervision of the internship.

Tutor's activities are conducted mainly autonomously, however the weekly, or fortnightly, moments of coordination and supervision with the Educational Coordinator and the other tutors represent a distinctive element of Cometa approach.

Tutors support learners during their training. Training in Cometa is based on the reality-based learning process (Mele & Nardi, 2018; Bengo et al., 2018), an innovative learning approach adopted for all the different groups of learners but designed mainly for the LdL students. LdL learners are then involved in a real job experience in one of the 3 workshops-enterprises (called "bottega"), namely the Bottega del gusto (Taste), including a bar, a restaurant and a pastry shop open to the public. During the entire learning process skills are transmitted to the students. These abilities are divided into two big sections: (a) professional/ technical competences and (b) basic skills, such as abilities referring to the administration of the product and the process (languages, history, public speaking, etc.), and promotional skills (mathematics, science, economy, etc.). Soft skills are needed in every single moment during the learning process.

4 The empirical analysis

The survey used in this research is an original novel contribution developed by the Cometa institution applied to the tutors and students of the LdL. From this proposal, the intention is to offer a method capable to monitor the students' emotional performance during a two-year vocational training program from the tutors' perspective. Additionally, part of the main goal of using an empirical perspective is to test the theoretical approach of capabilities of the institution reflected on the students results. From this perspective, based on the statistical results it will provide relevant information about the personalized monitoring of the students' learning

process, focusing not only on technical or intellectual knowledge but also on their emotional performance.

This survey collects the perception of tutors and students in the classroom (as well as in professional practices) for following the development of skills and the emotional impact of the institution's treatment in the two years of training. The information captured is decomposed in four different waves from 2018-2020, where the questionnaire was applied during the beginning of the first semester and after the first year of formation, and at the beginning of the third semester and the end of the final year of training.

The opinions of the tutors described in this research were based on their perception of the performance of 15 LdL students aged 16-19. Anonymous survey was used to give specific attention to the students during the learning process. Under this logic the tutors were able to follow the pupils' performance and based on the results of the different waves of the survey, they were able to focus on a particular extra task to foster the emotional skills of the students.

Driven by the continuous development of emotional skills, from the information collected in the survey, tutors used the information reported by students and colleagues to understand the attitudes expressed and their performance, obtaining a better picture of the learning process and also allowing feedback with the student.

In this study, only the results obtained from the four waves of the tutors' survey were taken into account. Six specific questions were included in this survey that allowed the 15 students to be followed continuously from one semester to the next. In this sense, the tutors answered in a percentage scale from 0 to 100 about the evaluation of the students' skills performance in 6 different items of professional competences: a) time management; b) activity planning; c) autonomy; d) level of motivation; e) self-control and f) recognition of emotions. Questions include:

1. How do you evaluate the student's ability to manage working time?
2. How do you evaluate the student's ability to plan activities?
3. How do you evaluate the student's ability to perform a task independently?
4. Regarding school activities, how do you evaluate the student's motivation?
5. How do you evaluate the student's ability to self-control?
6. How do you evaluate the student's ability to recognize their emotions?

Using the six points identified in the questionnaire, this study offers the possibility of creating two groups of competencies focused on productivity and the development of social-emotional skills. In further research, both indices will be subjected to an exploratory factorial analysis (principal component method) consisting of questions 1-3 for the case of the productive index and items 4-6 for the socio-emotional index (Jolliffe, 2002).

With the statistical information obtained, it will allow us to select, group, and verify the students' competences from an empirical approach under a time horizon. Besides using the preliminary results obtained from the survey, it will be possible to make certain inferences about the impact of the training process year after year, as well as the implications for the implementation of improvements in the application of the institute's approach.

5 Emerging results

As mentioned in the previous section, the survey used has information about tutors and pupils. It is essential to state that Cometa follows the idea that not only the academic progress is important, but also the social and psychological improvements. Taking this into account, Table 1 shows the average perceptions of the tutors respected to the students that belong to the program.

Table 1
The average tutors' perception

Period	Year 1 t0 Mean	t1 Mean	Year 2 t0 Mean	t1 Mean
Statistic	(1)	(2)	(3)	(4)
How do you evaluate the student's ability to manage working time?	47.0	61.2	65.5	70.8
How do you evaluate the student's ability to plan activities?	41.7	61.2	65.0	72.3
How do you evaluate the student's ability to perform a task independently?	45.7	61.5	63.5	75.0
Regarding school activities, how do you evaluate the student's motivation?	44.0	60.8	64.0	72.2
How do you evaluate the student's ability to self-control?	36.0	60.2	55.5	69.0
How do you evaluate the student's ability to recognize their emotions?	39.3	58.8	56.5	68.4

Legend. The scale of the answers goes from 0 to 100.

As mentioned, the survey has four waves of time. The first column shows the results of "Year 1" for the first period (t0); the second column presents the information for the "Year 1" second period (t1). The columns 2 and 3 show the results for the "Year 2" first and second periods (t0 and t1, respectively). The findings of Table 1 show an increase in the average of the tutor's perceptions from t0 to t1 for Year 1. The same results are found in the case of Year 2.

Table 2 suggests a significant improvement for all the items for the four waves. For instance, in the question: "how do you evaluate the student's ability to manage working time?" the average answer of the tutors were 47 for the first period of year 1, but in the second period of the same year, there is an improvement of the tutor's perception (61.2). For year 2, it is also an improvement in the perception of tutors. The mean increased from 65.5 to 70.8 (for period t0 and t1 of Year 2). The rest of the items follows the same patterns.

Table 2
The hypothesis of the tutors' perception

Hypothesis	Test of mean difference for the four waves		Test of mean difference for the two waves of Year 1		Test of mean difference for the two waves of Year 2	
	Test	H (1) p (2)	H (3) p (4)	H (5) p (6)		
How do you evaluate the student's ability to manage working time?	42.055	0.008	7.545	0.018	5.749	0.043
How do you evaluate the student's ability to plan activities?	33.784	0.014	15.625	0.002	8.963	0.017
How do you evaluate the student's ability to perform a task independently?	21.288	0.040	12.479	0.004	12.030	0.008
Regarding school activities, how do you evaluate the student's motivation?	13.877	0.091	9.804	0.009	3.556	0.096
How do you evaluate the student's ability to self-control?	11.329	0.129	20.151	0.001	8.176	0.021
How do you evaluate the student's ability to recognize their emotions?	59.793	0.003	16.260	0.002	18.831	0.002

Legend. ** The scale of the answers goes from 0 to 100. H – Hotteling Test.

To verify if the mentioned improvements are significant, we applied the "Hotelling" test. The first null hypothesis assumes that the means for the four periods are the same (see columns 1 and 2). As we can see in Table 2, the null hypothesis is rejected, suggesting that the improvement is statistically significant (except in two items, "Regarding school activities, how do you evaluate the student's motivation?" and "How do you evaluate the student's ability to self-control?").

Then, we proceed to test if the improvement of the items is significant within the periods of each year. The null hypothesis is if the mean of period t0 is the same as the mean of period t1 for year1, the same for the second year. The results are shown in columns 3 and 4 for year 1. As can be seen, the results suggest that the improvement in the tutors' perceptions from the period (t0) to period (t1) is significant for Year 1. In the case of Year 2 (columns 5 and 6), only one item is not significant "Regarding school activities, how do you evaluate the student's motivation?" but the rests of the items follow the same results as year 1.

In conclusion, the items that capture the tutors' perception in terms of social and psychological skills have improved during the time that students have attended the institute. Only one case, "Regarding school activities, how do you evaluate the student's motivation?", the improvement of tutors' perception is not significant (for the four waves of periods and for year 2). This analysis was also developed for the case of the student's perception. However, we did not find a conclusive result, although they show similar trends. In other words, the average of the perception of the students has increased, but the improvement is not significant. It might be because of a lack of understanding of the questions of the students¹.

6 Conclusions, policy implications and future research

This research offers an overview on a current project aiming at exploring the role and the impact of tutoring activities on the development of professional, social and emotional skills in a

¹ It is a limitation of the study. However, we will work in this shortcoming for future research.

specific target group of former dropout learners. Cometa VET school has implemented tutoring since its beginning in order to activate learners' agency through skills empowerment: tutors play a quite innovative role, which combines several existing ones, including teaching assistant, coach, counsellor, pastore care.

The analysis conducted on a sample of learners attending an ad hoc 2-years program for dropouts (called Liceo del Lavoro, LdL) shows a statistically significant impact of tutoring service on learners' emotional and productive skills. Surveys have been collected in 4 different waves, the first one at the beginning of the program (September 2018) and the last one before graduation (June 2020); they have been addressed to tutors and learners. The surveys by the side on tutors confirm positive results, nevertheless we find a bias on the student's perception reported probably because of a misunderstanding of the questions related with the answers reported (overestimating the positive results), in this sense the current paper discusses and present only results on tutors' survey.

Bearing in mind that this article focuses only on the study of the tutor's perception of the students' results and does not take into account the student's perception and the grades obtained, this obviously opens up different questions regarding the validation of the answers presented in this paper. However, recognizing these limitations, the results presented allow to approach in a specific way the role of the tutor in a learning system that links the development of the social-emotional skills, since it is the tutor himself the competent entity that allows to identify this process of emotional development in an intertemporal way beyond the grades obtained at the end of the course or the own evaluation of the student.

The results presented are a starting point for the study of the development of social-emotional skills and their reflection in technical skills, as well as their impact on labour insertion. In this article, despite the possible biases in terms of the qualification estimated by the teachers on the students, in subsequent works, we will seek to complement it with statistical evidence taking into account the grades obtained from the students, the evaluation of within the learning process in the workplace or company, to expose results linked to the reflection of the VET system in the labour market. By the other hand, it is worth noting how students' perception appears slightly decreasing in the last months, mainly due to the Covid emergency and its impact, also psychological.

The next steps of the research will focus on analysing existing correlations between students' and tutors' answers to similar items; the trends across the time-window will be also taken into account. After collecting information on learners' placement after graduation, the research will also identify potential clusters of items, in order to highlight indexes which may be relevant not only for the scientific debate but also for educational implications.

References

- Abdullah-Al-Mamun, M. (2012). The soft skills education for the vocational graduate: Value as work readiness skills. *British Journal of Education, Society & Behavioural Science*, 2(4), 326–338. <https://doi.org/10.9734/BJESBS/2012/1858>
- Abrassart, A., & Wolter, S. C. (2020). Investigating the image deficit of vocational education and training: Occupational prestige ranking depending on the educational requirements and the skill content of occupations. *Journal of European Social Policy*, 30(2), 225–240. <https://doi.org/10.1177/0958928719855298>
- Acemoglu, D., & Restrepo, P. (2018). Artificial intelligence, automation and work. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3098384>
- Alet, E., & Bonnal, L. (2012). L'apprentissage: Un impact positif sur la réussite scolaire des niveaux V. *Economie et statistique*, 454(1), 3–22. <https://doi.org/10.3406/estat.2012.9794>
- ASPEN (2019). *A Practice agenda in support of how learning happens*. The Aspen Institute National Commission on Social, Emotional, and Academic Development.

- Biavaschi, C., Eichhorst, W., Giulietti, C., Kendzia, M. J., Muravyev, A., Pieters, J., Rodríguez-Planas, N., Schmidl, R., & Zimmermann, K. F. (2012). *Youth unemployment and vocational training*. IZA Discussion Papers 6890. Institute of Labor Economics (IZA).
- Billett, S. (2014). The standing of vocational education: Sources of its societal esteem and implications for its enactment. *Journal of Vocational Education & Training*, 66(1), 1–21. <https://doi.org/10.1080/13636820.2013.867525>
- Burgess, S., & Sievertsen, H. H. (2020). *Schools, skills, and learning: The impact of COVID-19 on education*. <https://voxeu.org/article/impact-covid-19-education>
- Domadenik, P., Farčnik, D., & Pastore, F. (2013). *Horizontal mismatch in the labour market of graduates: The role of signalling* (IZA Discussion Papers 7527). Institute of Labor Economics (IZA).
- Drèze, J., & Sen, A. (2002). *India: Development and participation* (2nd ed). Oxford University Press.
- Drolet, M. (2005). *Participation in post-secondary education in Canada: Has the role of parental income and education changed over the 1990s?* Analytical Studies Branch Research Papers Series, 243. Statistics Canada.
- Duarte, M. (2016). Educating citizens for humanism: Nussbaum and the education crisis. *Studies in Philosophy and Education*, 35(5), 463–476. <https://doi.org/10.1007/s11217-015-9489-9>
- Eichhorst, W., Rodríguez-Planas, N., Schmidl, R., & Zimmermann, K. F. (2015). A road map to vocational education and training in industrialized countries. *ILR Review*, 68(2), 314–337. <https://doi.org/10.1177/0019793914564963>
- Gendron, B. (2004). *Why emotional capital matters in education and in labour? Toward an optimal use of human capital and knowledge management*. Les Cahiers de la Maison des Sciences Economiques, série rouge, 113. Université Panthéon-Sorbonne.
- Gendron B. (2018). *The Power of emotional capital: heutagogy, executives functions, meditation/mindfulness*. Ed. Connaissances & Savoirs.
- Gendron, B., Kouremenou, S., & Rusu, C. (2016). Emotional capital development, positive psychology and mindful teaching: which links? *International Journal of Emotional Education*, 8(1), 63–74.
- Hanushek, E. A., Schwerdt, G., Woessmann, L., & Zhang, L. (2017). General education, vocational education, and labor-market outcomes over the lifecycle. *Journal of Human Resources*, 52(1), 48–87. <https://doi.org/10.3368/jhr.52.1.0415-7074R>
- Haveman, R. H., & Smeeding, T. M. (2006). The role of higher education in social mobility. *The Future of Children*, 16(2), 125–150. <https://doi.org/10.1353/foc.2006.0015>
- Heckman, J. J., Humphries, J. E., & Kautz, T. (Eds.) (2014). *The myth of achievement tests: The GED and the role of character in American life*. The University of Chicago Press.
- Heckman, J. J., & Mosso, S. (2014). The economics of human development and social mobility. *Annual Review of Economics*, 6(1), 689–733. <https://doi.org/10.1146/annurev-economics-080213-040753>
- Jolliffe, I. T. (2002). *Principal component analysis*. (2nd ed.). Springer. <https://doi.org/10.1007/978-1-4757-1904-8>
- Jones, S., & Kahn, J. (2017). *The evidence base for how we learn: supporting students' social, emotional, and academic development*. https://assets.aspeninstitute.org/content/uploads/2017/09/SEAD-Research-Brief-9.12_updated-web.pdf
- Kis, V., & Windisch, H. C. (2018). *Making skills transparent: Recognising vocational skills acquired through workbased learning*. OECD Education Working Papers 180. OECD Publishing.
- Levine, K., & Sutherland, D. (2013). History repeats itself: Parental involvement in children's career exploration. *Canadian Journal of Counselling and Psychotherapy*, 47(2), 239–255.
- Lippman, L., Ryberg, R., Carney, R & Moore, K. (2015). *Workforce connections: Key “soft skills” that foster youth workforce success: Toward a consensus across fields*. Child Trends publication, 2015-2024.
- Majid, S., Liming, Z., Tong, S., & Raihana, S. (2012). Importance of soft skills for education and career success. *International Journal for Cross-Disciplinary Subjects in Education*, 2(Special 2), 1036–1042. <https://doi.org/10.20533/ijcdse.2042.6364.2012.0147>
- Mulder, M. (2016). *Competence-based vocational and professional education*. Springer.
- Nardi, P., & Mele, A. (2018). L'integrazione scuola-lavoro e il modello reality-based di Cometa Formazione. In G. Alessandrini (Ed.), *Atlante di pedagogia del lavoro/atlas of workplace pedagogy. Le questioni fondamentali in ottica Europea*. FrancoAngeli.

- Nardi, P., Bengo, I., & Caloni, S. (2018). Reality-based learning and the Oliver Twist school: Towards a new approach in VET. In C. Nägele & B. E. Stalder (Eds.), *Trends in vocational education and training research. Proceedings of the European Conference on Educational Research (ECER)* (pp. 253–260). Vocational Education and Training Network (VETNET). <https://doi.org/10.5281/zenodo.1319692>
- Nussbaum, M. (2008). *Education for profit, education for freedom*. Institute of Development Studies Kolkata IDSK Special Lecture 1, 1–25.
- Nussbaum, M. (2011). *Creating capabilities. the human development approach*. The Belknap Press of Harvard University Press.
- OECD (2017a). *OECD Skills Strategy Diagnostic Report: Italy*. OECD Publishing.
- OECD (2017b). *Education at a glance 2017*. OECD Publishing.
- OECD (2020). *A framework to guide an education response to the COVID-19 Pandemic of 2020*. OECD Publishing.
- Ozer, M. (2020). Vocational education and training as “a friend in need” during Coronavirus pandemic in Turkey. *Barton University Journal of Faculty of Education*, 9(2), 1–7.
- Rose, M. (2014). Not your father's shop class: Bridging the academic-vocational divide. *American Educator*, 38(3), 12–17.
- Schnyder von Wartensee, I., Hlabse, E., Berloff, G., & Folloni, G. (2019). The role of personal identity in human development. *The European Journal of Development Research*, 31(3), 461–479. <https://doi.org/10.1057/s41287-018-0163-2>
- Tikly, L., & Barrett, A. (2011). Social justice, capabilities and the quality of education in low income countries. *International Journal of Educational Development*, 31(1), 3–14. <https://doi.org/10.1016/j.ijedudev.2010.06.001>

Biographical notes

Guillermo Arenas Díaz is currently a Ph.D. student at the Complutense University of Madrid in the Ph.D. program of Economics. The author realized his undergraduate and master studies (in Economics) at National Autonomous University of Mexico (UNAM) in Mexico City. He worked as a research assistant at Institute of Economic Research and at the faculty of Economics of the UNAM. His research interests are labour market, innovation, education and training, and econometrics.

Gabriele Guzzetti is a research fellow at TIREZIA, the international research centre promoted by the School of Management of Politecnico di Milano. He graduated in Management Engineering at Politecnico di Milano, with a master thesis on Social Impact Assessment. His research is mainly focused on social innovation and social impact measurement of programs and organisations that work in the field of educational poverty, impact finance and migrants' inclusion.

Sebastian Irigoyen is a doctorate candidate in Economics from Université Rennes 1. MA in Economics at Université Rennes 1. His research interests include Vocational Education Training Systems, Labor Markets, Human Development, and Public Policy Evaluation.

Dr Paolo Nardi is coordinator of Cometa Research, UNESCO-UNEVOC Centre for Italy. Fellow at PlusValue. MA in Public Policy at Brunel University London and PhD in International Law and Economics at Università Bocconi. Research interests include human geography (namely: non profit, social innovation and community development) and education and training.

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Digitalisation, Artificial Intelligence and Vocational Occupations and Skills: What are the needs for training Teachers and Trainers?

Attwell, Graham

Pontydysgu, graham10@mac.com

Deitmer, Ludger

University of Bremen, Institute Technology and Education, deitmer@uni-bremen.de

Tütlys, Vidmantas

Vytautas Magnus University, vidmantas.tutlys@vdu.lt

Roppertz, Sophia

University of Bremen, Institute Technology and Education, sophia.roppertz@uni-bremen.de

Perini, Marco

University of Verona, Department of Human Sciences, marco.perini@univr.it

Abstract

The paper seeks to explore the impact AI and automation have on vocational occupations and skills and to examine what that means for teachers and trainers in VET. It looks at how AI can be used to shape learning and teaching processes, through for example, digital assistants which support teachers. It also focuses on the transformative power of AI that promises profound changes in employment and work tasks. The paper is based on research being undertaken through the EU Erasmus+ Tackle AI project. It presents the results of an extensive literature review and of interviews with VET managers, teachers and AI experts in five countries. It asks whether machines will complement or replace humans in the workplace before going to look at developments in using AI for teaching and learning in VET. Finally, it proposes extensions to the EU DigiCompEdu Framework for training teachers and trainers in using technology.

Keywords

AI; occupations; tasks; teacher education; VET

1 Introduction

Artificial Intelligence (AI) can be defined as a system that has been designed to interact with the world in ways we think of as human and intelligent. Ample data, cheap computing and AI algorithms mean technology can learn very quickly. The transformative power of AI cuts across all economic and social sectors, including education (UNESCO, 2019). A European Joint Research Council policy foresight report (Tuomi, 2018) suggests that "in the next years, AI will change learning, teaching, and education. The speed of technological change will be very fast, and it will create high pressure to transform educational practices, institutions, and policies."

They say it is therefore important to understand the potential impact of AI on learning, teaching, and education, as well as on policy development.

The questions that arise in this context are: *What impact does AI have on vocational occupations and skills? And what does that mean for the teachers and trainers in VET?* These questions are addressed by project partners from five European countries in the Taccle AI project. The answers to these questions should help in identifying which competences and skills teachers and trainers need to have in order to prepare (young) people for an AI-based working environment.

The following section outlines the potential influence AI can have on Vocational Education and Training and thus forms the basic framework of this paper. The third section describes the methodological approach used to answer the research questions. In the following sections the results are presented. Sections four and five are mainly the result of the literature research. With these findings and the interviews, the European DigiCompEdu framework was extended in section six.

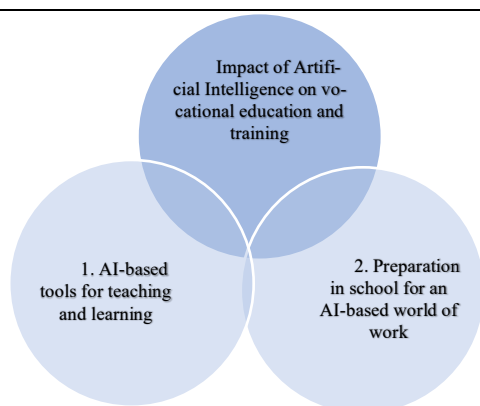
2 The potential impact of ai on vocational education and training

There are basically two dimensions of how AI can affect vocational education and training. AI can be used to shape the learning and teaching process, through for example, digital assistants which support the teacher in teaching in the classroom. AI can undertake administrative tasks, freeing teachers for more time supporting learners. In the school context, there could also be AI-based learning data analysis (Learning Analytics), AI-based individualised learning offers (Adaptive Learning) or AI-based assessment systems (mmb Institut, 2020). Regardless of their specific design, these applications would change learning and teaching.

Another impact for vocational education and training is that the transformative power of AI promises profound changes in employment and work tasks. For VET the greatest implications of AI lies in the changing tasks and roles within jobs, which require changes in initial and continuing training for those in work as well as those seeking employment.

Figure 1

Potential impact of Artificial Intelligence on Vocational Education and Training



Artificial intelligence can, therefore, enter vocational education and training in two fundamental ways (Figure 1). Firstly, **AI-based tools for teaching and learning** can be used in the classroom. On the other hand, AI can be addressed as a consequence of the increased use of technology in business and industry in the classroom. AI technologies are discussed in schools in a practical or theoretical way to **prepare young people for an AI-based working environment**.

3 Methodology

Based on the potential impact of AI on VET a thematic mapping was developed along which the literature research took place. The two possibilities of how AI can influence vocational training were investigated more deeply in the literature research, taking keywords into account. The guiding question for the literature research was what impact AI has on VET. More specifically, we asked: What impact has AI on Vocational Occupations and Skills? Which AI-based tools could be useful to support teaching and learning processes? Which are their characteristics? How could VET schools/centres training-offers and activities be updated in view of a world of work based on artificial intelligence? The string “*Artificial Intelligence OR AI*” was combined using the Boolean AND with the following keywords which are related to the aim of the study: “*Vocational Education and Training*”, “*New World of Work*”, “*Smart Factory*”, “*Skills*”, “*Competences*”, “*Teaching and Learning*”, “*Learning Analytics*”, “*Digital Assessment*”, “*Intelligent Tutoring Systems*”, “*Adaptive Learning*”, “*Pedagogical Agents, School Management Systems*”, “*Smart Learning Environments*”; “*Adaptive Learning*”, “*Employment and Labour Market*”, “*Ethics*”, “*Learning Management Systems*”. The project partners have basically limited themselves to literature published in the last ten years. However, if there was relevant literature outside this time window, it was included. Due to the explorative nature of the review, the research was not restricted to the most significant databases for searching relevant papers regarding educational research (i.e., Scopus, ERIC, Web of Science, Emerald, Springer, Taylor & Francis Online, Oxford University Press). The research was also expanded to institutional and European projects reports (e.g. Erasmus + projects), and grey literature. In order to ensure quality, peer-reviewed papers and journal papers were preferred. As mentioned before, since there are relatively fast changes and technological innovations in the field of AI, non-peer reviewed reports, internet articles or other sources were used to include current perspectives. In conclusion, while this overview is not exhaustive, a concerted effort has been made to identify and include peer-reviewed and grey literature, policy reports, and expert research reports that would be of interest to teachers or trainers on the subject. Contributions which did not address the research questions (e.g. history of AI, technological details of AI, etc.) were excluded from the review.

Parallel to the literature research, the project partners conducted explorative country case-studies (Luo, 2015) through semi-structured expert interviews to explore the perspectives and experiences of the respondents in AI and VET. According to Meuser and Nagel, experts are those persons who are themselves part of a field of action. The status "expert" is always relational to the research topic and is awarded by the researchers (Meuser & Nagel, 2009). Two groups were interviewed. One group consisted of vocational school teachers, trainers or other persons who practice in vocational education and training. The other group consisted of people from the field of artificial intelligence and development. The semi-structured interview method made it possible to discuss topics within the framework of AI and VET which were not included in the interview guidelines. The interviews were analysed in order to highlight best practices implemented by interviewees in AI in VET.

4 Artificial intelligence and employment, the labour market and society

This section will explore the implications of AI for the changes of employment, labour market and work by focusing on the changes of skills and competencies.

4.1 Will machines complement or replace humans in the workplace?

Literature on the implications of AI for work and employment distinguish between the replacement of human workers and the use of AI to assist human performance.

Schwab and Nadelia (2018) claim that there is a lack of information on how machine learning algorithms are functioning and how they reflect existing social changes. AI will transform

work tasks but will not make human activity completely obsolete. With a few exceptions, only parts of jobs can be completely automated. Susskind and Susskind (2015) criticize such “optimistic” thinking about limitations of AI in automating jobs based on the belief about the inability of AI to replicate human brains and consciousness (AI fallacy). They claim that “increasingly capable machines (whether using AI, Big Data techniques or techniques not yet invented) will arrive at conclusions and offer guidance that in human beings we would regard as creative or innovative.” In discussing the potential of technologies and AI to replace human activities (including education), they focus on three main questions:

1. What is the new quantity of tasks that have to be carried out?
2. What is the nature of these tasks?
3. Who has the advantage in carrying out these tasks?

Tuomi (2018) differentiates the implications of AI for work by distinguishing between the level of operations, the level of actions and the level of activities. At the level of *operations*, the AI augments and complements them by increasing the efficiency and effectiveness of current ways of doing things. At the level of *actions*, AI replaces, substitutes, and automates actions that were previously undertaken by humans, whereas at the level of *activity*, AI transforms the motivation of persons to perform certain activities, making current activities and specializations redundant and obsolete. The McKinsey report (2018) indicates that by 2030 there can be expected to be significant transitions accompanying automation and AI adoption – changing the mix of occupations, skill and educational requirements. Around 3 percent of the global workforce will need to change occupations by 2030. Occupations made up of physical activities in highly structured environments or in data processing or collection will see declines. Growing occupations will include those with difficult to automate activities such as managers, and those in unpredictable physical environments such as plumbers. Occupations that will see increasing demand for work include teachers, nursing aides, and technical and other professionals. Research literature indicates that current ICT systems show increasing ability in language, vision, movement and even reasoning. “IT capabilities that have been demonstrated in research settings could provide the reasoning, vision and movement skills required in most current jobs, only for language skill does the analysis suggest that a substantial number of current jobs have skill requirements that clearly outstrip the IT capabilities demonstrated in research literature. (...) Occupations representing 82 percent of current employment will be potentially vulnerable to displacement by IT over the next few decades” (Elliott, 2017, p. 604–624). Demand for physical and manual skills and for basic data input and processing will decline, while growth will be strong in demand for interpersonal skills, creativity, and empathy. Advanced IT skills and programming alongside complex information processing skills will also see a surge in demand. In highly automated plants, the software is the interface for all technical solutions. In this case, all tasks, especially service, maintenance and repair, have been structured around software tasks. Highly qualified technicians are necessary to maintain this software, while programming is left to the engineers (Spöttl et al., 2016).

Digital Taylorism allows lower skilled workers to execute “automated” complex tasks, which previously required higher skills. In the McKinsey survey, 40 percent of companies describing themselves as extensive adopters of automation and AI expect to shift tasks currently performed by high-skilled to lower-skilled workers. This is also related to the emergence of new middle-skilled, “new-collar” jobs. For example, registered nurses and physician assistants now do some of the tasks that primary care physicians once carried out, such as administering vaccinations and examining patients with routine illnesses.

There is also seen to be a “liberating effect” of AI in different work processes, for example, AI driven educational systems complement teachers, so teachers with the help of AI can focus on the teaching and mentoring that cannot be automated through AI. Hirsch-Kreinsen and

Ittermann (2017) claim that automation and the increasing flexibility of production (where AI contributes) help to optimize value chains and to develop business models based on the highly intensive involvement of customers. It can lead to an improvement of the quality of work and better opportunities for human-oriented shaping of work organisation, as well as a better fit between work and private life.

4.2 The skills and competences needed in the age of artificial intelligence

Research literature identifies a range of implications of AI for skills needs (McKinsey, 2018):

1. Demand for advanced technological skills such as programming will grow rapidly. There is also a lack of sufficient understanding of technologies to lead the organization through the adoption of automation and AI.
2. Increasing demand for key skills and competencies: social, emotional, and higher cognitive skills, such as creativity, critical thinking, and complex information processing, basic digital skills.
3. Demand for physical and manual skills will decline but it still will remain the single largest category of workforce skills in 2030 in many countries.
4. There are expected declines in the need for basic cognitive skills, particularly the basic data input and processing skills used by data entry clerks and typists and in a range of back-office functions.

The application and development of AI based technologies challenges the traditional boundaries of disciplines, knowledge and competence areas. For example, the application of sensors and the networking of cybernetic-physical systems (CPS) increase productivity but at the same time require interdisciplinary individual and collective competences that integrate knowledge and skills from the fields of machinery production, electronics and information and communication technologies (Gorltdt et al., 2017). Such erosion of the disciplinary and occupational boundaries of competence is also enhanced by changing industrial production, including virtualisation, individualisation and flexible production processes as well as the integration of digital, virtual and real dimensions of production processes and the increasing transparency of the production processes (Gorltdt et al., 2017).

Decentralized intelligence linked to Industry 4.0 provides skilled workers with increased volume of data needed for the performance and management of different work processes. Maintenance still requires traditional manual skills as well as the mastering of SPS, robotics, pneumatics, hydraulics, etc. These, however, are no longer sufficient. Simply amending occupational profiles will not be enough. The authors of the Bayme VBM study (Spöttl et al., 2016) call instead for a systemic shift to work process orientation in the design of occupational profiles. Maintenance processes will be based on informatization. Occupational and advanced training profiles must focus on these central developments. The Bayme study (Spöttl et al., 2016) claims that if the future development of production technologies will focus on assistance/support systems and if skilled workers at the shop-floor level are given the chance for co-shaping, Industry 4.0 can be used as an “assistance system”, where skilled workers and technological applications would thus control and influence one another, whilst decision making power remains in human hands. At the same time, skilled workers have to deal with increasing demands in terms of interpreting system data. Analytic capability and thinking in networks are prerequisites in order to deal with abstract information and to gain a swift overview of the production process.

AI cannot replace skilled workers in the automated control of production plants, where skilled workers execute such tasks as troubleshooting, assessing damage and analysing causes of faults. Skilled workers remain important decision makers, controllers, maintenance

operators, co-shapers and experts in many work processes, such as maintenance of production systems and equipment.

5 Vocational education and training in the age of artificial intelligence

The development and deployment of Artificial Intelligence has profound implications for vocational education at a number of different levels including the organisation of VET, the curriculum for VET subjects and occupations, teaching and learning in VET and the role of VET teachers and trainers.

According to Susskind and Susskind (2015), AI helps to transform the education process by making it more flexible and individualized. In the following section, examples are given of how AI technologies can be used in the VET learning contexts. Afterwards, the influence of AI on the VET curricula is discussed.

5.1 Using AI in provision of vocational education and training

An **Intelligent Tutoring System (ITS)** is defined as an IT tool capable of helping a student in the same way (or almost) as a human tutor. Specifically, the functions it should perform are the following:

- presenting learning contents;
- evaluating the efficacy of student learning process (what and if the learner is learning);
- promoting learner motivation;
- helping learners to cope with difficulties, to bridge learning gaps by getting examples and extra explanations.

An excellent ITS can interact with the learner through instant feedback, on-demand, corresponding to the requests, appropriately to the situation. To answer students' questions, it is also able to store, represent and retrieve information (Jia, 2015).

ITS were being used by the 1970s, a period in which the potential offered by AI was small compared to today. The development that AI has seen in recent years has fostered its use for particular purposes in the context of ITS. In particular, it has been used for generating adaptive feedback, hints or recommendation, defining, classifying and updating the student diagnosis model, for student evaluation, for presenting adaptive learning material or content; and for adapting navigations of learning pathways (Mousavinasab et al., 2018).

ITS, in general, has been recognized as an effective method by several studies. In particular, a meta-analysis conducted in 2016 of 50 studies revealed an effect size of 0.66 (Kulik & Fletcher, 2016). According to the literature, ITS are widely used in schools and universities (especially for STEM and for the medical sector) but empirical research on ITS effectiveness in VET were not found.

A **smart classroom** is a physical learning room equipped with sensor technology. The data collected via sensors, e.g. with microphones or cameras, are used by humans or AI systems to provide learning assistants, tools or strategies for the learners (Southgate et al. 2019). A smart classroom should support the teacher in teaching in order to make learning more effective for the students.

The special thing about a smart classroom is that the learning environment is context-specific. This means that the learner's environment is recorded (for example, using sensors) (Southgate et al., 2019). Individual support can be offered to the learners based on the data collected. It is also possible to adapt the way information is presented to personal learning preferences. Smart classrooms are therefore ideally context-specific, adaptable and personalisable (Hwang, 2014). In Germany, the Technical University of Kaiserslautern and the German Research Center for Artificial Intelligence are working together on a smart textbook for tablets.

With the help of the smart textbook "HyperMind"¹, individual learning should be made possible. For example, an eye-tracker is installed under the display. This enables the eye movements of the students to be recorded and identifies where reading is slower or something is repeated. This activity detection can be used as an indication that a student could use help or additional information at this point. The student can then be provided with individual content. The smart textbook is also intended to help teachers to shape the learning process. For example, the data collected from the students can be used to train an AI. In this way, learning behaviour can be analysed (Learning Analytics). In China, smart classrooms are already more widespread. In 2018, a Chinese school made the headlines by filming students in class and using AI to evaluate whether they followed the lessons². If facial recognition detected that a student was mentally absent, the teacher received a push notification on his or her mobile phone. Whether the focus here was on the learning success of the students and not on monitoring was much discussed in the media. So, in the case of smart classrooms, as with all applications, dual-use must be discussed and it must be determined whether the positive effects of use outweigh the negative and how these can be promoted in contrast to negative consequences. This example suggests the need to update the five ethical key issues highlighted by James (2009) in "Young people, ethics, and the new digital media": identity, privacy, ownership and authorship, credibility and participation.

Learning Analytics (LA) has been defined as “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs” (SOLAR, 2011). It can assist in promoting personalized learning and enable adaptive pedagogies and practices (Johnson et al, 2014). There are a number of research and development projects around recommender systems and adaptive learning environments. LA is seen as having strong relations to recommender systems (Adomavicius & Tuzhilin, 2005), adaptive learning environments and intelligent tutoring systems (Brusilovsky & Peylo, 2003), which are increasingly being adapted for vocational education and training. Apart from the idea of using LA for automated customisation and adaptation, feeding back LA results to learners and teachers to foster reflection on learning can support self-regulated learning (Zimmerman, 2002). In the workplace sphere LA can be used to support the reflective practice of both trainers and learners “taking into account aspects like sentiment, affect, or motivation in LA, for example by exploiting novel multimodal approaches may provide a deeper understanding of learning experiences and the possibility to provide educational interventions in emotionally supportive ways” Bahreini et al., 2014).

The use of Artificial Intelligence (AI) within assessment tools supports assessment and evaluation through automated grading and feedback, including a range of student-facing tools, such as intelligent agents that provide students with prompts or guidance when they are confused or stalled in their work. Such tools are increasingly being embedded in popular online learning applications like DuoLingo. The development of Natural Language Processing (NLP) allows the digital assessment of open questions and texts, as well as other forms of questions like sentence completion or filling in missing words which research suggests are more effective forms of assessing learning (Jacoby, 1978). Digital Assessment is not only important for providing formative feedback to students but allows teachers an evaluation of student understanding and engagement, helping them to focus teaching on supporting learners with things they may not easily understand.

¹ <https://www.uni-kl.de/uedu/arbeitsfelder/unterrichtskonzepte-af1/hypermind/>

² <https://www.telegraph.co.uk/news/2018/05/17/chinese-school-uses-facial-recognition-monitor-student-attention/>

5.2 Integration of AI into the design of work-oriented curricula

The current re-design of a curriculum is a complex educational and training oriented activity. In some European Countries also VET teachers and trainers are also involved in this process and take an active role. It has to cover the professional work and learning tasks of an occupation in all its dimensions: work process knowledge covered in practical work skills from the work process in the company but also more explanatory in depth and/or reflexive knowledge which could be addressed more clearly in a VET school or special course

For actual, advanced and timely curricula, work process changes are the basic impulse to form new vocational learning programmes which include work and learning tasks (WLT). Curricula are a key framework to say what kind of technical and organisational skills are to be followed and which of the learning tasks get priority and in which order they can be grouped and systemised. The skills spectrum starts from beginners' tasks, advanced beginners' tasks, advanced tasks and very advanced expert tasks (Rauner & Haasler, 2009). In principle, several curriculum structures can be distinguished (Arnold, Lipsmeier & Ott, 1998). The so-called learning arena curriculum is one possible option under different curriculum designs to deal with AI in VET, while it prepares well for more student centered learning and project orientation (Boreham & Fischer 2009). The developments in the world of work in the AI era can thus also be found in the facets of the learning field concept as an advanced option for a work process re-orientation of the curriculum, through:

- the multidimensional project topics,
- by addressing of professional, organizational and social skills,
- the direction towards operational work processes, company work task and business orientation,
- the orientation towards systematic, holistic training processes by by real problem-oriented settings for team building and forms of stronger cooperation and communication (Deitmer & Heinemann, 2010; Deitmer, 2019).

The design criteria for such a curriculum can be summarized as follows:

- Work Practise based curriculum are a good option in the context of AI system applications because disruptive change will have a massive effect on the design and content of different technical, social and business occupations.
- Curriculum changes occur from the industrial labour market which will threaten low skilled jobs but on the same side will enhance existing non-routine job tasks such as to be found in different occupations, for example industrial electronic and mechatronic occupations.
- The curricula can cover all learning places: company, training centre, vocational education school.
- Curricula follow an open content approach which is demonstrated by a continuous openness to new knowledge like new AI tools; system elements and methods.
- The Curriculum supports the integration of different kinds of knowledge domains, practical experience and theoretical knowledge gained by implementation of AI devices into real production facilities.
- The framework of the curriculum gives direction for trainers and teachers in delivering them more freedom to organise high quality work and learning processes at different levels for apprentices, trainees or students.

6 The preparation of teachers for AI-based vocational education

In order to be able to use AI tools in VET schools or to carry out AI projects, teachers must be trained and need knowledge about AI. Based on the literature and the interviews conducted, four new competence categories for teachers and trainers were developed:

- Category 1: Awareness of the implications of AI for work and society
- Category 2: VET curriculum design and development
- Category 3: School-based and work-based vocational training
- Category 4: Competence development of VET teachers and trainers

These categories are to be understood as a supplement to the European Framework for the Digital Competences of Educators (DigiCompEdu) (Redecker & Punie, 2017). The existing DigiCompEdu Framework is directed at teachers at all levels of education and is intended to support them in the use of digital media in educational programmes.

The DigiCompEdu Framework aims to capture and describe educator-specific digital competences by proposing 22 elementary competences organised in 6 areas. The competences are divided into further levels (A1, A2, B1, B2, C1, C2) so that teachers can determine their level of competence³. Area 1 is directed at the broader professional environment, i.e. educators' use of digital technologies in professional interactions with colleagues, learners, parents and other interested parties, for their own individual professional development and for the collective good of the organisation. Area 2 looks at the competences needed to effectively and responsibly use, create and share digital resources for learning. Area 3 is dedicated to managing and orchestrating the use of digital technologies in teaching and learning. Area 4 addresses the use of digital strategies to enhance assessment. Area 5 focuses on the potential of digital technologies for learner-centred teaching and learning strategies. Area 6 details the specific pedagogic competences required to facilitate students' digital competence. In sum, the DigiCompEdu Framework is designed to be used in all sectors of education.

Nevertheless, VET is special. This is mainly due to the fact that technologies play a particularly important and dual role for VET teachers. On the one hand technology forms the subject of much vocational education and training in its use in different occupational areas. On the other hand, technology is a means of delivering VET. The acquisition of digital competences is certainly an important first step towards being able to deal with new technologies and to use them in a targeted and pedagogically valuable way. On this basis we suggest the following competences are adopted for the use of AI for teaching and the application of AI-based tools in vocational education and training (Table 1 – Table 4):

Table 1

Awareness of the implications of AI for work and society

No.	Category 1: Competences
1.1	To identify the main changes in work processes due to the use of AI.
1.2	To identify and discuss the implications of AI for skills and knowledge needs in the work processes.
1.3	To explain the implications of AI for the vocational education and training systems and their reform and development.
1.4	To explain the implications of AI for the design, provision and award of qualifications within all occupational profiles within important domains such as technical production, construction, health, trade, social and agriculture.

³ DigiCompEdu Check-In <https://ec.europa.eu/eusurvey/runner/DigCompEdu>

Table 2*VET curriculum design and development*

No.	Category 2: Competences
2.1	To facilitate open content in the VET curricula and the inter-disciplinary integration of vocational knowledge fields related to the implementation of AI technologies.
2.2	To design VET modules and curricula for the attainment of competencies needed to work and learn with AI-based technologies.
2.3	To adjust school-based and work-based training for the skills required for using AI technologies and solutions in work processes.
2.4	To apply AI solutions (e.g., learning analytics) for the design and implementation of VET curricula or modules.

Table 3*School-based and work-based vocational training*

No.	Category 3: Competences
3.1	To prepare AI enhanced workplaces for the work-based learning; to install and /or adjust the AI augmented workplaces for learning purposes; to install and maintain smart classrooms for VET.
3.2	To use AI-based tutoring systems in the training process; to apply “just-in-time” learning solutions enhanced by the AI in the work-based learning; to use Learning Analytics in the contexts of work-based learning and informal training.
3.3	To use the AI applications for the engagement, recruitment and support of VET students and apprentices: e.g. to design and evaluate chatbot applications, smart tutoring systems.
3.4	To support independent learning and competence development of students/apprentices in the field of AI applications in the work process by design and initiation of smart factory projects.
3.5	To use AI enhanced technological solutions for the effective communication between VET teachers and company trainers in new work-based learning activities.
3.6	To use AI for development of multimedia learning materials and Open Educational Resources for VET; to apply AI powered MOOC’s for vocational learning.
3.7	To apply AI-enhanced solutions for the formative and summative assessment of work-based learning.

Table 4*Competence development of VET teachers and trainers*

No.	Category 4: Competences
4.1	To identify the competencies needed for the teaching and training of trainers and teachers on how they can enhance their capacity to apply AI in the work processes.
4.2	To design and apply different kind of initial and formative training courses for teachers and trainers in order to deal with human centered AI solutions in their professional role.
4.3	To apply AI solutions for the development of professional and pedagogical competencies including course designs in different formats and arrangements: internal, MOOC, online etc.

This framework aims to serve as a basis for further discussions between experts and researchers on the implications of the digitalization and AI for the work, careers and competence

development of VET teachers and trainers. It also provides initial guidance for the wider discussions about the new competence requirements of VET teachers and trainers, as well as new approaches to their competence development.

Conclusion and Outlook

AI is one of central factors in the technological and organizational transformations of work and learning. The changes in the work processes caused by the digitalization and AI significantly transform the VET curriculum design by strongly imposing work process orientation, learner centredness, interdisciplinarity and project logics. The same changes transform the learning and teaching processes in VET by bringing in different enhancing and supporting measures, such as Learning Analytics, Moocs and others. These transformations, in turn, create new requirements for the skills and competence of VET teachers and trainers for involving the AI related knowledge and skills in the curricula, using AI in the training and assessment practices, or using AI in developing the know-how and skills of teachers and trainers.

References

- Adomavicius, G., & Tuzhilin, A. (2005). Toward the next generation of recommender systems: A survey of the state-of-the-art and possible extensions. *IEEE Transactions on Knowledge and Data Engineering*, 17, 734–749. <http://dx.doi.org/10.1109/TKDE.2005.99>
- Attwell, G., Deitmer, L., Heinemann, L., & Kämäräinen, P. (2013). *Developing PLEs to support work practise based learning*. e learning papers 35.
- Arnold, R., Lipsmeier, A., & Ott, B. (1998). *Berufspädagogik kompakt; Prüfungsvorbereitung auf den Punkt gebracht*. Cornelsen.
- Bahreini, K., Nadolski, R., & Westera, W. (2016). Towards multimodal emotion recognition in e-learning environments, *Interactive Learning Environments*, 24(3), 590–605. <https://doi.org/10.1080/10494820.2014.908927>
- Boreham, N., & Fischer, M. (2009). The mutual shaping of work, vocational competence and work-process knowledge. In R. Maclean & D. N. Wilson (Eds.), *International handbook of education for the changing world of work* (pp. 1593-1609). Springer.
- Brusilovsky, P., & Peylo, C. (2003). Adaptive and intelligent Web-based educational systems. *International Journal of Artificial Intelligence in Education*, 13 (2-4), 159–172.
- Deitmer, L. (2018). Innovation Skills in Apprentice Training. In S. McGrath, M. Mulder, J. Papier, & R. Stuart (Eds.), *Handbook of vocational education and training: Developments in the changing world of work* (pp. 1-17). Springer.
- Deitmer, L., & Heinemann, L., (2010). *Innovation through evaluation and quality development of in-company training and workplace learning*. Conference Proceedings on Second International Online Conference on Innovation in Training Practice, www.trainersineurope.org
- Elliott, S. W. (2017). *Computers and the future of skill demand. Educational research and innovation series*. OECD Publishing, Paris.
- Gorltdt, C., Wiesner, S., Westphal I., & Thoben K. D. (2017). Product-Service Systems im Zeitalter von Industrie 4.0 in Produktion und Logistik – Auf dem Weg zu Cyber-Physischen Product-Service Systemen. In M. Bruhn & K. Hadwich (Eds.), *Dienstleistungen 4.0* (pp. 363–378). Springer Gabler.
- Hirsch-Kreinsen, H., & Itterman, P. (2017). Drei Thesen zu Arbeit und Qualifikation in Industrie 4.0. In G. Spöttl & L. Windelband (Eds.), *Industrie 4.0 – Risiken und Chancen für die Berufsbildung* (pp. 131–152). W. Bertelsmann Verlag.
- Hwang, G.-J. (2014). Definition, framework and research issues of smart learning environments - a context-aware ubiquitous learning perspective. *Smart Learning Environments*, 1 (1), 1–14.
- James, C. (2009). *Young people, ethics, and the new digital media: A synthesis from the GoodPlay Project*. The MIT Press.
- Jacoby, L. L. (1978). On interpreting the effects of repetition: Solving a problem versus remembering a solution. *Journal of Verbal Learning and Verbal Behavior*, 17(6), 649–667.
- Jia, J. (2015). Intelligent tutoring systems. In M. Spector (Ed.), *The SAGE encyclopedia of educational technology* (pp. 411–413). Sage Publications.

- Johnson, L. Adams Becker, S., Estrada, V., & Freeman, A. (2014). *NMC Horizon Report: 2014 Higher Education Edition*. The New Media Consortium.
- Kulik, J. A., & Fletcher, J. D. (2016). Effectiveness of intelligent tutoring systems: a meta-analytic review. *Review of educational research*, 86(1), 42–78.
- Luo, H. (2015). Case Study Research in Educational Technology. In J. M. Spector (Ed.), *The SAGE encyclopedia of educational technology* (pp. 85–88). <https://doi.org/http://dx.doi.org/10.4135/9781483346397.n44>
- McKinsey (2018). *AI, automation, and the future of work: Ten things to solve for. Briefing note for the Techn4Good Summit, organised by the French Presidency*.
- Meuser, M., & Nagel, U. (2009). The expert interview and changes in knowledge production. In A. Bogner, B. Littig, & W. Menz (Eds.), *Interviewing experts* (pp. 17–42). Palgrave Macmillan.
- mmb Institut. (2020). *KI@Ed noch nicht in der Fläche angekommen. Ergebnisse der 14. Trendstudie „mmb Learning Delphi“*. https://www.mmb-institut.de/wp-content/uploads/mmb-Trendmonitor_2019-2020.pdf
- Mousavinasab, E., Zarifsanaiey, N., R. Niakan Kalhori, S., Rakhshan, M., Keikha, L., & Ghazi Saeedi, M. (2018). Intelligent tutoring systems: a systematic review of characteristics, applications, and evaluation methods. *Interactive Learning Environments*, 1-22.
- Rauner, F., & Haasler, B. (2009). *Lernen im Betrieb. Eine Handreichung für Ausbilder und Personalentwickler*. Christiani Verlag.
- Redecker, C., & Punie, Y. (2017). *European framework for the digital competences of educators Digi-CompEdu*. Publications Office of the European Union.
- Schwab, K. (2018). *Shaping the fourth industrial revolution*. Penguin Books.
- SoLAR (2011). *Open learning analytics: An integrated & modularized platform. White paper*. Society for Learning Analytics Research. <http://solaresearch.org/OpenLearningAnalytics.pdf>
- Southgate, E., Blackmore, K., Pieschl, S., Grimes, S., McGuire, J., & Smithers, K. (2019). *Artificial intelligence and emerging technologies in schools*. University of Newcastle, Australia.
- Spöttl, G., Gorldt, C., Windelband, L., Grantz, T., & Richter, T. (2016). *Industrie 4.0 – Auswirkungen auf Aus- und Weiterbildung in der M+E Industrie. Study of the Bavarian Metal and Electrical Industry*. www.baymevbm.de/industrie4.0
- Susskind R., & Susskind, D. (2015). *The future of professions. How technology will transform the work of human experts*. Oxford University Press.
- Tuomi, I. (2018). *The impact of artificial intelligence on learning, teaching, and education*. Publications Office of the European Union.
- UNESCO (2019). *How can artificial intelligence enhance education?* <https://en.unesco.org/news/how-can-artificial-intelligence-enhance-education>
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 64–70.

Biographical notes

Graham Attwell is director of Pontydysgu, a research SME based in Wales and in Valencia Spain. His research interests include developments in the labour market, the uses of technology for knowledge sharing, teaching and training. Currently he is developing a Chatbot for information about jobs and careers for adults.

Dr Ludger Deitmer works as a senior researcher at the University of Bremen, Germany, at the Institute Technology and Education (ITB). His research interest focuses on workplace based learning approaches, in company training and learning approaches, evaluating the quality of apprenticeship, Local and regional governance of VET systems, and enhancing incremental innovation.

Dr Vidmantas Tūtlys is a researcher and professor at the Academy of Education Science of Vytautas Magnus University in Kaunas (Lithuania) and a member of the VETNET – European Research Network of Vocational Education and Training. His research interests include the methodology and policy of the initial vocational education and training, development of

qualifications and their systems, development of continuing vocational training and human resource development. Vidmantas Tūtlys has participated in a range of European research and development projects in the fields of the VET policy, qualifications, VET curriculum design, development of apprenticeship and work-based training, implications of the Industry 4.0 for curriculum design and qualifications.

Sophia Roppertz is a research associate at the University of Bremen, Germany, at the Institute Technology and Education (ITB). Her research work focuses on changing competence developments in maritime economy and adult education as well as on learning with digital media.

Dr **Marco Perini** is a PostDoc at the Department of Human Sciences of the University of Verona, at the Centre for Action Research on Vocational Education and Training (CARVET). His main area of research includes Vocational Education and Training, educational technologies, work-based learning and teacher education.

Benedek, A. (2020). New content development for and by VET teachers. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET) (pp. 43–51). <https://doi.org/10.5281/zenodo.4008077>

New Content Development for and by VET Teachers

Benedek, András

Budapest University of Technology and Economics, Department of Technical Education, benedek.a@eik.bme.hu

Abstract

The study was completed in the last year of a four-year content-development project aiming at new methodological solutions in the renewing content of VET. The concept of content development in online collaborative learning and the presentation of research teacher training features to the VETNET community were continuously implemented between 2016 and 2020. While expanding the possibilities of visual learning in the new learning environment, we sought methodological solutions for collaborative creation of micro-contents (Benedek-Horváth, 2016) in connection with advanced VET didactic concepts. Traditional student-teacher content in the triangle in the new networked learning environment is shaped by educational requirements that are dynamically driven by economic needs. It is during these years that the national VET system undergoes profound changes in its structure and content, in which the professions, their content and the teaching methods used are radically transformed.

Keywords

learning outcomes; micro contents; open content development; vocational teacher training

1 Introduction

As it was presented in the previous VETNET events, the community content development model formed based on vocational teacher training can also be used successfully in curriculum development (Benedek-Molnar, 2016). Adapting community content development solutions can create an online collaborative learning framework (Benedek et al., 2018). Teachers and learners can have a significant potential for joint growth of micro contents related to learning units, and for examples of technological changes closely related to apprenticeship practice — traditional teaching, especially in the info-communication technology (ICT) environment, changes in the case of apprenticeships' frame too (Benedek-Molnar, 2019).

The theoretical background of our research is linked to the didactic features of VET and based on endeavours striving to shape the alternatives of traditional VET curricula in a learning environment determined by modern IT (Colons-Halverson, 2009). Today, in the digital world, there is a need to revisit the content and the methodology of teaching in the apprenticeship scheme. The rapid technological changes in the labour market convert the method and content of vocational education and training (VET) provision. Especially the teachers' innovation skills have a unique position in progressive VET systems, mostly as the duration of online training is much more advanced technology-based than it was before. In this changing process, currently existing progressive elements (e.g. IoT, robotics and artificial intelligence, information technology solutions production and service systems). The new developments as the changes in the digitalisation, alternative energy structure, flexible manufacturing, broad application

biotechnology serve as mechanisms to create a modern continuously changing vocational structure, where the adaptive approaches are increasingly acknowledged, so the training content and methodology of transfer of knowledge became more practice-oriented, interactive and supported complex online solutions.

In the VET content development, the rapidly changing elements also determined by technological and economic aspects, and the dynamics of the changes are challenging to be forecasted. We are ready to manage this kind of innovation within the rigid frameworks of the qualification systems and closed structures. New VET curricula in an ICT learning environment with students' participation means a potential change of content and methodology. The applied ICT solutions (open access to sources and application of Learning Management System (LMS), flexible management of micro-contents) is capable of transcending traditional, school- and work-based teaching.

Our going on action research (2016-2020) a network of 12 VET institutions established (integrated into the project 142 teachers) to indicates the influences of new methodological initiatives. The interactive and collaborative teaching in an online learning environment focused VET's learning units, creating a big set of micro-contents. These micro-contents elements, on the one hand, link to the learning units, on the other hand, represent the technological changing, new solutions, applications from the advanced practice. According to our efforts to develop Open Education Resources (OER) inside the project implemented between 2017-2020, we found that student participation offered high potentials for the innovation on the content and the methodology as well. Especially the impact of mobile ICT devices is related to new phenomena — specific asymmetries developed between learners and teachers in the use of tools, activity frequencies (attention, patience, task concentration).

2 From learning outcomes to the micro contents

Our model, based on the results of several learning content digitalising projects, was able to modify the teaching-learning paradigm presented above. Input factors are the descriptions of the Learning Outcomes describing to the requirements of the European Framework for Education and Training. The output factors can arrange as the content development results elaborated by the teachers/students, which can present in the forms of micro-contents, case studies or practical problem solutions. This new vocational training concepts, from both side – inclusion the youth who are difficulties in the learning process and exclusion the able ones especially in point of view the professional activities - a personalised approach is generally applied. Apprenticeship training has a unique position in progressive educational systems, mostly as the duration of training form realising in work-based at the companies' level.

This paper describes the open-content development model implementation in the practice and summaries the main results and their potential impact for the vocational teacher education in the frame of the university. This study was completed in the last year of a four-year content-development project aiming at new methodological solutions in the renewing content of VET. The concept of content development in online collaborative learning and the presentation of research teacher training features to the VETNET community were continuously implemented between 2016 and 2020.

While expanding the possibilities of visual learning in the new learning environment, we sought methodological solutions for collaborative creation of micro-contents (Benedek-Horváth, 2016) in connection with advanced VET didactic concepts. Traditional student-teacher content in the triangle in the new networked learning environment is shaped by educational requirements that are dynamically driven by economic needs. It is during these years that the national VET system undergoes profound changes in its structure and content, in which the professions, their content and the teaching methods used are radically transformed.

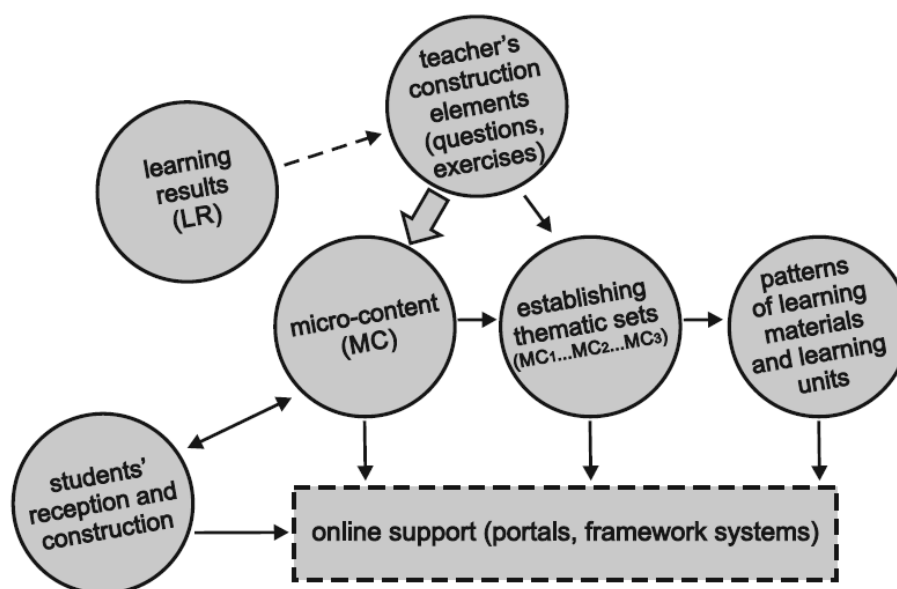
We use the bottom-up approach, the aim of our project was not only to develop competences to innovation to reduce the syllabus in VET and to dynamically modernise the curriculum.

Another essential pedagogical goal, stemming from the nature of the training, was to stimulate the motivation and interactive learning communication of VET students in the school practice environment. To do this, we considered the development of micro-content framing the multi-modality, textual and mathematical presentation of open-ended tasks and questions in teacher-student communication as a methodological task. Recently, in VET content innovation has been determined by digital transformation aspects (Beetham & Sharp, 2013), and the dynamics of change are challenging to be implemented into pedagogical practice. The new content development is under complex transformation; traditional structures by central initiators are no more able to respond to local challenges (Nore, 2015) faced with this, the project-based learning environment is linked to the design process in teacher education through Learning Management System (LMS) services.

In this structure, the study summarises the methodological features of the project and the advantages and disadvantages of the elements of the new methodology package developed in recent years. This background is provided by the technical university vocational teacher training base, which provides the conditions for the operation of the given research group, continuously integrating new solutions in the professional teacher training process. Another significant opportunity was provided by the intensive teacher in-service training program (involving 184 professional teachers to date) has provided an innovation link between the two organisational components. Related to this was the electronic curriculum development portals developed in the framework of the project, which resulted in methodological solutions to be introduced nationwide. Figure 1 shows the main interactions between the components of the open content development system.

Figure 1

Construction interrelations of OCD development (own figure)



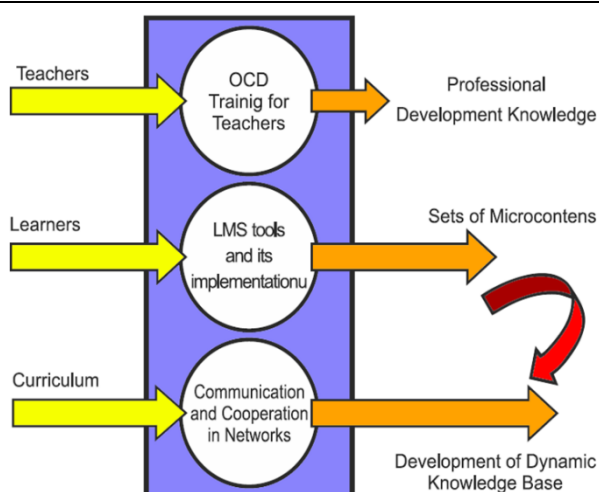
After the first theoretical phase of our research (2016-2018), we started the elaboration of our methodological proposals. After prior professional discussions, the project website (www.oed.bme.hu) support the teachers and students have joined our open content development work into a referential database. We also planned to provide institutional access to the cloud services of the Hungarian Academy of Sciences (HAS). So, the pilot schools have achieved outstanding results in the partner school network, and thus support the storage of and access to the micro-content of the growing amount by up-to-date tools. To improve the students' motivation we also undertook, with the involvement of our PhD students (5), to implement a

methodological development that allowed the preparation of new micro content within the app on mobile ICT tools and smartphones and making the relevant pictures with the camera of the phone. The innovative role of the teachers is well indicated by the fact that as a result of the methodological attitude changing impact of the OCD project, some of the school staff has started their methodological development. Within the renewed framework of the teacher training programs, we included the research results, embedded in a domestic and an international context, into the content of the subjects Education Methodology, System Theory and Digital Pedagogy; we strived to involve the students into the open online and interactive content construction process.

In Hungarian VET, however, in addition to the structural and quantitative deficiencies in learning materials and the qualitative challenges, one of the central motifs of our methodological development aimed at putting content-based development into practice was to enhance students' attention and activity with the help of collaborative and short-cycle feed-backs and the possibility of horizontal communication. Geng Sun's pioneer researches (Sun et al., 2016) drew attention to the fact that in the online environment and parallel with the changes in learning patterns, the development of the learning content is a crucial factor. The potential role of this process, micro-learning, lies primarily in the fact that the transmission of content, i.e., learning paths for the individual, be it the teacher or the student, may assure differentiated and flexible solutions in the task or project-oriented activities.

A critical feature of our development planning for the online environment is the construction of micro-content, which, as an alternative to the traditional vertical educational communication, allows reliable and effective horizontal communication stepping by this out of the narrow frameworks of formal education that are rather regulated in space and time. The creation of content formed within the open online learning environment can be considered as innovation results that possess the essential features of openness precisely in the new ICT environment and owing to the technical tools used here. It differs from the closed system of traditional teaching materials. At the same time, the acquisition of experiential knowledge during the process of content development considerably reduces the risk that the more and more new elements of common knowledge necessarily bear pedagogical challenges, as well.

Figure 2
System of OCD model (own figure)



According to our implementation of the new system (Figure 2), which is mostly applied by the vocational teachers, the educational adoption seems a new systematic innovation in the content development for the VET system. Owing to practical applications, we have already met the opportunities of micro-learning. Still, we do not know a methodology adapted to our learning

environment and especially to the teachers' attitude to sharing our developed content. This learning innovation demands the creation of micro-contents and the establishment of the relevance network between them. With the help of these, the traditional materials can be digitally reproduced on the displays of the mobile devices tailored to the size, and the inter-connections of the learning material can be introduced to the student in a similar way. The knowledge elements can be collected by collaboratively developed content, and by analysing these collections, the contents and structural quality of the whole learning material can be estimated. In the next period of our research, the personal knowledge element collections can be built from the elements of various resources.

3 Methods and practical implementation

We use the bottom-up approach, the aim of our project was not only to develop competences to innovation to reduce the syllabus in VET and to modernise the curriculum dynamically. Another essential pedagogical goal, stemming from the nature of the training, was to stimulate the motivation and interactive learning communication of VET students in the school practice environment. To do this, we considered the development of micro-content framing the multimodality, textual and mathematical presentation of open-ended tasks and questions in teacher-student communication as a methodological task. In this structure, the study summarises the methodological features of the project and the advantages and disadvantages of the elements of the new methodology package developed in recent years. This background is provided by the technical university vocational teacher training base, which provides the conditions for the operation of the given research group, continuously integrating new solutions in the professional teacher training process. Another significant opportunity was provided by the network of 12 vocational training schools, which also tried to apply the new methodological results. An intensive teacher in-service training program (involving 164 professional teachers to date) has provided an innovation link between the two organisational components. Related to this was the electronic curriculum development portals developed in the framework of the project, which resulted in methodological solutions to be introduced nationwide.

The results of our survey have proved our hypothesis according to which one of the possible ways of increasing teacher activity is to offer, besides methodological support in learning the theoretically instant material in the increasingly accessible online learning environment, the possibility to join in the LMS. The new micro-contents, except for their different forms and topics, showed a significant potential for using them in the teachers' preparation for their lectures and practical work with students. Using the new set of micro-contents 2018-20120, we established an archiving system for distributing the result of content development; the next Figure 3 shows three-screen pictures about the teachers' support MP (<https://mikrotartalom.hu/>) portal.

Public thinking about pedagogy in many cases envisions somewhat schematic and archaic educational methods. The open mind identifies engineering sciences as rapidly changing knowledge, that is why sharing innovation practice and the fast adoption of new results in methodological development is essential (Colons-Halverson, 2009). The recognition that the educational process, learning and teaching, had become a more and more open system was a significant precondition of our research. Openness is partly related to a change in the attitudes as well as to the characteristic that has resulted from the spread and wide-range usage of ICT tools: learning can be taken as communication independent in space and time, in which most of the information is not included in closed body texts but series of image and media elements in specific choice algorithms.

Figure 3

Micro-contents developed by vocational teacher students on Micropedia (MP) as a content archiving system/portal (own figure)

Mikropédia
KÖZÖSSÉGI TANANYAGFEJLESZTÉS A SZAKKÉPZÉSBEN
Community Course Development - Create and share your microcontent for easy learning

Címlap Geolokáció µGaleria µTube Jegyzetek Archívum Címkeár Impresszum

Közösségi tananyagfejlesztés és megosztás
A közzétett mikro-tartalmak számának a növekedésével a *Mikropédia* egy enciklopédikusan szervezett, nyitott tananyag bázisként a szaktanárok által is fontosnak és korszerűnek tartott ismeretanyaggal láthatja el a szakképzés szereplőit. Ez a kíváncsok a 4. ipari forradalom gyorsan változó technológiai környezetében

Eszközök
[Egyszerűsített feltöltési útmutató](#)
[Részletes feltöltési útmutató](#)
[A jó mikro-tartalom 10+1 pontja](#)

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Ágazatok - szakmacsoportok

Zero Waste (hulladékmentes) mozgalom - Felelős fogyasztás
Tantárgy: környezeti nevelés

Feltöltve: 2020. április 15., szerda - 08:42

Hulladékmentes életmódra törekvés: Zero Waste

Ungvári Magdolna
BME Mémoriális hallgató

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

+1 Repair

Refuse, Reduce, Reuse, Rot, Recycle

Képek: pixabay.com, pinterest.com

Csatolmány	Méret
Zero Waste (hulladékmentes) mozgalom - Felelős fogyasztás	1.6 MB

We had a connecting recognition: after the millenary, collaborative learning environment supported with computers could create new conceptual frameworks for developing and transmitting content in VET, as well. The analysis of this process has become a dominant research trend only during the latest decade. Examining the theoretical background, Hod and Sagy (Hod-Sagy, 2019) referred to important empiric researches, as well, and warned that the new educational environment differing from traditional ones, requires new methodological approaches. These researches drew the attention to the fact that it was essential to understand the

role of personally tailored methods and student activities and the creation of a motivational system connecting to these, which network environment offers excellent opportunities for.

In terms of the opportunities offered by the new environmental impacts, several types of research examine primarily the pupils/students' experiences relating to the virtual/online learning environment (Hamutoglu et al., 2019). The analyses aimed at the exploration of students' content and learning preferences drew the attention to the fact that in an ICT environment extreme interest appeared in content constructions in terms of which knowledge could be implemented in the virtual learning environment, using new content constructions. These detections were in line with our activities during the initial phase of our researches when we intensively examined the attitudes of both teachers and pupils/students partly in terms of the new learning environment and partly in terms of active participation in open content development.

Our previous researches were targeted at the digitalisation of teaching materials and the possibilities of their use in an online teaching-learning environment as topics that may open up enormous perspectives in the future. The pandemic, having evolved during the spring of 2020, put these ideas leaning back to a decade ago into use in the practical educational fields (remote teaching) at a more rapid pace than expected. It is also a reason why the model construction researches of Sun (Sun et al., 2020) and his peers that have become known during the latest years and examined the application of open education resources (OER) as learning content units in adaptive micro-learning situations are so valuable.

Acquiring the methodology of online content development in general when we speak of open content development, and it allows local innovation within the frames of a complex regulatory environment, searching answers to the very same practical questions that teachers in the everyday practice of VET try to find answers to. For this methodology, teachers' and students' activity is a clue issue, and it supports its development in the online teaching and learning environment using various forms of content development aimed at the learning units and at creating and using micro-content during the teaching process.

4 Conclusion

According to our implementation of the new method, which is mostly applied by the vocational teachers, educational adoption seems a new systematic innovation in the content development for the VET system. The knowledge elements can be collected by collaboratively developed content, and by analysing these collections, the contents and structural quality of the whole learning material can be estimated. The next period of our research, the personal knowledge element collections can be built from the elements of various resources. Summing up the recent results, we can state:

- Our basic idea was to provide a practical tool for new, medium-term research and implement the OCD model into the VET practice. In the process of applying the new platform and methods, designing online learning content element for the more comprehensive implementation, we implemented a *new online content developing a platform for teachers and students*.
- By this concept was *formulating active student's contribution* as participation in the network and access to information as well as to the software packages that we're able to interpret data, images and relations in various contexts, promoting cooperating and self-organised learning. This concept, forwards innovative teachers' and student's contribution, encouraged the innovation of the new VET content.
- Owing to practical applications, we have already *demonstrated the opportunities of micro-learning*. This learning innovation demands the creation of micro-contents and the establishment of the relevance network between them. With the help of these, the traditional materials can be digitally reproduced on the displays of the mobile devices tailored

to the size, and the inter-connections of the learning material can be introduced to the student in a similar way.

- The result of these activities integrated an original innovation model of OCD to establish a real *open learning environment where the content development is stimulated by an informal community network*. The MP platform allows and demonstrates active teachers' and students' participation in the content development and sharing network and access to the micro-learning content packages that help to VET learning processes in various contexts. By this platform as a case of learning innovation, we succeeded to open the process of content development and make it possible for teachers and students to share new knowledge by collaborative work.

It is impossible not to mention the limits. However, the research and development work done during the latest four years and the deep and complicated process of change going on in the Hungarian VET system urges our research group to provide a detailed professional picture of our researches done in terms of VET content development. Finally, an aspect related to the epidemic was included during the finalisation of this manuscript the beginning of summer 2020. The radical change is going on in the teaching and learning methods that exert a profound impact on the traditions of education and teaching forced open system learning and content development and transmission to implement forms of methodological innovation worldwide. In this process, our previous experiences and methodological results may serve as references in terms of the possibilities and the difficulties, as well.

References

- Benedek, A. (2019). Digital transformation in collaborative content development. In M. Auer & T. Tsiatsos (Eds.), *The challenges of the digital transformation in education. Proceedings of the 21st International Conference on Interactive Collaborative Learning (ICL2018)* (pp. 58–67). Springer. DOI 10.1007/978-3-030-11932-4
- Benedek, A., Molnár G. (2019). New methodical approach to the VET teachers' training. In B. E. Stalder, & C. Nägele (Eds.), *Trends in vocational education and training research, Vol. II. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* Hamburg, Vocational Education and Training Network (pp. 68–76). <https://doi.org/10.5281/zenodo.3371432>
- Benedek, A., Dobozy, G., Orosz, B. (2018). Open learning resource structures in the activation of vet learners, In C. Nägele, & B. E. Stalder (Eds.), *Trends in Vocational Education and Training Research. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network* (pp. 70–79). <http://doi.org/10.5281/zenodo.1319718>
- Benedek, A., Horváth C. J. (2016). New methods in the digital learning environment: Micro contents and visual case studies, In A. T. Moreira, A. Szűcs, & I. Mázár (Eds.), *Re-imaging learning environments: Proceedings of the European Distance and E-Learning Network (EDEN)* (pp. 27–34). ISBN 978-615-5511-10-3
- Benedek, A., Molnár G. (2016). New Content management in VET. In C. Nägele & B. E. Stalder (Eds.), *Proceedings of the ECER VETNET Conference 2016: European Conference on Educational Research*.
- Beetham, H., & Sharpe, R. (Eds.) (2013). *Rethinking pedagogy for a digital age: Designing for 21st-century learning* (2nd edition). Routledge.
- Colons, A., & Halverson, R. (2009). *Rethinking education in the age of technology*. Teacher College Pres.
- Nore, H. (2015). Re-contextualizing vocational didactics in Norwegian Vocational Education and Training. *International Journal for Research in Vocational Education and Training*, 2(3), 182–194, <https://doi.org/10.13152/IJRVET.2.3.4>
- Ure, O. J. (2015). Governance for learning outcomes in European policy making: Qualification frameworks pushed through the open method of coordination. *International Journal for Research in Vocational Education and Training*, 2(4), 268–283. <https://doi.org/10.13152/IJRVET.2.4.2>

- Hamutoglu N. B. et al. (2020). Evaluating students' experiences using a virtual learning environment: satisfaction and preferences. *Education Technology Research Development*, 68, 437–462. <https://doi.org/10.1007/s11423-019-09705-z>
- Hod, Y., & Sagy, O. (2019). Conceptualizing the designs of authentic computer-supported collaborative learning environments in schools. *International Journal Computer-Supported Collaborative Learning*, 14, 143–164. <https://doi.org/10.1007/s11412-019-09300-7>
- Sun, G., Cui. T., Beydoun, G., Shen. J., & Chen, S. (2016). Profiling and supporting adaptive micro learning on open education resources. Proceedings of the 2016 *International Conference on Advanced Cloud and Big Data* (CBD), Chengdu (pp. 158–163). <https://doi.org/10.1109/CBD.2016.037>.
- Sun, G., Shen, J., & Lin J. (2020). *Adaptive micro learning - using fragmented time to learn (intelligent information systems)*. World Scientific Pub Co Inc.

Biographical notes

Dr **András Benedek**, Professor, Department of Technical Education, Budapest University of Technology and Economics (BME). During the 1980s, he was a scientific advisor to the Hungarian Academy of Sciences (MTA). He was the Director of Vocational Training (from 1984 to 1989), then Director General (1989-1990) at the National Pedagogical Institute. As its first Director-General in 1990, he established the National Institute for Vocational Education. He was involved in numerous UNESCO and ILO projects and participated in the preparation of various EU projects in the area of human resource development. Currently, he leads the Open Content Development Research Group of the Hungarian Academy of Sciences.

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“Learning by Doing” in Production Schools, Another Model of Initial Vocational Education and Training?

Bernard, Pierre-Yves

University of Nantes, pierre-yves.bernard@univ-nantes.fr

David, Pauline

University of Nantes, pauline.david@univ-nantes.fr

Jacob, Céline

University of Nantes, celine.jacob@univ-nantes.fr

Abstract

In France, initial vocational education and training is mainly carried out by vocational high schools, and more rarely by apprenticeship. It plays an essential part in qualifying young people coming from disadvantaged backgrounds. However, it faces a lot of difficulties: low social recognition, high dropout rate, frequent gaps between training and jobs and high unemployment in some specialties at the entering of labour market. A new network of schools, the production schools, brings a renewed approach and bases its pedagogical model on a production situation for customers, summed up by the formula "learning by doing". This paper summarises a qualitative survey led in five production schools. Main results show that students in trouble with the mainstream school system regain a positive relationship towards training, through the responsibility and recognition. But the study shows specific issues met by the production schools, especially the difficulty to find balance between production and training.

Keywords

production school; early school leaving; school form

1 Introduction

Initial vocational education and training (IVET) plays an essential part in qualifying people. Depending on the country, there is a huge diversity of vocational pathways, from informal apprenticeship to training inside schools. The French IVET model is mainly influenced by the general route of school. In most European countries, it is often seen as a relegation pathway for losers of the academic competition (Wolf, 2011; Palheta, 2012; Cedefop, 2014). Students in IVET are mainly young people who have not found their place in general education. The professional track is supposed to prepare direct access to trades. Nevertheless, it encounters a lot of challenges: low social recognition, high dropout rate, and frequent gaps between training and jobs and high unemployment in some specialties at the entering of labour market (Billett, 2014; Cedefop, 2018).

In France, the production schools ‘network offers an alternative to the main vocational institutions. This network presents itself in opposition to these institutions far from school, and closest to the world of work. We propose an analysis of this training model with the notion of

school form drawn from the work of Guy Vincent (1994). What does the production schools tell us about the *school form*, dominant in the vocational education in France (Pelpel & Troger, 2001; Prost, 2004)? Is it a solution to reconnect disadvantaged young people to learning and social inclusion?

In order to answer these questions, we will first locate PS in the context of initial vocational education and training in France. In a second step, we will present a survey of five PS in two different regions. A third part, devoted to the results of this survey, shows a main break with the *school form* by designing the school as a small firm that produces for a market. But our study reveals that this model remains at the margins of the French IVET which is deeply structured by the *school form*.

2 Theoretical framework

2.1 Vocational education: a poorly valued educational sector

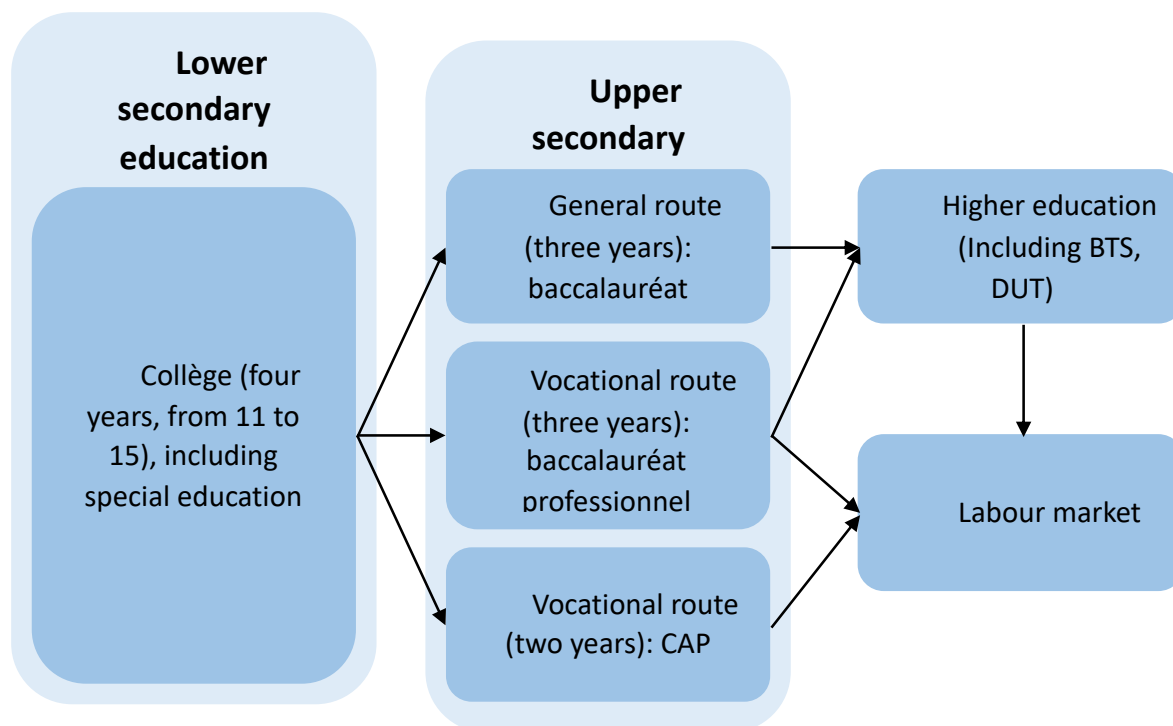
IVET is a specific sector of secondary education in France, with vocational high schools and apprenticeship training centres. It prepares to national diplomas, widely recognized within the framework of collective bargaining agreements. As such, it occupies a central place in access to the qualification at the level ISCED3¹ (*CAP* and *baccalauréat*²). For a minority of its students, it opens up the opportunity of pursuing higher education, and thereby achieving higher levels of qualification (*Brevet de technicien supérieur* for example, which is a certificate for a two year higher education course in a technological subject). Apart from these latter cases, those are the skill levels corresponding to the occupations of employees and workers, that is to say the subordinate positions in the social relations of production, see Figure 1.

This is one of the sources of the low value of the vocational sector in the education system, unlike the general track allowing to enter higher education. This relative devaluation is not specific to France. The very fact that international organizations advocate for an "esteem parity" between general education and vocational training indicates a fairly widespread hierarchy of training courses in secondary education all over the world (Cedefop, 2014). As a result, the vocational sector is often devoted to students with academic difficulties, particularly through orientation processes (Landrier & Nakhili, 2010). This function is a sign of the low social value of vocational education in France, compared to other countries such as Germany (Powell, Bernhardt & Graf, 2012).

Students in vocational education are more likely to experience academic difficulties. They have frequently repeated a class when they begin vocational training: 75% of students entering the first year of *CAP* have repeated at least one year, against 11% of students entering the first class of the general pathway (DEPP, 2018). The scores obtained during the PISA assessments place students in IVET very much below other students (Bret, et al., 2016).

¹ Completed secondary education according to the International Standard Classification of Education

² Cf. Diagram

Figure 1*Secondary education in the French school system*

2.2 Relationship to knowledge and school form

According to the point of view of students attending vocational pathways, their relationship to knowledge is more often directed towards a utilitarian conception of learning, or even a misunderstanding of the meaning of school knowledge (Charlot, Bautier & Rochex, 1992). They depreciate academic knowledge, judged to be too abstract and of no immediate use, in favour of different forms of promotion of "practice", considered as the unique source of legitimate knowledge acquisition (Jellab, 2008). In a way, we can say that students interpret their difficulties in terms of relationships with the school institution as such: they generally develop a very negative view, first of all about the classroom through the theme of confinement, secondly about school time through the theme of boredom during class, and finally about the pedagogical relationship often described in terms of passivity ("listen to the teacher", "sit still").

This question of the relationship to the institution can be enlightened by the concept of *school form*, as it was developed by Guy Vincent (1994). According to this model, three dimensions are characteristics of the school form: a school space separated from the social world, a specific temporality not only at the level of the life cycle (the time of studies), but also of the year (the school year) and of the week (the timetable), and finally an educational relationship based on a conception of abstract knowledge divided into disciplines (Robert, 2013).

The notion of "school form" has different designations, such as "school model" (Nóvoa, 2006) or "grammar of schooling" (Tiack, & Tobin, 1994). The definition of the last one is quite close to Vincent's definition of "school form":

By the "grammar" of schooling we mean the regular structures and rules that organize the work of instruction. Here we have in mind, for example, standardized organizational practices in dividing time and space, classifying students and allocating them to classrooms, and splintering knowledge into "subjects". (Tiack & Tobin, 1994, p.454)

Other authors, as Perrenoud, underline uniformity and stability of the space and time organization of the school work (2001). This stability seems to rely on the capacity to be an integrative matrix:

If the grammar school is also a product of history, it appears – once established – as little modifiable in its ways of organising teaching; when a new form of instruction is introduced, for example business education, it is in the form of assimilation-integration into the dominant matrix, not a material change thereof. (Robert, 2013, p. 191)

While these characteristics are highly congruent with an academic conception of the purposes of school, it is difficult to use them for institutionalized forms of vocational training, due to the fact that vocational training and education is explicitly oriented towards an aim which is external to the sphere of education that is the labour market.

As comparative research has shown, some IVET systems are deeply institutionalized on the principle of tightening very strongly education, training and work very strongly, especially in Germany. In other contexts, initial vocational training is weakly institutionalized, as in Anglo-Saxon countries (Powell et al., 2012; Verdier, 2013). In France, the academic school model is so influent in society that it has produced a strong impact on the IVET along history (Troger et al., 2016). This has resulted in a vocational sector largely dominated by the school pathway where professional training is provided mainly in the school. In this model, the pathway of apprenticeship is little developed, little valued socially and reserved for the most "traditional" trades (baker, hairdresser, etc.).

2.3 A newcomer in the vocational training landscape: the production schools

It is in this context that PS appear in the landscape of initial vocational training. In fact their presence is old: called *apprenticeship workshops*, they appear in the late nineteenth century in the region of Lyon (Seeley, 1992) in the stream of social Catholicism. They have persisted in the margins of the system of initial vocational training system led by the state, as part of the very diversified training schools with a private status. But this presence of PS remained for a long time confined to the Lyon region, cradle of this training model. Since the 2000s, the network has developed outside this region. Organised in a national Federation, it is seeking visibility and institutional recognition, with some success. For example, in the region of the Pays de la Loire, five establishments have been created since 2017, and the PS officially became actors of the vocational training system through their recognition in the 2018 law.

The principles of PS constitute an original response to the issues of the French IVET:

- against the school / society separation characteristic of the school form, the PS offers a counter-model not only as a place of market production, but also as an establishment embedded in a local economic fabric, in particular by choosing to train on jobs with many vacancies;
- on the issue of knowledge, the emphasis of the PS is explicitly placed on the practical knowledge, in situation, but also on the culture of the trade;
- the pedagogical relation is clearly based on the old conception of apprenticeship, especially through the model of the trainer, called professional master (*maître professionnel* – PM in the following text), both professional model and incarnated figure of a trade culture.

These principles have to be questioned in relation to their actual implementation. In particular, they do not tell us much about the students who are enrolled. But the PS are positioned as actors in the fight against early school leaving, and host students deemed “difficult”.

3 Methods

3.1 An ethno-sociology approach

A preliminary survey was carried out among 3 PS directors and 2 FNEP officials. We chose to carry out 5 monographs on schools in 2 different regions and covering a varied range of training specialities: in industry, landscaping, construction, automotive, electricity and the catering sector.

Semi-directive interviews were conducted with PS directors, with master professionals (MPs in the rest of the text), with trainers of general subjects and with young people, i.e. a total of 37 interviews. They focused on discovering pedagogical practices and characterizing the inter-individual relations between internal (young people, trainers) and external (parents, educators, clients, partners) actors. Questions relating to the history and administration of the school were explored in depth with the directors of the schools. They were supplemented by interviews with pupils in order to study the relationship of young people towards training and PS.

The conceptions resulting from the speeches are compared with the observations made during immersions, which lasted 3 to 4 days in each school: sequences of theoretical and technological courses, production situations, more informal situations in the school premises during breaks. These observations are carried out by a researcher, not taking part in the action, and recorded in support of an observation grid. Attention was more particularly focused on the interactions between the PM/trainers and the pupils (regulation of the activity, incidents, supports and teaching methods).

3.2 Production schools

Production schools involved in this study present a variety of situations, due to their specialization, the locality and the relevant stakeholders. This heterogeneity induces specific characteristics to each school but makes it possible to highlight the analogies that characterize the "production schools" model. Two types of structures are distinguished: independent schools and integrated schools. The former operates under associative status and are generally old, while the latter, more recent, are integrated into institutions (private educational institutions).

*Bégonia*³. At the origin of this school, was an "apprenticeship workshop" created by a priest in 1882. Located in the south-east of France, this structure operates independently with an executive board composed of former students and business leaders. With more than 15 training courses in 3 different fields, Bégonia is the largest production school. Vocational diplomas are offered in industry (mechanics and machining), construction (carpentry and metalworking) and the automotive industry (mechanics and bodywork). Additional training is integrated into the school, like a preparatory class for vocational training and training in cabinet-making as part of lifelong learning. On average, the establishment welcomes 130 young people throughout the year, supervised by some forty employees, including 30 professional masters.

Géranium. In the same way as Bégonia school and in line with the demand for labour from companies in an industrial district in a city of the south-east of France, Géranium was created in 1950. The school, which is independent, aims to provide professional training on industrial production equipment. Three diplomas are offered: the *CAP* for production plant operators, the vocational baccalaureate for machining technicians and the *CQP*⁴ for operator-adjusters on numerically controlled machine tools. The school welcomes about forty students who produce alongside five professional masters (four of whom are former students of the school). Over the years, Géranium has established itself in the area. More than 150 companies of all sizes bring it orders with a wide variety of works in their destination: chemicals, jewellery, food, automotive, construction, etc.

³ Names have been changed to preserve the school anonymity.

⁴ Professional Qualification Certificate

Azalée. The Azalée School restaurant is located in the centre of a wholesale market. With the aim of reducing school drop-out rates, the school opened its doors in 2016. The structure is affiliated to a psycho-education association but remains independent. The structure also has a Food Truck and a cafeteria in two other private schools. Two training courses are offered: a *CAP* in cookery and a *CAP* in service and marketing in hotels and restaurants. A workshop manager supervises five professional masters in the practical training of about twenty young people. Theoretical teaching is provided by 8 different trainers. Among these trainers are the director of Azalée and the president of the national association (who teaches philosophy courses).

Eucalyptus. The first production school in Western France opened in 2013. Eucalyptus belongs to a private agricultural institution of the same name, which includes seven training sites within the same region. The school offers young people the opportunity to take a professional qualification and/or a *CAP* (since 2018) in one of the following trades: landscape gardener or building maintenance agent. The school's only client is the structure on which it is based. The educational team consists of three professional masters (two in landscaping, one in building) and two trainers in "transversal skills" who supervise between 25 and 30 young people. The establishment of the school in a school group requires a specific organization. Thus, classes are not given on Wednesday afternoons (no school bus) and young people have all the school holidays (closed buildings).

Iris. In a large Western city, the Iris engineering school has included a production school since 2017. Integrated into Iris's vocational training centre, the school offers a single diploma, a *CAP* for the preparation and construction of electrical works. About fifteen young people are divided between the first and second years. Production is mainly carried out in the workshop with a workshop manager and two professional masters. Membership of the engineering school is promoted with outfits and toolboxes stamped "Iris". Core subject teachers are part-time employees or volunteers (as in previous schools). Finally, an educational coordinator is present in the premises to strengthen the link between the young people, the workshop, the parents and the Iris group.

4 Results

The school form has widely affected the vocational education and training system in France. The production schools' managers present their training model as a break with this school form. What does our study reveal about this?

In some aspects, the production schools actually represent a break. Professionalization through production activity favours a "trade logic", conditioned by the investment of the economic stakeholders. Therefore, the pedagogical relationship changes deeply compared to the school form. The young people we met in the production schools testify this change. They describe the learning activity in contrast to what they have lived at school: "[in middle school] it was always about the course, the course. [Here in a production school] we're already working. Finally, we do something with our hands" says Thibault. The difference between high school and production school is based on a change in physical posture: "It allowed me to evacuate a little rather than just sit in a chair. It was being able to let off steam, we'll say, it felt good to work." (Luke).

In addition, validation is no longer only carried out through professorial judgment, but is based on other external judgments, in particular from customers, suppliers or other professionals. This external validation is legitimized by the young interviewees:

There is no headache. We're with the customers. It's not like we're in a high school where it's the teachers and all. There, people are... Sometimes there are customers who are a little upset and some others say: 'Okay, this is your first year, I understand.' I like it. (Kevin)

This customer feedback shows the usefulness of the work done: "Customers are proud of us too. The smiles of customers are useful for the school" (Morgane). The client plays a dual role. On the one hand, he provides an external judgment that reinforces the trainer's educational and professional judgment. On the other hand, he values the performance of the establishment, and consequently, the added value provided by the production made by the young people: "[it is useful] for us because we learn and for [the school] because we do the production" (Raphael).

This model enhances the value of VET for its young people by distancing it from the school system. They mention in particular the dimensions of accessibility, listening and appreciate a new consideration. "I feel very valued," reports Doha. "They're nice to us. They're here to the end. They're coming with us. Compared to secondary school teachers, it's really better," Morgane adds.

This proximity requires an evolution of relational codes in regards to the school world: "teachers are familiar to them" (Theo), "we get along well with them. It's like they're colleagues. We have to respect them a little bit, that makes sense. But it's a bit like colleagues. We call them by their first names." (Ahmed). This proximity is not simply a rapprochement between two levels of a vertical relationship. It is described as the manifestation of a new organizational form for these young people: the collective of workers. "The difference in a secondary school and here is that you are a class and here we are a team" (Peter). The team refers to the group of peers, those with whom the work is done.

So, the main visible break with school form seems to be pedagogical. Production schools provide a training model based on practice and the collective, unlike the school traditional school model based on abstract knowledge and individual evaluation. About the time characteristic of the *school form*, the schedule of PS's activities is based on the customers' demands and not on completion date of the school timetable. In addition, the framework welcomes the school activities: the room of production is the room of learning. This can be considered as a result of a more structural (or organisational) break: the school production inclusion into a local economic web that insures outlets for the school products or services, in opposition with the model of the closed school, impervious to external influences.

However, this strength can turn into a weakness. To understand it, it is necessary to consider the diversity of the local implementations of production schools. One crucial point is the existence of a market for school products, and therefore the real possibility of basing the training model on a production intended for customers. This is the theoretical model of the production schools, but not all of them manage to realize it fully. Of the 5 establishment monographs, these are the oldest schools which have succeeded in making this "do-to-learn" model a reality, as well as a recent school based on a restaurant. But in other cases, the practice can be quite far from the model. For example, one of the production school of the survey offers training for landscaping, by landscaping activities *inside* the school group to which the production school is affiliated. We had the opportunity to watch other drifts of the model, as metalworking workshops where products of the students were thrown on scrapheap, because of a lack of customers. We also watched a certain permanence of the *school form* in the vocational teaching. For instance, we observed a cook trainer giving a vocational course about seafood in the restaurant's room. Young people were lined up in front of the trainer and its slide show.

The production school model is very dependent on the local resources, but also to their managers and trainers. The position of these staff members as economic stakeholders, trainers and sometimes even caseworkers, requires a militant commitment, particularly through the defence of the working group. Indeed, these structures are very dependent on the personal qualities of teachers and headmasters. Real-time production built a contextualized relation to knowledge (Jellab, 2008). The process of acquaintanceship within the school between teachers and students, as well as externally with clients and suppliers, constitutes for the school the conditions for financial stability, practical training of young people and of their integration into the

territory. The difficulty of having all these conditions makes the balance of the model very precarious.

Another limitation of the model lies in the public targeted. The PS are positioned as actors in the fight against early school leaving, and host students deemed "difficult". To date, there is no comprehensive statistical study of the public in French PS. However, the survey work on which this study is based made it possible to send a questionnaire to 234 students received by these institutions in September 2018. 93% are boys, in very predominantly industrial sectors (84% of the sample). On the school level they have often repeated a class, often come from specific tracks of the middle school (special education and pre-professional training: 27%). They often come from a working-class background. The qualitative survey also shows a large number of students with specific profiles (unaccompanied foreign minors, people with disabilities, educational follow-ups, etc.). PS often host students who previously have dropped out of school. In the interviews, they express a strong rejection of the classical school form: "I said to myself I prefer to work, to be in the manual trade rather than sitting in class, listening ... I feel better here." (*CAP* 1st year). Can we consider the PS as a pedagogical form transposable in the educational system, or is it simply a device for hosting students in great difficulty, definitely restive to any school form? Moreover, it seems that they constitute one of the many mechanisms welcoming part of the flow of pupils on the periphery of a system largely dominated by the school model, and ultimately, they ensure a certain stability to it.

A last point shows that production schools can paradoxically contribute to the maintain of school form. It is the constant efforts of the national officials of the production school federation to recognise the production schools as part of the French education system. This implies the acceptance of a set of rules concerning the programs and more particularly the certifications. The production school is above all a way which leads to a qualification. It's "a training to get a diploma at the end [...] it's to put on my CV. Yes, to say that at least we have a diploma" (Au-rélien). It was the "emergency exit" (Philippe) for those who did not find an apprenticeship place, in order to avoid "dropping out of school" (Guillaume). Most interviewees indicate a desire not only to obtain the *CAP*, but also to pursue studies towards the higher diploma (vocational baccalaureate) or via a post-secondary certificate. The projection in the continuation of the study is based on the perspective of work/study program, in a more conventional school system.

5 Conclusion

The production school model of training is characterized by a pedagogical approach based on a "trade logic". Acting as a small firm, all stakeholders of the school have to be part of the producing process: students have to produce to learn and represent the school/company before customers, trainers also produce, etc. The production schools model of training represent a break with the traditional school form of the French school system. Its pedagogical-based perspective is collective and practical, it tries to avoid abstract knowledge and individual evaluation. Nevertheless, this "break" with the dominant matrix of the school form is still limited at the institutional level. The production schools' network tries to be recognised by the VET national institution and partially adapt the training with the view to enable students to take the national exams. At this time, most of the production schools are not able to offer a training beyond the lowest French VET diploma. Most of their students are looking for a job or pursue studies in more traditional tracks of apprenticeship. Finally, even if this model succeeds in moving away from the daily routine of the "school form", it is caught up again by the institutional and social environment.

References

- Billett, S. (2014). The standing of vocational education: Sources of its societal esteem and implications for its enactment. *Journal of Vocational Education & Training*, 66(1), 1-21. <https://doi.org/10.1080/13636820.2013.867525>
- Bret, A., Keskpaik, S., Roussel, L., & Verlet, I. (2016). Les élèves de 15 ans en France selon PISA 2015 en culture scientifique: des résultats stables, toujours marqués par de fortes inégalités. *Note d'information (Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, Direction de l'évaluation, de la prospective et de la performance)*, 37.
- Cedefop. (2018). The changing nature and role of vocational education and training in Europe. Volume 3: the responsiveness of European VET systems to external change (1995-2015). *Research paper*, 67. <http://data.europa.eu/doi/10.2801/621137>
- Cedefop. (2014). Attractiveness of initial vocational education and training: Identifying what matters. *Research papers*, 39. <http://data.europa.eu/doi/10.2801/74821>
- Charlot, B., Bautier, E., & Rochex, J.-Y. (1992). *École et savoir dans les banlieues et ailleurs*. Armand Colin.
- DEPP (2018). *Repères et références statistiques*. Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, Direction de l'évaluation, de la prospective et de la performance.
- Jellab, A. (2008). *Sociologie de l'enseignement professionnel*. Presses Universitaires du Mirail.
- Landrier, S., & Nakhili, N. (2010). Comment l'orientation contribue aux inégalités de parcours scolaires en France. *Formation Emploi*, 109, 23-26.
- Nóvoa, A. (2006) *La construction du modèle scolaire' dans l'Europe du Sud-Ouest (Espagne, France, Portugal). Des années 1860 aux années 1920*. Doctoral thesis, Sorbonne, Paris.
- Palheta, U. (2012). *La domination scolaire. Sociologie de l'enseignement professionnel et de son public*. Presse Universitaire de France.
- Pelpel, P., & Troger, V. (2001). *Histoire de l'enseignement technique*. L'Harmattan.
- Perrenoud, P. (2001, novembre 28). Espaces-temps de formation et organisation du travail. *Repenser les espaces éducatifs*, Lisbonne.
- Powell, J.-W., Bernhardt, N., & Graf, L. (2012). The emergent European model in skill formation: Comparing higher education and vocational training in the Bologna and Copenhagen Processes. *Sociology of Education*, 85(3), 240-258. <https://doi.org/10.1177/0038040711427313>
- Prost, A. (2004). *Histoire générale de l'enseignement et de l'éducation en France, tome IV : l'École et la famille dans la société en mutation. Depuis 1930*. Perrin.
- Robert, A. D. (2013). The French school system and the universalist metanarrative (1880-2000's): Some reflections about so-called explanatory historical notions such as 'La Forme Scolaire'. *European Educational Research Journal*, 12(2), 190-200. <https://doi.org/10.2304/eeerj.2013.12.2.190>
- Seeley, P. (1992). Catholics and apprentices: An example of men's philanthropy in late nineteenth-century France. *Journal of Social History*, 25(3), 531-545. <https://doi.org/10.1353/jsh/25.3.531>
- Troger, V., Bernard, P.-Y., & Masy, J. (2016). *Le baccalauréat professionnel: impasse ou nouvelle chance ? Les lycées professionnels à l'épreuve des politiques éducatives*. Presse Universitaire de France.
- Tyack, D., & Tobin, W. (1994). The "grammar" of schooling: Why has it been so hard to change? *American Educational Research Journal*, 31(3), 453-479. <https://doi.org/10.3102/00028312031003453>
- Verdier E. (2013). Lifelong learning regimes versus vocational education and training systems in Europe: The growing hybridisation of national models. In J. G. Janmaat, M. Duru-Bellat, A. Green, & P. Méhaut (Eds.), *The dynamics and social outcomes of education systems. Education, economy and society*. Palgrave Macmillan.
- Vincent, G. (1994). *L'éducation prisonnière de la forme scolaire? Scolarisation et socialisation dans les sociétés industrielles*. Presses Universitaires de Lyon.
- Wolf, A. (2011). *Review of vocational education: The Wolf report*.

Biographical notes

Pierre-Yves Bernard, is associate professor at the University of Nantes, and a researcher at the Center of Research in Education of Nantes. His work focuses school-to-work transition and

educational policies, and more particularly the reforms of vocational education and training, and the policies tackling early school leaving.

Pauline David, after a master degree in sciences of education, she worked for one year as a French teacher in vocational high school and for two years as a research officer at the Center of Research in Education of Nantes (University of Nantes - France). She was involved in two research programmes about the French intensive foundation degree and about the production schools. She is currently carrying out a PhD research on vocational education and training and she is comparing three models of VET in France (vocational high school, apprenticeship centre and production school), in order to enlighten the concept of “school form” (i.e. specific school configuration) in the VET context.

Céline Jacob, after a bachelor's degree in psychology, she obtained a master's degree in education by working on school drop-out. She then worked as a research fellow at the Center of Research in Education of Nantes (University of Nantes-France). In particular, she participated in a quantitative study on the devaluation of secondary school teachers. Recently, she has worked on two research programs as a research engineer, one on production schools and the other on the academic form of vocational training.

Cagney, A. G., O'Mahony, A., Cordie, L. M., Buckley, M., O'Neill, C., Cagney, K., O'Toole, M., Yelverton-Halpin, C., & Hearne, R. (2020). Developing an educational digital mindset: voices from an inter-disciplinary community of practice. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 62–78). <https://doi.org/10.5281/zenodo.4008068>

Developing an Educational Digital Mindset: Voices from an Inter-disciplinary Community of Practice

Cagney, Anne Graham

Waterford Institute of Technology, agraham@wit.ie

O'Mahony, Anne

Cork Education Training Board, anne.omahony@corketb.ie

Cordie, Leslie

Auburn University, lesliecordie@auburn.edu

Cagney, Kieran

National College of Ireland, kieran.cagney@gmail.com

Buckley, Mary

National College of Ireland, mbuckley@ncirl.ie

O'Neill, Conor

Waterford Institute of Technology, cponeill@wit.ie

O'Toole, Michael

Waterford Institute of Technology, motoole@wit.ie

Yelverton-Halpin, Carol

Waterford Institute of Technology, cylverton-halpin@wit.ie

Hearne, Rose

Waterford Institute of Technology, rhearne@wit.ie

Abstract

Further, Adult and Vocational Education (FAVE) is changing - in the need for new pedagogical responses to digitalization as well as programmes designed to help students acquire the knowledge, skills and experience necessary to prepare them for digitalization and the digital world. It is increasingly clear that FAVE teachers must develop new and different skills and perspectives. Programmes worldwide are responding with innovative models of education and embracing fundamentally different ideas of educational digital pedagogy and curriculum. Yet evidence that these 'new' responses are effective is limited and we need additional research to understand the experience and the impact of these models on FAVE teachers. This paper shares the findings from an online questionnaire (Phase 1) of a study of FAVE teachers' evolving professional identity to become critically reflective digital practitioners. The genesis of this study was pre-COVID but is all the more relevant and pressing now as digital technologies have transformed lives, jobs and organisations.

Keywords

digital mindset; identity self-states; habits of mind; perspective transformation; further, adult, vocational education (FAVE)

1 Introduction

Digitalization and new digital lives are identified as some of the most pressing concerns facing our society today. Ubiquitous (Jing, Conway, & Yong Zhao, 2008) and invasive (Turkle, 2017) the digital world has changed forever the way we live, work and how we should educate. Evolving social and industry practices, standards and expectations make it increasingly clear that further, adult and vocational education (FAVE) teachers must develop new and different skills and perspectives in order to engage in and support flexible responses to these societal changes.

Programmes worldwide are responding to changed and changing contexts with new and innovative models of education and training. Key features of the challenges facing the sector include the need to provide high quality teaching and training, interdisciplinarity, partnerships with communities and industry, and a mentality of innovation and enterprise including social enterprise. FAVE teachers are now required to be individuals with the interdisciplinary skills, qualities and dispositions to work within these sectors in an increasingly complex and digital world. This requires competences that include a breadth of knowledge about ICT, internet, media, information and digital literacy.

Digital technologies have been reshaping the nature of jobs and the workforce of tomorrow. FAVE programmes are designed to help students acquire the knowledge, skills and attitudes that enhance their competency and prepare them for this future world. While digitalization has radically changed peoples' lives and their learning, being surrounded by the digital world and digital technologies does not necessarily mean that an individual is 'digital' or has developed a 'digital mindset'.

This paper reports on results from a digital synchronous online questionnaire conducted during a HETL Forum Educational Digital Mindsets seminar with FAVE practitioners. Results shared in this paper have led to the design of a collaborative qualitative research study by nine FAVE teachers who wished to document their views and experiences of becoming critically reflective digital practitioners. Extant literature on developing a digital mindset identifies the importance of specific knowledge, skills and attitudes combined with particular behaviours and ways of thinking. Final results from this study will shed light on what has to change within the educator to support an evolving educational digital mindset. The following questions were developed by the research group as an emergent area of shared mutual interest. They are:

- What has to change within the educator for them to become critically reflective digital practitioners?
- How do individuals experience changes in their professional identity as a result of engaging with 'educational digital mindsets'?

2 Theoretical Framework

The study is grounded in a theoretical frame comprised of three areas of literature: transformative learning (perspective transformation), identity self-states and digital mindsets combined with a review of recent studies that focus on digitalization in vocational education.

Transformative Learning is a cognitive/rational approach to adult learning that emphasises the critical role experience and reflection play on existing assumptions about the world in order to arrive at a new worldview (Mezirow, 2012; Graham Cagney, 2019).

Beliefs, attitudes or points of view, when expressed as opinions shared with others, often result in feedback that can cause a revolution of an entire perspective or habit of mind. Perspective transformation results in significant changes in sociolinguistic, psychological, epistemic,

philosophical, moral-ethical and aesthetic generalized predispositions or habits of mind (Cranton, 2006). These shifts in consciousness alter in a dramatic and permanent way our ‘being in the world’; changing how we know. This different kind of thinking and being enables individuals to become more open to revisiting their interpretations of the meaning of their experience: in turn guiding future action (Cranton, 2006; Tennant, 2012). By definition, transformative learning leads to a changed self-perception; individuals experience changes in their thinking that lead to new worldviews, and new perspectives on their personal and professional lives.

Identity self-states pinpoint a ‘motivational self-systems’ framework that incorporates a ‘possible selves’ and ‘ideal selves’ theory (Markus & Nurius, 1986). Three seminal reviews of the literature on educator identity in the last decade (Beauchamp & Thomas, 2009; Beijard et al., 2004; Rodgers & Scott, 2008) highlight the importance of and interrelation of notions of identity, context, emotion and agency.

Working self-concept is continuously active in interpreting and integrating accessible self-knowledge into a wide range of self-representations. A person can move from the present toward the future by using their possible selves as ‘future self-guides’. In the context of adult learning, factors that impact on whether the possible self has motivational power include the level of detail associated with a possible self and the extent to which it is psychologically available to a person. Thus, it could be argued that socially constructed roles, the existence of contextual cues, levels of self-efficacy as well as the availability of role models play a significant role in this regard.

Digital Mindsets can be explained as a set of assumptions, beliefs and values that determine how individuals understand and interact with others, and relate to the world around them (Mezirow, 2000). There are significant multi-disciplinary variations within the field of study (French, 2016). These include mindset agency theory (Sagiv & Schwartz, 2007), mindscape theory (Maruyama, 1980), fixed and growth mindsets (Dweck, 2006), benefit mindset (Buchanan & Kern, 2017), habits of mind (Cranton, 2006), and digital mindsets (Benke, 2013).

The attributes of an individual with a digital mindset include being flexible and adaptable, having a wide intellectual curiosity, a hunger for new knowledge, passionate about what they do, able to think outside the box and are comfortable with uncertainty. Competencies that are fundamental to developing and supporting a digital mindset, comprise digital knowledge, digital skills and digital attitudes (Benke, 2013). Digital knowledge, refers both to i) differentiation: a breadth of knowledge about ICT, internet, media, information and digital literacy; and ii) integration: how that knowledge is absorbed or included into an existing life context (Jansen et al., 2009). Digital skills include operational and technical competencies, in addition to strategic ICT skills that enable the achievement of more specific professional and educational goals rather than just for personal entertainment (van Dijk, 2005, Van Deursen & van Dijk, 2009; Ilomäki et al., 2011; Ferrari, 2012). Digital attitudes are based in the affective domain and are strongly influenced by cognitive, emotional and behavioural elements. Therefore, three core components include i) knowledge of digital technology; ii) feelings toward digital technology; and iii) usage of digital technology (Donat et al., 2009).

2.1 Recent VETNET research on digitalization in vocational education

Research on digitalization in vocational education was reviewed to develop a holistic view of the new and different skills and perspectives required to meet the needs of the sector. In VET there are tensions between the needs of various stakeholders: learners, employers, the providing organisations and the teachers. In this constantly changing landscape there is pressure on the educator to meet the needs of all stakeholders. These include the digitisation of industry as well as changing examination approaches and regulations (Deitmer et al., 2018). Benedek et al. (2018) found that rapid changes mean that textbooks and materials are often out of date and available technologies are often insufficient or tending towards obsolescence, leaving the educator to bridge the gap. The European Commission indicate that VET requires highly qualified

teachers and trainers. They are a key factor in the contributing to high quality provision and equity in access to learning (European Commission, 2010). Thus, the VET educator requires specific digital competencies (Redecker, 2017).

In any education sector the role of the educator is more than a mechanism for the delivery of information. They are also a role model for learners to develop the ability to adapt to change and adopt new tools and methods to remain current and relevant, including technical and pedagogical knowledge and skills (Redecker, 2017). The VET view of professional competence (Lehtonen et al., 2019) should also encompass an educational digital mind-set that is proactive, rather than reactive; characterised by particular behaviours and attitudes that are agile, collaborative, curious, “tech savvy” and comfortable with change (Gössling & Emmmler, 2019).

There is a general consensus that communities of practice are a way of developing and supporting the competencies and mind-sets of the teachers (Attwell & Gerrard, 2019). Deitmer et al. (2018) identified a need for the provision of technical as well as pedagogical development in a variety of formats to meet the needs of teachers, while also advocating opportunities to meet and collaborate. Benedek et al. (2018) focused on creating a solution through Open Education Resources comprised of an open network for innovative teachers aimed to support and enable the use of digital technology for teaching and learning.

There are also institutional barriers. Often, they are characterised by a lack of physical infrastructure (broadband and the availability of applications) and compounded by bureaucratic processes of procurement. Deitmer et al. (2018) identify silos of disciplinary expertise within organisations that offer no incentive for those working in the sector to surmount the established and traditional subject divides. This is compounded by widespread casualisation of the teachers and/or segmentation of instruction and working conditions that tend to be isolated, combined with a lack of pedagogical training, competences and/or qualifications and a lack of digital competencies.

3 Methods

3.1 Research Design

Phase 1 (Completed). The National Forum for Teaching & Learning seminar series provided the resources for a seminar on leading educational change with a particular focus on educational digital mindsets. Attendance was open to all current and aspiring educational leaders and other interested parties. There were 98 pre-registrations via Eventbrite with 43 participants registering their attendance on the day. Attendees included those from higher, secondary and primary education, in addition to those from further, adult, vocational and community education. During the seminar 31 participants completed an interactive anonymous online questionnaire on digital mindsets which was then displayed for them and led to an engaged discussion on educational digital mindsets. Following the close of the seminar, a group of FAVE practitioners agreed to collaborate and share their experiences of their developing digital knowledge, skills and practice. Following discussion an in-depth analysis of the seminar online questionnaire was completed. The results of this analysis are shared in this paper and offer a preliminary understanding of educational digital mindsets and has informed the design of this qualitative research study.

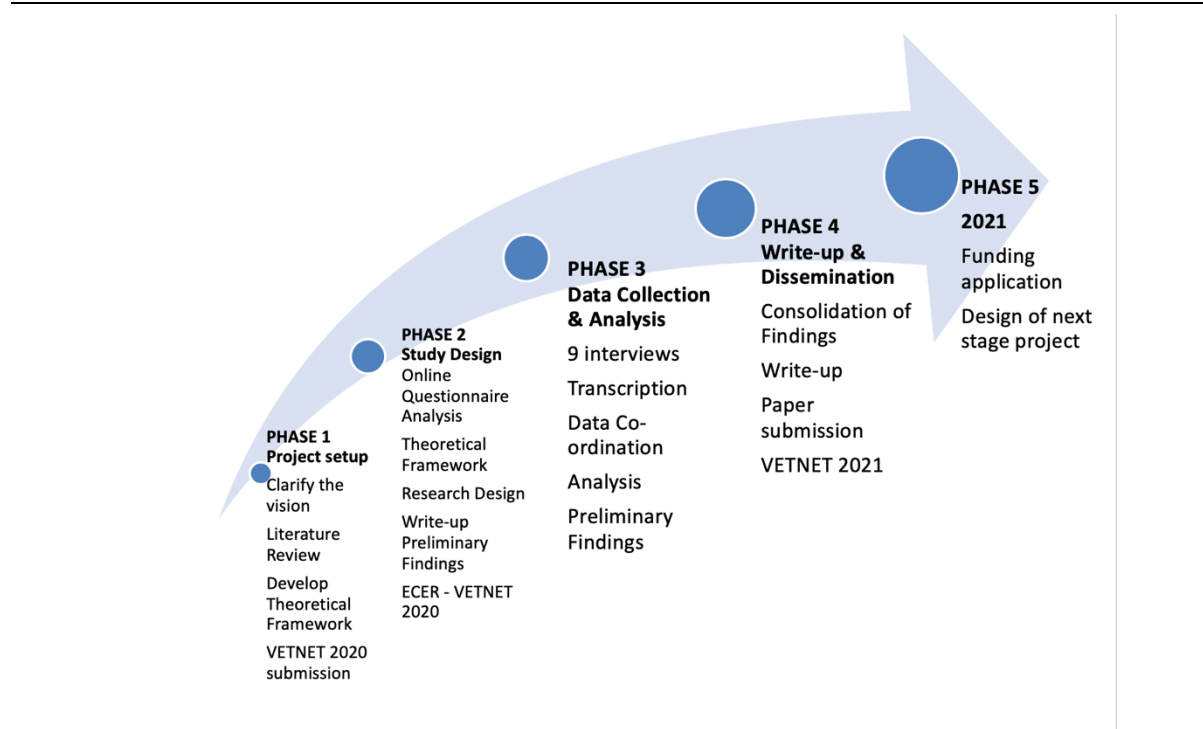
Phase 2 (Ongoing). Key themes to emerge from analysis of the online questionnaire guided the interview design and protocol. During Phase 3 data will be collected from the nine members of the research study through interactive participant interviews. These interviews will be collaborative, communicative events that evolve participants’ own norms and rules (Briggs, 1986; Kvale, 1996). There will be a relational aspect to these interviews and an interactional construction of meaning in the interview context (Holstein & Gubrium, 1995; Langellier & Hall, 1989). Therefore, the interaction is situated in the context of an ongoing relationship where the personal and social identities of both interviewer and interviewees are important factors (Collins, 1986; DeVault, 1990). In this way we will create a space for individuals’ own stories to be

heard. Results from this data will shed light on the experiences and feelings of FAVE teachers as critically reflective practitioners focused on their evolving digital mindsets.

Table 1
Demographic Description of Participant-Researchers

	Discipline	FAVE context & teaching experience	Title	Previous Career/ Background	Gender
1	Technology	Adult (10 years)	TEL Support	Manufacturing & Information Technology	M
2	Technology	Adult Basic Education /Literacy (20 years)	Tutor	Office Administration	F
3	Computing	Adult Education (15 years)	Data Analyst	IT Customer Service	M
4	Psychology	Adult (30 years)	Senior Lecturer	Strategy & Organisational Change	F
5	Technology	Adult (25 years)	Ass Professor	Nursing	F
6	Data Information	Further, Adult & Vocational (34 years)	Senior Manager	Secondary Level Teacher	F
7	Engineering	Vocational (38 years)	Lecturer	Motor Trade	M
8	Early Childhood	Vocational & Adult (25 years)	Lecturer	Community Education	F
9	Education	Community (23 years)	Lecturer	Not disclosed	F

Consistent with qualitative methodology, the interview data will be analysed with respect to the research questions using a mix of inductive coding and the constant comparative method. Thematic analysis within each category will produce the findings in the final paper to be presented at ECER in Geneva in 2021.

Figure 1*Developing an Educational Digital Mindset (Timeline 2019-2021)*

3.2 Progress to date

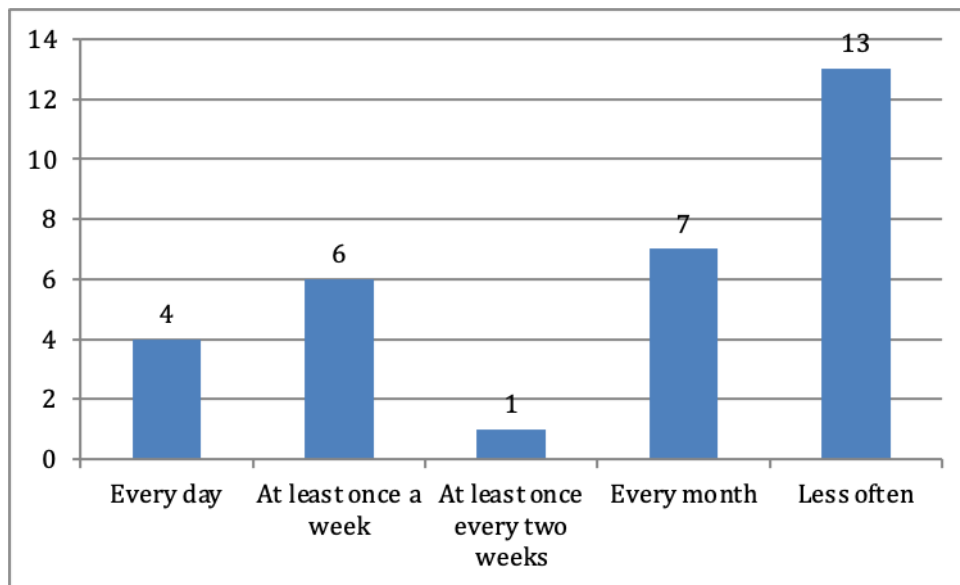
Phases 1 and 2 are completed. The vision for the study is clarified. The literature review has been completed and the theoretical framework for the study has been articulated. In-depth analysis of the Forum seminar online questionnaire is completed (including write up in this paper) and the research design is completed. Phases 3 and 4 are scheduled to take place with a December 2020 deadline. A final paper submission for publication will be made to the VETNET journal and the results disseminated at the EERA-ECER VETNET conference in Geneva 2021.

4 Analysis of fieldwork findings: HETL forum seminar online questionnaire

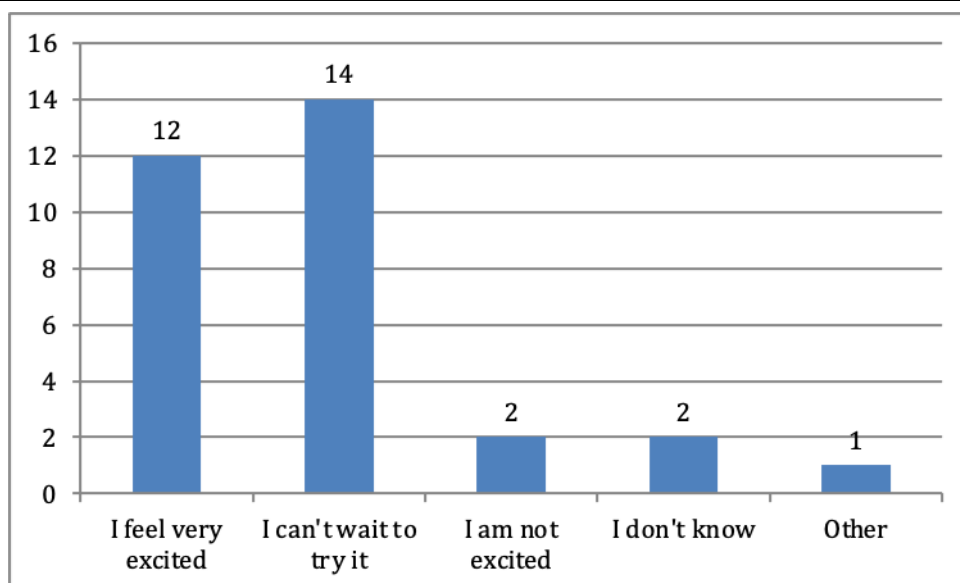
Results from this questionnaire have informed the design of the interactive interviews scheduled to take place in Phase three of the study in 2020. There were 31 respondents (11 Male, 19 Female, 1 Prefer not to say). The following analysis is divided into three sections that represent the focal areas of the original online questionnaire: Section 4.1 curiosity about digital technology and being up to date; Section 4.2 digital competencies; and Section 4.3 use of digital technologies and challenges (Benke, 2013).

4.1 Curiosity about digital technology and being up to date

The majority of respondents indicated interest in new technologies (29/31). When asked how they found out about new technologies 23 said they used online sources, while 8 used offline. 11 reported using online sources only, 17 reported using online and offline sources, and 3 said they use offline only. One measure of an individual's 'being up to date' is the frequency of using online information sources. Figure 2 highlights the fact that only 10 respondents engaged in searching online for new technologies and to keep themselves up to date on a frequent basis (at least once a week or more often).

Figure 2*How often do you search online?*

Responses for active searching for information is far lower than their level of interest in new technology. This may merit further investigation at interview. When asked whether they had made a suggestion to implement new technology in their unit/dept 24 participants claimed they had, 7 said they had not. The attitudes to acquiring new technology match reasonably well with those for suggesting new technologies at work. However, we have no information on what types of technology the respondents refer to in order to determine how 'up to date' they are with new technology innovation or digital technologies.

Figure 3*Can you describe how you feel when you acquire a new technology innovation?*

26 participants reported feeling excited and impatient to try out new technology innovations. Two follow-up questions consolidate this pattern revealing a) how fast participants say they would adopt a new technology (Figure 4) and b) how they find out about new innovations (Figure 5).

Figure 4
Speed of adaptation

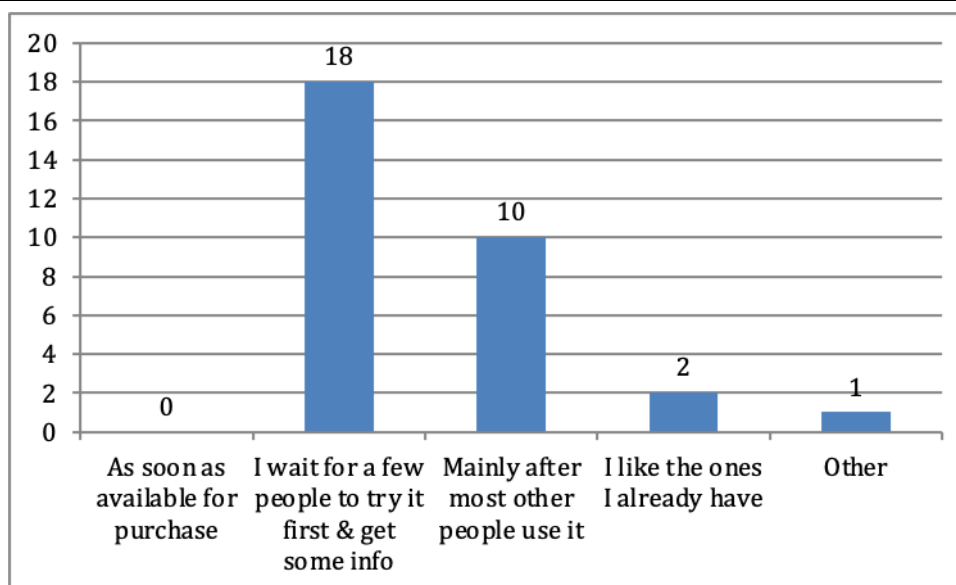
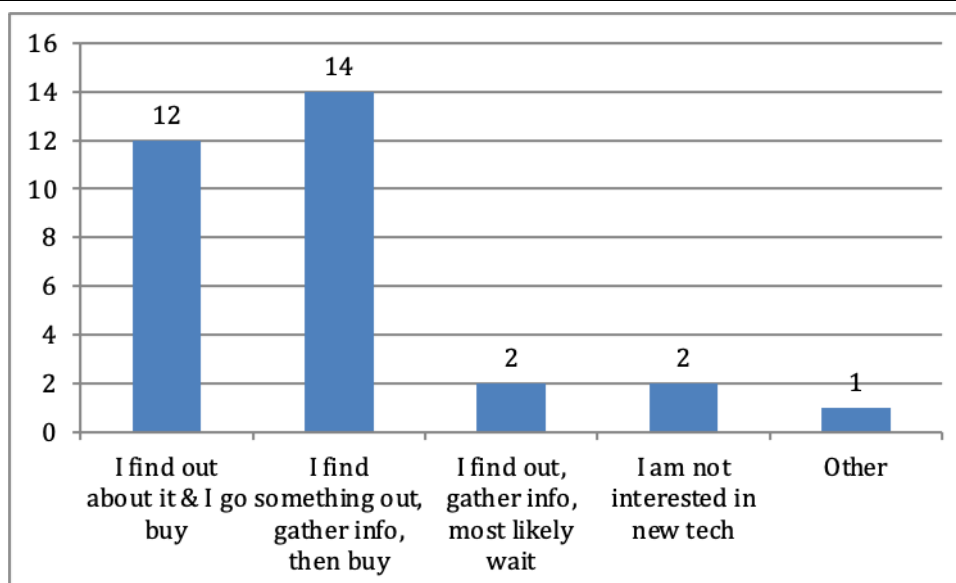


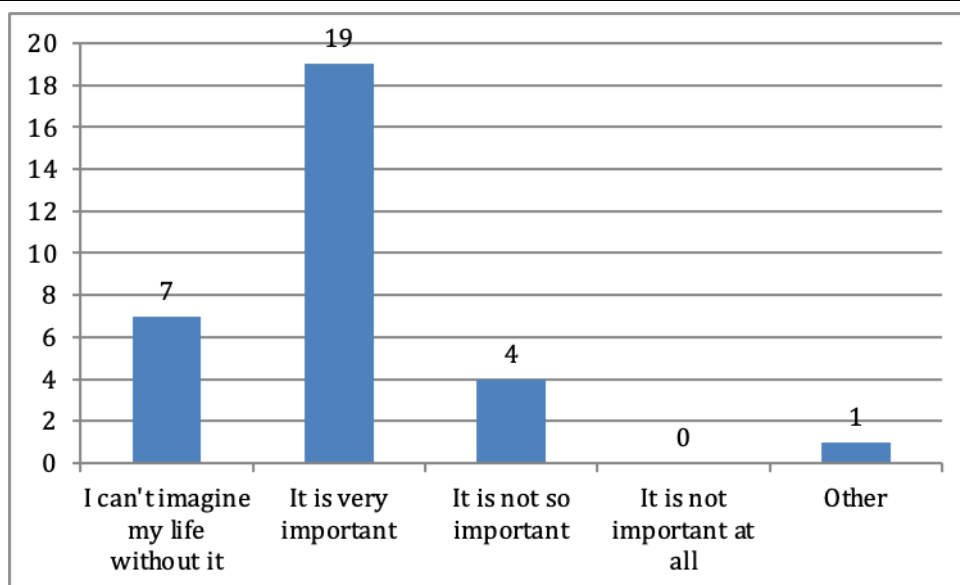
Figure 5
Process of finding new innovations



4.2 Digital competencies

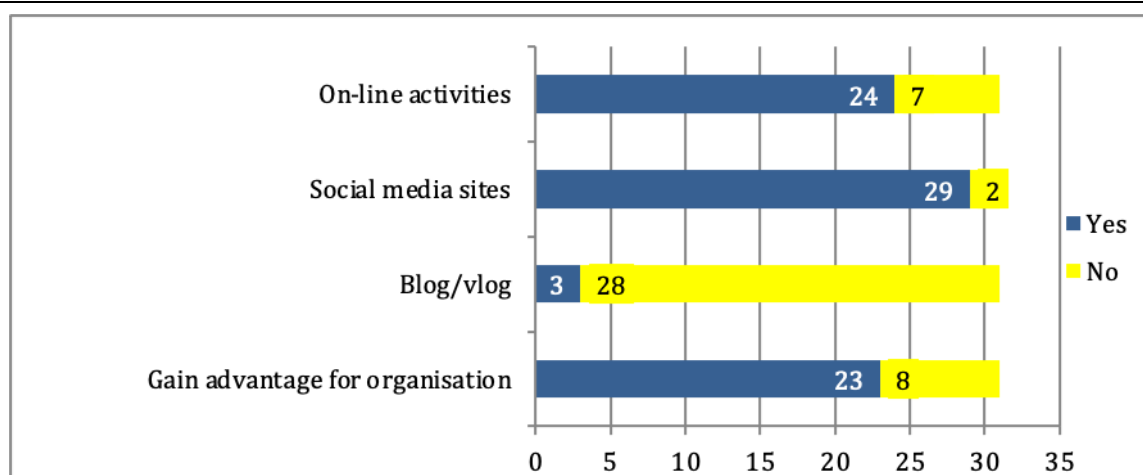
Information was sought on participants' breadth of knowledge of digital technology and the extent to which that knowledge was used in their personal and professional lives. They were asked whether they used online or offline sources when searching for information. 28 stated they use online sources and 3 use offline sources. A follow-up question tested the importance of the internet to respondents: 26 couldn't imagine their lives without it/very important.

Figure 6
Importance of the internet



Having established the importance of the internet, participants were then asked a series of questions on their use of digital technology in two areas: i) personal, and ii) professional and educational. The majority of participants confirmed their use of digital technology and the internet for personal entertainment e.g. choosing a restaurant, finding out news, and checking their profile. However, the data collected is too broad. There is no detail about the nature and extent of digital knowledge usage in an individual's daily life. Again, these results highlight an area for further exploration via the interview process.

Figure 7
Specific online usage

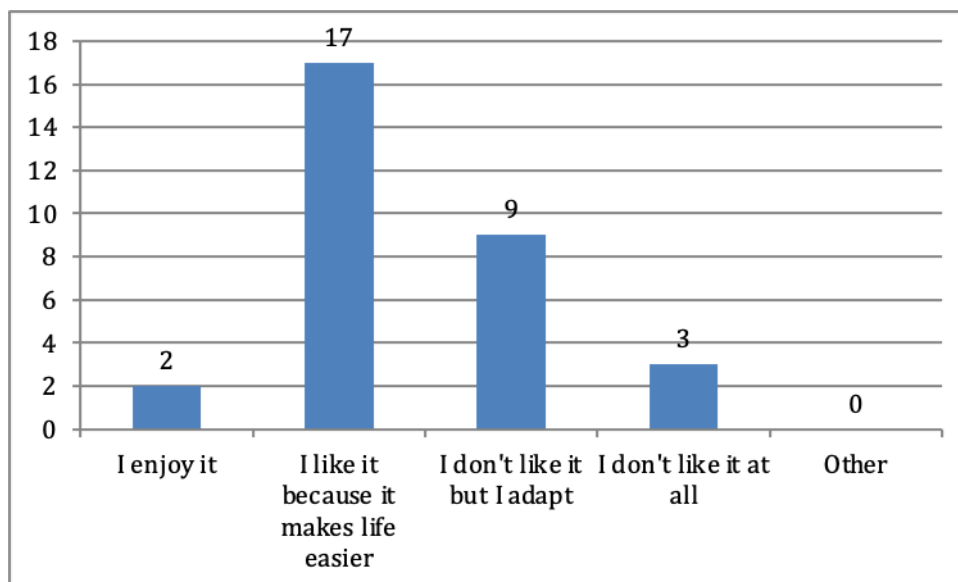


Questions on usage were followed by specific online activity questions (Figure 7). The purpose was to gather more information on participants attitudes and their digital skills. There is a low reported usage of blogs and vlogs. In contrast, 19 checked their online personal profiles at least several times a week. The profile activity data is ambiguous. More information is needed to establish whether the online profile being checked is recreational or professional/educational i.e. Facebook, LinkedIn, Research Gate, ORCID, professional membership sites, organisational website profile, etc. The final set of three questions in this section explore participant feelings

about: (i) living in a digitalised world; (ii) whether new technology is always better than old; and (iii) a personal assessment of their IT/computer skills.

Figure 8

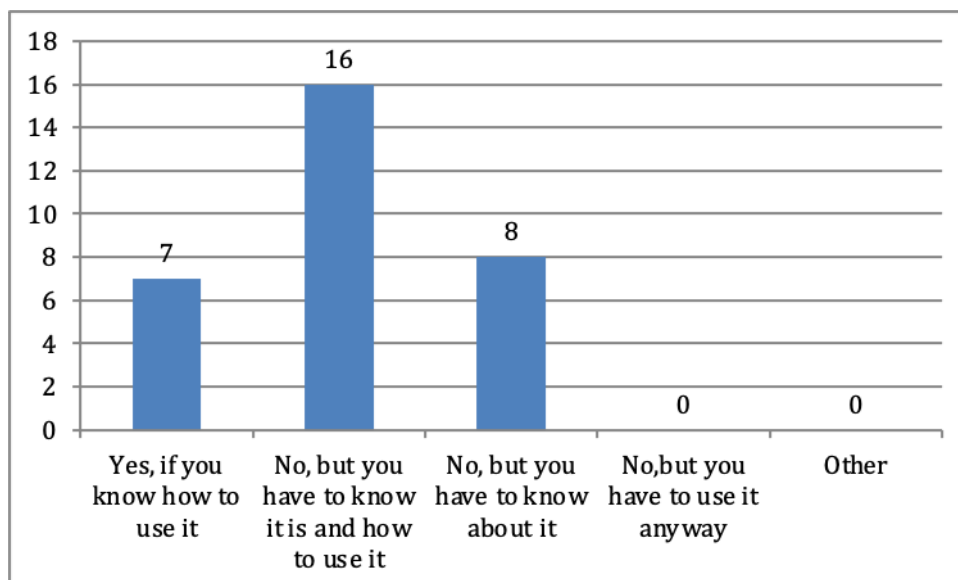
Everything is more digitalised nowadays



Results show a marked difference between the various categories of response to living in a digitalised world. 19 people enjoy or like digitalisation because it makes their lives easier. However, of 12 are either reluctant adaptors or do not like it at all.

Figure 9

New technology is always better than the old one

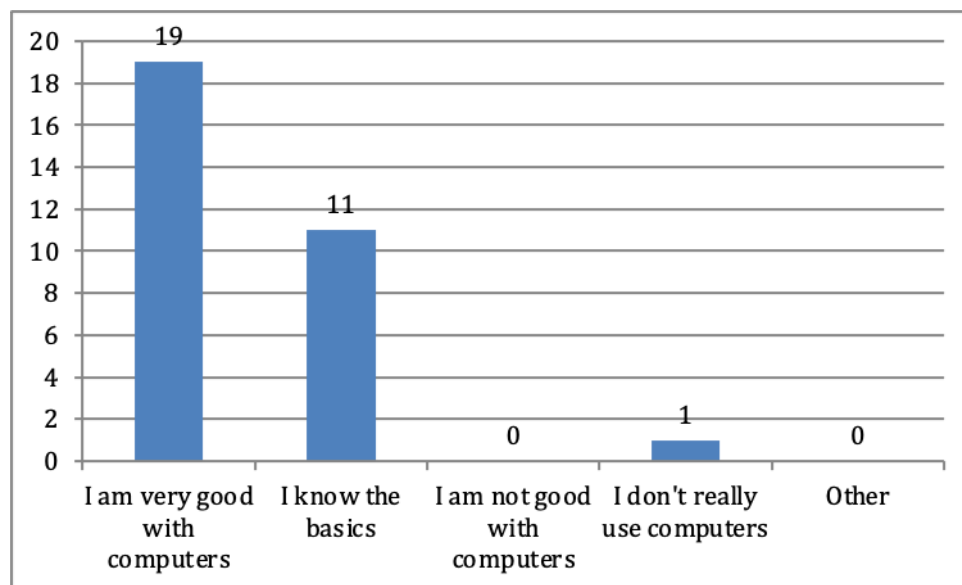


The question posed to participants does not specify the meaning of 'new' and 'old' technology, it is left to them to interpret. Notwithstanding this, an interesting result emerges from the data. 'New' is being interpreted by 7 respondents as being better, conditional on knowing how to use the 'new technology'. Just as important, for 24 of them 'new' is not always better than 'old', but that choice is not an active one for them as they feel pressurised to know about and

use new technology. This requirement appears to translate into a majority of reluctant adapters to 'new' technology based on an instrumental 'need to know' set of motivations. The final question in this section elicits responses on individuals' familiarity with IT/Computers. 19 stated they were 'very good' and a further 11 said they 'know the basics'. The responses are subjective and non-specific therefore this result represents personal perspectives on a set of non-specific skills related to IT which really does not shed light on specific digital knowledge, skills and experience.

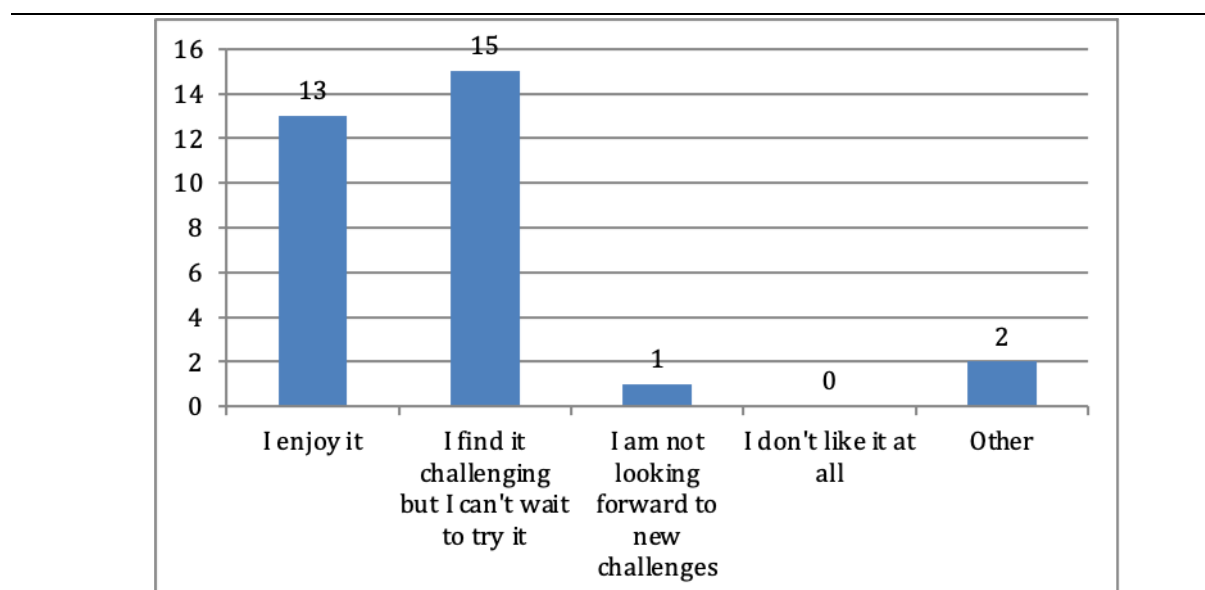
Figure 10

Familiarity with IT/Computers



4.3 Use of digital technology and challenges

All participants reported that their use of digital technology made their work-life more efficient. A follow-up question tested this response asking what they use it for at work. The majority 28 stated they use it for a variety of activities, the remaining 3 use it for simple activities, or for what they really need. We have no further information on what the range of those activities might be. This offers an interesting opportunity to explore the usage of digital technologies against a set of key criteria (to be developed) for FAVE teachers.

Figure 11*Feelings about new technology in your workplace*

When asked whether they would like to have access to the newest technology at their workplace, 30 said yes, and 1 said no. Regarding their feelings on this (Figure 11): 13 stated they enjoy new technologies at work. Another 15 are eager to try it despite feeling challenged. These 28 participants are open and willing to try new technologies in the workplace. This is a similar response to the 26 who responded to an earlier question on their feelings about technology innovation in general. Overall, it indicates a level of coherence in the responses received in relation to openness, curiosity and being up-to-date with new technologies.

Asked which devices were most important to them and whether they would give them up or not, 18 said they would prefer to give up their computer rather than their phone. 10 would rather give up their phone, and 3 could not choose between their phone or computer. The question poses an interesting insight on dependency on connectedness to digital media and whether for some people their phone may now be a multi-tasking tool for various digital media and internet activities. When asked about their use of digital technology after a hard day at the office, a significant majority stated they would relax with an offline activity.

5 Limitations

The original intention of the research group was to create a community of practice that would collaborate and come together to share experiences of developing their knowledge and skills of using digital technologies in their teaching practice. Face to face collaboration was quickly overshadowed by Covid-19. An option to move to online meetings seemed particularly appropriate given the circumstances, however this proved to be impossible to arrange. This was in part due to the unanticipated shift to emergency online teaching and resultant changes in all our professional and personal lives. As a result, it was decided to redesign the data collection for the study to nine individual member interactive qualitative interviews of approximately 40-60 minutes. Several limitations should be considered when drawing research and practitioner implications from analysis of the seminar synchronous (online) questionnaire. The participants were not confined to FAVE teachers, they included several teachers from primary, secondary and higher education contexts. The online questionnaire was completed in 10 minutes leaving little time for participant to reflect before answering. In addition, the questionnaire was adopted from a previous study and does not quite match the focus on educator digital mindsets that this study has taken. Finally, the question design in this instrument does not differentiate between information technology, new technology innovation, and new and old digital technologies.

6 Discussion

Our personal approaches to learning and engaging in new ideas and technologies are based on assumptions that may or may not be articulated or tested. For most teachers, their approach to learning is a combination developed through years of formal education, of learning things on their own, and of developing learning strategies for themselves and their students. Openness to digital knowledge and approaches can enable teachers to find out about and try innovations that they might not otherwise consider adopting into their teaching practice and curriculum development. With respect to perspective transformation and changes in habits of mind (Cranton, 2006), we have established that there is a need for change in one's epistemic (knowledge) habit of mind in order to develop an educational digital mindset. Specifically, there must be a change in (i) breadth/depth of digital knowledge, and (ii) scale of usage and application within an individual's personal and professional life context.

As identified by Markus and Nurius (1986) an individual teacher's identity is a complex motivational self-system. Working self-concept is continuously active in interpreting and revisiting assumptions, beliefs and values that can shift how an individual understands and interacts with others and the world around them (Mezirow, 2000). Being curious about information technology, and digital technology in particular, can help teachers not to miss important innovations in developing new pedagogical practices that positively enhance their students' experience of learning. However, a strong stated interest in new technology/digital technology and the internet does not necessarily translate into active engagement by teachers in developing an educational digital mindset.

These findings suggest that participants' feelings about digitalisation are a complex mix of whether they think new technology is always better than old. The majority share a reluctant adoption of digitalisation and new technologies based on felt levels of digital confidence and a work-related need to implement the technology. The fundamental areas for personal change for teachers who wish to become digital practitioners are curiosity and being up-to-date; having core digital competencies; a willingness to use the technology; and a readiness to meet the challenges it poses. We will attempt to elicit examples during interview that could be measured against a set of key criteria (to be developed) for FAVE teachers to explore whether they hold these attributes and engage in these behaviours. Technological terms are used interchangeably in the questionnaire and create confusion and lack of clarity with respect to the answers given by respondents. It is important for this study to clarify these terms from the beginning. The interview process will explore what distinctions FAVE teachers make between new technology and digital technologies as they apply to education, and to FAVE education in particular. Our position is that new technologies are an integral part of digitalisation, not a separate field of interest and must be explored more deeply in the scheduled interviews.

Digital knowledge is described as differentiated (breadth of knowing) and integrated (scale of usage and application in one's life). Digital skills include operational and technical competencies; while digital attitudes are strongly influenced by cognition, emotion and behavioural elements. At a broad generalised level these descriptions make sense; however, they do not offer a deeper understanding of specifically what knowledge (and how it is to be applied) and what skills and attitudes will translate into digital competencies. Consideration will be given to whether existing taxonomies of learning are helpful in informing this study on how to explore the knowledge, skills and attitudes (values, expectations and assumptions) that sit beneath the behaviours of a digitally orientated critically reflective FAVE practitioner.

7 Conclusions, Expected Outcomes and Contributions

The first two phases of this study when combined with the forthcoming interviews (Phase 3) will contribute to the professional learning and development needed by teachers to address the various challenges facing society today. Sharing experiences across a group of peers on their engagement with digital technologies allows for growth of the individual teacher and

contributes to the profession and practice of teaching in further, adult and vocational education contexts. In the current era of risk, educational processes, developments and capacity building become uncertain. Uncertainty plays out in individual lives, careers, families and social networks. Such developments are of utmost relevance to the education system as it is responsible for providing learners with the skills and capacities to live and act under given social conditions, made more uncertain by the challenges that Covid-19 poses for all educators.

Completion of phases three and four of this study will make a contribution to further research on the attributes and competencies (knowledge, skills and attitudes) required to develop a FAVE teacher digital mindset. It will also expand current research on FAVE teacher evolving identity and the conditions under which they personally engage or disengage with the resultant perspective transformation. Finally, the final results will shed light on how education systems, also operating under conditions of uncertainty, can provide a professional pathway to support the development of educational digital mindsets for FAVE teachers.

The researchers care about this domain of knowledge and hope to ‘reboot’ the community of practice as a space of learning in which we can share these emerging digital practices and identities (Lave & Wenger, 1991). Time will be needed to build a bridge of critical consciousness to robust resilience that will support the conscious and unconscious dimensions of the transformative learning process. In this way, they can question how evolving roles and changing sectoral contexts impact directly on the experiences of a small group of researcher-practitioners who wish to become critically reflective digital teachers (Bourdieu & Passeron, 1977). One outcome of this study will be to support these researchers (as digital practitioners) as they evolve their thinking and understanding of the relevance of their research interests, both to their academic community and to the practice community (Weerts & Sandmann, 2010).

The question remains as to how to facilitate teachers ‘readiness for change’ as they envisage future possible selves personally and professionally in a digital world.

References

- Anderson, L.W., & Krathwohl, D.A. (2001). A taxonomy for learning, teaching and assessing: A revision of Bloom’s taxonomy of educational objectives. Longman.
- Attwell, G., & Gerrard, A. (2019). The training and professional development of teachers in use of digital technologies in vocational education and training. In B. E. Stalder & C. Nägele (Eds.), *Trends in vocational education and training research, Vol. II. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 38–44). <https://doi.org/10.5281/zenodo.3371247>
- Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. *Cambridge Journal of Education*, 39(2), 175–189.
- Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers’ professional identity. *Teaching and Teacher Education*, 20, 107–128.
- Benedek, A., Dobozy, G., & Orosz, B. (2018). Open learning resource structures in the activation of VET learners. In C. Nägele & B. E. Stalder (Eds.), *European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 70–78). <https://doi.org/10.5281/zenodo.1319718>
- Benke, V. (2013). *The digital mindset* [Master Thesis]. Aalborg University.
- Bourdieu, P., & Passeron, J. C. (1977). *Reproduction in education, society and culture*. Sage.
- Briggs, C.I. (1986). *Learning how to ask: A sociolinguistic appraisal of the role of the interview in social research science*. Cambridge University Press.
- Buchanan, A., & Kern, M. L. (2017). The benefit mindset: The psychology of contribution and everyday leadership. *International Journal of Wellbeing*, 7(1), 1-1. <https://doi.org/10.5502/ijw.v7i1.538>. ISSN 1179-8602.
- Clark, D. R. (1999). *Bloom’s Taxonomy of learning domains*. <http://www.nwlink.com/~don-clark/hrd/bloom.html>
- Collins, P.H. (1986). Learning from the outsider within: The sociological significance of black feminist thought. *Social Problems*, 33(6), 14–32.

- Cranton, P. (2006). *Understanding and promoting transformative learning* (2nd ed.). Jossey-Bass.
- Dave, R.H. (1970). Psychomotor levels. In R. J. Armstrong (Ed.), *Developing and writing behavioral objectives*. Educational Innovators Press.
- Deitmer, L., Heinemann, L., & Müller, W. (2018). New forms of learning and teaching and organisational change – a case study at the building industry. In C. Nägele & B. E. Stalder (Eds.), *Trends in vocational education and training research. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 131–138). <https://doi.org/10.5281/zenodo.1319650>
- DeVault, M. L. (1990). Talking and listening from women's standpoint: Feminist strategies for interviewing and analysis. *Social Problems*, 37(1), 96–116.
- Donat, E., Brandtweiner, R., & Kerschbaum, J. (2009): Attitudes and the digital divide: Attitude measurement as instrument to predict Internet usage, Informing Science. *The International Journal of an Emerging Transdiscipline* 12, 37–56. <http://inform.nu/Articles/Vol12/ISJv12p037-056Donat229.pdf>
- Dweck, C. (2006). *Mindset: The new psychology of success*. Ballantine Books.
- European Commission (2010). *The Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for the period 2011-2020*. https://www.eqavet.eu/Equavet2017/media/Documents/brugescom_en.pdf
- Ferrari, A. (2012). *Digital competence in practice: An analysis of frameworks*. JRC-IPTS. <https://doi.org/10.2791/82116>
- French II, R.P. (2016). The fuzziness of mindsets: Divergent conceptualizations and characterizations of mindset theory and praxis. *International Journal of Organizational Analysis*, 24(4), 673–691. <https://doi.org/10.1108/IJOA-09-2014-0797>
- Gössling, B., & Emmeler, T. (2019). Adapting apprenticeships to the digital transformation of education and work from the perspective of in-company trainers. In B. E. Stalder & C. Nägele (Eds.), *Trends in vocational education and training research, Vol. II. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 152–161). <https://doi.org/10.5281/zenodo.3371468>
- Graham Cagney, A. (2019). 'I Am What I Do' . . . Professional voices from the field of further education and training. In J.A. Gammel, S. Motulsky, & A. Rutstein-Riley (Eds). *Identity and Lifelong Learning in Higher Education I Am What I Become: Constructing identities as a Lifelong Learner*. Information Age. Publishing, Inc.
- Holstein, J. A., & Gubrium, J. F. (1995). *The active interview*. Sage.
- Iilomäki, L., Kantosalo, A., & Lakkala, M. (2011). *What is digital competence?* European Schoolnet. <http://linked.eun.org/web/guest/in-depth3>
- Jansen, B.J., Booth, D., & Smith, B. (2009). Using the taxonomy of cognitive learning to model online searching. *Information Processing and Management*, 45, 643–663.
- Lei, J., Conway, P., & Zhao, Y. (2007). *The digital pencil: One-to-one computing for children*. Lawrence Erlbaum Associates.
- Kvale, A. (1996). *InterViews: An introduction to qualitative research interviewing*. Sage.
- Langellier, K., & Hall, D. (1989). Interviewing women: A phenomenological approach to feminist communication research. In K. Carter & C. Spitzack (Eds), *Doing research on women's communication* (pp. 193–220). Ablex.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.
- Lehtonen, E., Nokelainen, P., Rintala, H., & Pylväs, L. (2019). Vocational teachers' views on their professional competence and cooperation with working life. In EDITORS ECER 2019 Education in an Era of Risk: The Role of Educational Research for the Future. Hamburg, Germany. <https://eera-ecer.de/ecer-programmes/conference/24/contribution/48488/>
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41(9), 954–969.
- Maruyama, M. (1980). Mindscapes and science theories. *Current Anthropology*, 21(5), 589–608.
- Mezirow, J. (2000). Learning to think like an adult. In J. Mezirow (Ed.), *Learning as transformation. Critical perspectives on a theory in progress* (pp. 3–33). Jossey-Bass.

- Mezirow, J. (2012). Learning to think like an adult: Core concepts of transformation theory. In E. W. Taylor, P. Cranton, & Associates (Eds.), *The Handbook of transformative learning: Theory, research, and practice*. Jossey-Bass.
- Redecker, C., & Punie, C. (2017). European framework for the digital competence of educators: DigCompEdu. Publications Office of the European Union. <https://doi.org/10.2760/159770>
- Rodgers, C. R., & Scott, K.H. (2008). *The development of the personal self and professional identity in learning to teach*. In M. Cochran-Smith, S. Feiman-Nemser, J. D. McIntyre, & K. E. Demers (Eds.), *Handbook of research on teacher education: Enduring questions in changing context* (3rd ed.) (pp. 732–755). <https://doi.org/10.4324/9780203938690>
- Sagiv, L., & Schwartz, S.J. (2007). Cultural values in organisations: Insights for Europe. *European Journal of International Management*, 1(3), 176–190.
- Simpson, E.J. (1972). *The classification of educational objectives: Psychomotor domain*. US Department of Health, Education and Welfare Office of Education. Gryphon House.
- Tennant, M. (2012). *The learning self: Understanding the potential for transformation*. JosseyBass.
- Turkle, S. (2017). *Alone together*. Basic Books.
- van Dijk, J. (2005). *The deepening divide: Inequality in the information society*. Sage Publications.
- Weerts, D.J., & Sandmann, L.R. (2010). Community engagement and boundary-spanning roles at research universities. *The Journal of Higher Education*, 81(6), 632–657, <https://doi.org/10.1080/00221546.2010.11779075>

Biographical notes

Dr Anne Graham Cagney is Senior Lecturer in Adult Education at Waterford Institute of Technology, Ireland. She is a Fulbright Scholar and RSA Fellow and has over 30 years in higher education, public, private and NFP in Europe and North America. Her background includes online learning, adult education, professional development, HR/OD and process consultation in Europe and North America.

Anne O'Mahony is a Tutor with Cork Education & Training Board, Ireland for almost 20 years and a postgraduate student at Waterford Institute of Technology. She has experience in office management and administration and a variety of education and training contexts.

Dr Leslie Cordie is Assistant Professor in the Adult Education program at Auburn University, USA. She has over 25 years combined experiences in higher education, government and military, and corporate America. Her background includes distance learning, adult education, training, instructional design, program and professional development, and healthcare.

Mr Kieran Cagney is studying at National College of Ireland. He has over 30 years in ICT, systems development and data analytics, working in the conference and exhibition sector, customer service organisations, public sector, railway signalling design, automotive and IT/systems consulting.

Ms. Mary Buckley, B.A. H. DLIS., ALA, Librarian – Norma Smurfit Library, National College of Ireland. Has over 32 years' experience of working in Libraries, Librarian at NCI since 2000. Responsibility for the overall management and strategic direction of the Library and in particular in the initialisation of new projects. She trained and worked as a secondary school teacher & left to work in libraries which was her main interest area. She has extensive knowledge of supporting adult learners and library management and data systems.

Mr Michael O'Toole is a Lecturer in Trades Studies at Waterford Institute of Technology, Ireland. He has 38 years lecturing experience to Apprentices of a wide variety of trades including Motor, Electrical, Built Environment, Carpentry and Engineering.

Mr. Conor O'Neill is an eLearning specialist in the school of School of Education and Lifelong Learning at Waterford Institute of Technology, Ireland. Conor has over 10 years' experience in higher education, working specifically in eLearning, training, instructional design and technical support. His background is in the manufacturing sector after spending more than 12 years working in Systems Development roles including SAP Developer, ABAP Programming, Systems Analysis, Database Programming.

Dr Carol Yelverton-Halpin, is a Lecturer in Early Childhood Education at Waterford Institute of Technology, Ireland. Her post-doctoral research is in critical education theory with a specific focus on power, social disadvantage and education and their impact on the 'self'.

Ms **Rose Hearne**, is a Lecturer and Co-Ordinator of Community Education at Waterford Institute of Technology. She leads the development and delivery of programmes that are pro-equality with an anti-poverty perspective. She is an advocate for participants to become agents of change within their communities in order to tackle educational community disadvantage.

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Talents in Vocational Education

Duch, Henriette

VIA University College, hedu@via.dk

Abstract

Talent is an international research topic, but the definition of talent, how to spot talent and measurements of talent development are discussed. This study in talent in Danish vocational educations is based on a documentary study analyses the development of policy. It shows that three phases can be identified where the definition of talent change. Based on five reports, the knowledge of talent is analysed using the categories definition of talent, criteria in spotting talent, domains, developments of talent. It is concluded that projects and research interest in the qualitative based studies are changing over time, and since different terms are used, a comparison is complicated. However, teaching, pedagogic and didactic seems as important for talents and talent development as for other groups of students.

Keywords

giftedness; talent, talent development; vocational education; policy

1 Introduction

In Danish vocational educations and policy in general talent is at the agenda (e.g. Nissen et al., 2011; Government, 2014). However, talent is not easy to define or to measure. In the international literature, giftedness and talent are defined in four different ways leaning on a "psychometric definitions, performance definitions, labelling definitions and specific giftedness/talent definitions" and "There is no generally accepted understanding of the difference between the two" (Stroeger et al., 2018, p. 25). Furthermore, it is difficult to distinguish between a personality trait and a probability for the future outcome. Later research includes "personality traits such as creativity or motivation" and include context, learning processes and agents in the context (Stroeger et al., 2018, p. 26). The approaches to talent are influenced by culture, e.g. gifted and identification of those that are dominant in western journals from 2009-2015 (Stroeger et al., 2018, p. 29). Identification of talent or giftedness can be "status oriented, intervention oriented, development oriented and support oriented" (Stroeger et al., 2018, p. 30). Unfortunately, the research in talented programs is sparse. Some programs involve "curriculum acceleration and enrichment", and other programs include "differentiation and grouping practices" (Stroeger et al., 2018 p. 31). Research in secondary school and upper secondary school show sociologically related problems and issues in programs (Rasmussen, 2012; Rasmussen & Rasmussen, 2015; Rasmussen & Lingard, 2018).

In the research area of giftedness and talent, many models are made (Gagné, 2004; 2010; Stroeger et al., 2018). Looking at vocational educations Nokelainen and Polyväs have made an empirically and theoretically- based model integrating both the context at school and workplace (Pylvä & Nokelainen, 2017) and more research is done in the context of Finland (Pylväs et al., 2018). This model distinguishes between gifts and talents. Gifts are natural abilities related to

intelligence, and the approach is building on Howard Gardner's multiple intelligence. Talents are "the process of how inborn gifts develop into talents" (Pylvä & Nokelainen, 2017, p. 98). The student has some intrinsic characteristics. Based on Albert Bandura's psychological theory, these characteristics include motivation, volition and self-reflection. The student also has some extrinsic conditions. Some are related to parents, e.g. "make the talent field accessible and desirable to their children", and some are related to friends (Pylvä & Nokelainen, 2017, p. 101). Other extrinsic conditions are directly related to the school. These conditions are called domain-specific conditions and are artefacts, teachers, trainers and coo workers. The integrations of such conditions relate to a socio-cultural understanding, e.g. by theorist as Jean Lave and Etienne Wenger (1991).

The purpose of this short paper is to contribute to the research in talent by presenting Danish vocational educations as a case. I am asking how policy addresses talent, and what knowledge exists from research. Since research is sparse, development projects are also included.

2 Methods

Policy documents about talent are collected using snowballing (Lynggaard, 2015). This documentation includes papers and reports made by expert groups with members selected by the political system to make recommendations for future policy. These documents also include quantitative data from 2016, 2017 and 2018, counting the number of talents (National Agency for IT and learning, 2019). This material is analysed, and based on this analysis, a brief overview of the historical development is made.

Furthermore, research articles are located. Two Danish peer-reviewed research articles concern the topic of talents in vocational educations (Christensen, 2015; 2016). Christensen is using an ethnographic approach. She raises a pedagogical debate discussing if the focus of talent is prioritising, e.g. combating at skills instead of building the students identity as a professional. Such discussions can be seen as contributing to the research in the reforms of Danish VET (e.g. Jørgensen, 2016; Hjort-Madsen, 2016). Documents about talent are found at webpages from the two prominent university colleges in Denmark. This search shows five reports categorised as evaluation or as research of initiatives and projects about defining talent, talent spotting and developing talent. Three of the documents are from 2015 (Allermand et al., 2015; Gleerup et al., 2015; Teknologisk Institut; 2015), and two documents are from 2018 (Iversen et al., 2018; Rambøll, 2018a). There are other documents concerning the same reports, but they are background papers, working papers or suggestions to teachers and managers (e.g. Nistrup & Larsen, 2015; Ministry of Education, 2018; Rambøll, 2018b; Talentvejen; 2019).

The documents are analysed (Prior, 2011) using categories from the model made by Pylvä & Nokelainen (2017). These categories are extrinsic conditions that are domain specific such as levels and courses, access to technology, teachers, workplace and skills. Systematic development of vocational skills in different skill arenas – in the workplace or at school by pedagogy and didactic – are categories. The categories are also a definition of talent and criteria for talent spotting such as intelligence, motivation, self-regulation and volition. The choice and further development of categories are based on the first phase of the analyses. Thereafter the documents are analysed more systematically. The categories are shown in the figure below (Table 1).

In the next paragraphs, the analyses will be presented. First, is the analysis of the talent policy in Danish VET and then the analysis of the knowledge from projects at VET.

Table 1
Categories used in analyses of documents

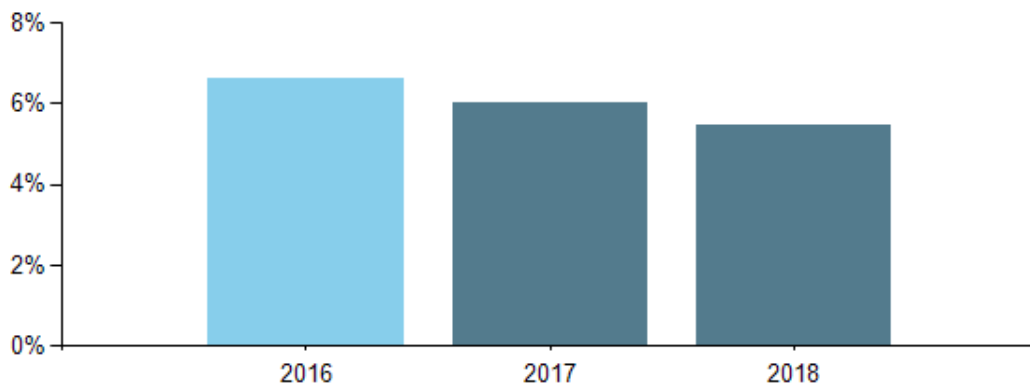
Definition of talent	
Criteria in talent spotting	Intelligence, e.g. by using grades
	Motivation
	Self-regulation
	Volition
Domains	Levels of course
	Access to technology
	Teachers
	Work-place
	Skills
Development of talent	Pedagogy and didactic at school
	Workplace

3 Talent policy in Danish VET

Talents have been on the political agenda in Denmark for a longer period since at least 1989. There have been different kinds of competitions, including skills competitions (Ministry of Education, 2008b; SkillsDenmark, 2019). In 2004, the Ministry of Education initiated a working group, and this starts - what I will call - the first phase of talent policy (Ministry of Education, 2008b). The argumentation for the policy is based on the global competition. At this stage, the definition of talent is "a person, that is good at something and have the possibility to increase this potential if stimulated [my translation] (Ministry of Education, 2008b). The psychologist Kyed argues with references to the national economy and ethical obligations to support people's development (Kyed, 2005). He argues that talent spotting is important to ensure stimulation of talents in the context. Such issues are discussed, as well as the definition of talent in 2005 (Uddannelse, 2005). In the period 2006 to 2008, the Ministry of Education finances two projects at vocational colleges (Ministry of Education, 2008a). The policy is trying to change the attitude to talent and talent development (Ministry of Education, 2008b; EVA, 2011). This goal implies the improvement of access to further education and participating in skills, which are national and international competing in vocations and vocational colleges (Uddannelse, 2005; Ministry of Education, 2008b).

The next phase of talent policy begins in 2010. As in 2004 Ministry of Education initiates a working group and their paper is renewing the policy (Hermann et al., 2011). With this phase, the definition of talent change. "Talent is not only the young who can and will. Talent is also young that maybe can and who have the will to work for the expansion of their talent" [my translation] (Hermann et al., 2011, p. 12). This definition is broader than the description from 2008 as quoted above. The working group recommends a so-called 'talent track' at vocational colleges. It is also recommended that teachers are taught a 'talent didactic' at compulsory teacher education (Nistrup & Larsen, 2015). An evaluation from 2011 states that there is now awareness of the 'strong students' at the colleges. This emphasis is a change from plenty of initiatives on the 'weak students' (EVA, 2011).

From 2015 a reform of vocational colleges is implemented (Government et al., 2014). In this reform, the talent track is realised. Data shows that the percentage of students on the talent track are slightly declining over the years when this program is running (Figure 1).

Figure 1*Percentage of all students in talent track**Legend. National Agency for IT and learning (2019)*

In 2019, the Minister of Education initiated a new initiative, and a third phase starts (Ministry of Education, 2019). The initiative is debated in parliament, but later part of it is withdrawn without thorough explanations. In the debate, the opposition asked questions about how to identify and motivate talents and accommodate the rest of the students (Finansudvalget, 2019). The opposition also asked about how to avoid stress pressing on pupils. That concern was in the general educational debate at that time. These topics can indicate that talent and, e.g. equality in educations are important political questions. In 2019, also a new order called 'the talent order' [my translation] is resolved (Ministry of Higher Education and Science, 2019). This approach allows youth from vocational educations to take subjects at a higher level in further education without having attained the admission demands for formal qualifications. It can be interpreted as if the talent tracks mentioned above are substituted for such initiatives. Newly established knowledge centers complement the work with talents at vocational colleges. The centers must have talent tracks for students at vocational colleges, but it might be difficult to make student attend (e.g. Talents of Retail, 2019).

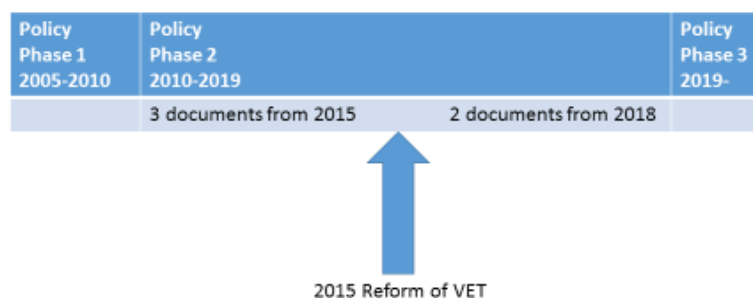
Summing up, the policy can be divided into three phases. The first two are linked to a working group with experts who defines talent. This definition is changing over the stages. The third phase starts with policy initiatives at a ministry and is partly withdrawn again; however, there is one significant change. Students from youth educations can attend courses from higher education, and talent tracks seem to be moved from vocational education in general to knowledge centres working nation-wide. In the next paragraph, the analyses of knowledge from different projects at VET will be presented.

4 Knowledge from projects at VET

Three of the reports concerning talent are published in 2015 and two in 2018. Therefore, all of them are initiated in the second phase of the talent policy as it is defined above. However, it is the reform of the Danish VET in 2015 that, among other things, introduced talent track. This introduction was a recommendation from the beginning of phase two. Figure 2 shows the phases of policy, the timeline for the reform and the analysed documents.

Figure 2

Phases of the talent policy, the documents about talent and the VET reform.



The documents published in 2015 are based on projects running from 2010 to 2015. They will be presented below, one at the time.

The first document is 'Talent development' [my translation]. The study is called a case study involving three vocational colleges (Allermand et al., 2015). The study defines talent as 10-20% of proficient students. These students are characterised by cleverness and persistence. They also have good cognitive competence, self-motivation and innovative competences. Criteria for spotting talents are professional ability, persistence, being interested, creativity, concentration, responsible, having a big overview and that they can cooperate. In some of the cases, tests are used in spotting talent. Summing up, the definition of talent and the criteria in spotting are very open and wide. The domains in the study are students attending the highest possible level of courses and access to relevant equipment such as technology.

Furthermore, the teaching is mentioned as a domain: teachers have to guide, express equality between teacher and student, have high professional capital and good education and teachers have to be well qualified. In addition, the skills from innovation camp are mentioned. This means that the domains included in this study are broad. Talent development in this document includes pedagogic and didactic at college and internship abroad. Overall, the document shows a study that includes:

Definition of talent

Spotting talent

Domains: level of courses, access to technology, teaching and skills

Talent development: pedagogic and didactic, workplace

The next document is summarising research in a report called 'talent spotting' [my translation] (Gleerup et al., 2015). Talent is called a fluent signifier combining natural gifts and learned abilities. The criteria for talent spotting are diligence, capacity, engagement, independence, experience, motivation, empathy, innovations. Adding competencies as analytical, imagination, knowing the material and creating results. This research also includes the domain of teaching, pointing out that teacher development is important. Talent development is connected to pedagogic and didactic issues, including being goal oriented, differentiating, giving feedback, planning, and methods. Furthermore, the involvement of knowledge, and observations of students, and teachers who need the ability to talk about and have a vocabulary to discuss pedagogic and didactic concerns are also mentioned. The students' personal development is important, but the distance is also needed. This study includes:

Definition of talent

Spotting talent

Domains: level of courses, teaching, workplace

Talent development: pedagogic and didactic, personal development

Compared to the first-mentioned study, the similarity is that these four categories are included, although there are some variations in the focus. However, the analyses show a change in the forthcoming reports.

The document 'Road to talent' is called an evaluation [my translation] (Teknologisk Institut, 2015). Talents are selected as being included in the best 10%. The criteria for talent spotting are volition, engagement, curiosity, social competences, innovative and overview. Three domains include levels of courses, teaching and workplace, but more important are talent development. It is said that talent development should be integrated everywhere, and this can include talent teams in shorter periods. The report mentions a didactic for talent development and personal development of students that provides for motivation and self-confidence. Overall, the document shows a study that includes:

Definition of talent

Spotting talent

Domains: levels of courses, teaching, workplace

Talent development: pedagogic and didactic, personal development

4.1 Documents from 2018

The document 'talent development' [my translation] defines talents as students on the talent track (Iversen et al., 2018). The research report presents 12 cases for students at internship; therefore, the main domain is the workplace. The researchers write that they assume that identity as becoming a skilled worker is important. They mention coherence between vocational college and internship, and they highlight progression in learning, organisation, role models and relations. Talent development at the workplace is related to the students' dispositions, tasks, interactions, credit and dialogue. Therefore, this document is about:

Domain: workplace

Talent development: workplace

The last document, 'talent track and subjects at higher levels' [my translation], is closely connected to the VET reform and can be understood as an intervention to implement this reform (Rambøll, 2018a). The domain is teaching, interpreting and implementing the reform. Talent development at workplaces is mentioned reminding the importance of the dialogues between the central agents involved in talent track. However, talent development as pedagogic and didactic at college are the main focus. Talent development can attract more students. Students need help to motivation to chose talent track and subjects at higher levels than are compulsory, and teachers have to implement the reform, develop their teaching, including differentiated instruction. So, the categories involved are the domain of teaching and talent development as pedagogic and didactic groupings that include the workplace.

5 Conclusion

This short paper shows the policy chance of talent showing shifts in 2005, 2010 and 2019. The definition of talent chance and this influences the vocational educations, but a major change relates to the VET reform in 2015 integrating the recommendation of talent track. The documents that are found relates to phase two. Three documents are from 2015 that is before the VET reform is implemented. Two documents are from 2018 – after the reform. Figure 2 illustrates this. Since the documents use different terminology, it can be complicated to compare them. Even when the same terms are used, it can be related to different understandings. Because the reports are not associated with theoretical approaches, the positions are not always entirely

clear. However, using the model made by Pylvä and Nokelainen (2017) provides categories that can systematise the reading of the documents.

Comparing the documents there seems to be a slight shift from interest in the definition of talent and talent spotting to talent development. This issue can be related to the VET reform since the definition of talent is defined as being in talent track. The discussion of the meaning of talent and talent spotting seems thereby minimised. Only one document has the main focus on internship and the conditions, relations etc. in the workplace. Pedagogy and didactic methods in the vocational colleges are mentioned in four of the documents, but the approaches are very broad. The theoretical understandings are not explicated and, therefore, it is difficult to point out things in common. Based on this research, we conclude that knowledge of talent at VET in Denmark is sparse. However, each document contributes to showing the complexity of talent at VET. The model made by Pylvä and Nokelainen (2017) give categories that need further exploration.

Since talent and talent spotting is very open defined, it can be challenging to work with at the vocational colleges. The discussion of the definition of talent was less important by using talent track as a definition, but this did not make any increase in the counted numbers of talents.

Since knowledge of talent at VET must be found in qualitative studies using different methodologies and very broad definitions and terminology, summing up the knowledge is difficult even as the model and categories in use make it possible to make a kind of comparison and conclusion.

Teaching and pedagogic and didactic issues are addressed in the documents, but it could be discussed how and if this concern is special to talents. This discussion might address not only talents but also all other students. So maybe talented and gifted students at VET can gain from initiatives intended for other groups of students as well. The main questions might still relate to the learning and development of all students at the VET.

References

- Allermand, G., Andersen, O. D., Iversen, K. S., & Koudahl, P. (2015). *Talentudvikling i industrifagene. Fem casestudier i CoE. [talent development]*. Metropol. [https://www.ucviden.dk/portal/da/projects/talentudvikling-i-industrifagene\(4c29062e-7ab1-4dbc-bdcd-6220a1f097e2\).html](https://www.ucviden.dk/portal/da/projects/talentudvikling-i-industrifagene(4c29062e-7ab1-4dbc-bdcd-6220a1f097e2).html).
- Christensen, S. (2015). Ud over skole-centrisme: Talent i erhvervsuddannelserne. *Dansk Pædagogisk Tidsskrift*, 4, 42–52.
- Christensen, S. (2016). Nytænkning: Talent rejser diskussion om pædagogiske ståsteder. *Dansk Pædagogisk Tidsskrift*, 4, 29–39.
- EVA [Danmarks Evalueringsinstitut] (2011). *Tilbud til stærke elever på erhvervsuddannelserne*. <https://www.eva.dk/sites/eva/files/2017-07/Erhvervsuddannelsers%20tilbud%20til%20staerke%20elever%202011.pdf>.
- Finansudvalget (2019). *Finansudvalget 2018-2019. aktstykke. 102 endeligt svar på §17 spørgsmål 2, 5, 6 og 7*. Offentligt. <https://www.ft.dk/samling/20181/aktstykke/aktstk.102/index.htm>.
- Gagné, F. (2004). Transforming gifts into talents: The DMGT as a developmental theory. *High Ability Studies*, 15(2), 119–147.
- Gagné, F. (2010). Motivation within the DMGT 2.0 framework. *High Ability Studies*, 21(2), 81–99.
- Gleerup, J., Nielsen, B. S., Svejgaard, K. L., & Larsen, J. (2015). *Afrapportering fra følgeforskningen til det pædagogiske udviklingsprojekt. Talentspotning – et bidrag til en dygtigere ungdomsgeneration. [Talentspotting]*. Roskilde Universitet. [https://www.ucviden.dk/portal/da/publications/afrapportering-fra-foelgeforskningen-til-det-paedagogiske-udviklingsprojekt-talentspotning--et-bidrag-til-en-dygtigere-ungdomsgeneration\(d3edeaaa-0b2e-415a-bad1-53a6b80116c0\).html](https://www.ucviden.dk/portal/da/publications/afrapportering-fra-foelgeforskningen-til-det-paedagogiske-udviklingsprojekt-talentspotning--et-bidrag-til-en-dygtigere-ungdomsgeneration(d3edeaaa-0b2e-415a-bad1-53a6b80116c0).html).
- Government et. al. [Regeringen (Socialdemokratiet og Radikale Venstre), Venstre, Dansk Folkeparti, Socialistisk Folkeparti, Konservative Folkeparti og Liberal Alliance] (2014). Aftale om Bedre og mere attraktive erhvervsuddannelser. <https://www.uvm.dk/erhvervsuddannelser/nyheder-lovgivning-og-reform/politiske-aftaler-og-oplaeg>.

- Government et. al. [Regeringen, Socialdemokratiet, Dansk Folkeparti, Radikale Venstre og Socialistisk Folkeparti] (2018). Fra folkeskole til faglært – Erhvervsuddannelser til fremtiden. <https://www.uvm.dk/aktuelt/nyheder/uvm/2018/nov/181122-ny-aftale-baner-vejen-fra-folkeskole-til-faglaert>.
- Hermann, S., Andersen, N. O. Birkving, K., Egebjerg, J., Kingo, L., Hindsholm, S., & Wilbek, U. (2011). *Talentudvikling. Evaluering og strategi. Danmark: Undervisningsministeriet og Arbejdsgruppen til talentudvikling i uddannelsessystemet*. <https://docplayer.dk/1983046-Talentudvikling-evaluering-og-strategi-af-arbejdsgruppen-til-talentudvikling-i-uddannelsessystemet-tal-entrapport.html>.
- Hjort-Madsen, P., & Koudal, P. (2016). Den implicite lærer. *Dansk Pædagogisk Tidsskrift* 4, 52–62.
- Iversen, K. S., Rasmussen, P. H., & Svejgaard, K. L. (2018). *Talentudvikling i virksomhedspraktikken. [Talentdevelopment]*. Nationalt Center for Erhvervspædagogik. <https://www.phmetro-pol.dk/nce/forskning+og+udvikling/publikationer>.
- Jørgensen, C. H. (2016). Reformen af erhvervsuddannelserne – en gang til, forfra og om igen. *Dansk Pædagogisk Tidsskrift*, 4, 9-18.
- Kyed, O. (2005). Talentspotning – hvordan? *Uddannelse*, 8, 21–28.
- Lave, J., & Wenger, E. (1991). *Situated learning. Legitimate peripheral participation*. Cambridge University Press.
- Lynggaard, K. (2015). Dokumentanalyse. In S. Brinkmann & L. Tanggaard (Eds.), *Kvalitative metoder: En grundbog* (pp. 137–152). Hans Reitzels Forlag.
- Ministry of Education [Undervisningsministeriet] (2018). Håndbog om talentspor og fag på højere niveau på erhvervsuddannelserne. <https://emu.dk/eud/saerlige-elevgrupper/talenter/styrk-arbejdet-med-talent-og-fag-pa-hojere-niveau>
- Ministry of Education [Undervisningsministeriet] (2019). National indsats for talentfulde elever. <https://www.regeringen.dk/publikationer-og-aftaletekster/national-talentindsats-for-talentfulde-elever/>
- Ministry of Education [Undervisningsministeriet] (2008a). Oversigt over projekter, der har modtaget støtte fra talentpuljen. <https://www.ft.dk>.
- Ministry of Education [Undervisningsministeriet] (2008b). Redegørelse om talentudvikling til Folkeetingets Uddannelsesudvalg. <https://www.ft.dk/samling/20081/almdel/udu/bilag/104/625768.pdf>
- Ministry of Higher Education and Science (2019). Bekendtgørelse om talentinitiativer på de videregående uddannelser (talentbekendtgørelsen). <https://www.retsinformation.dk/eli/lta/2015/597>
- National Agency for IT and learning [Styrelsen for It og Læring] (2019). Andel elever der følger talentspor (mål 3). <https://uddannelsesstatistik.dk/Pages/Reports/148.aspx>.
- Nissen, P., Kyed, O., & Baltzer, K. (2011). *Talent i skolen – Identifikation, undervisning og udvikling*. Dafolo Forlag.
- Nistrup, U., & Larsen, J. (2015). Talentudvikling – hvorfor det, og hvad er talent? In J. Larsen, B. Day, H. Duch, U. Nistrup, & E. E. Rasmussen (Eds.), *Nye vinkler på erhvervspædagogik* (pp.43–54). Systime Profession.
- Prior, L. (2011). Editor's introduction. In L. Prior (Ed.), *Using documents and records in social research* (pp xxi-xxvii). SAGE.
- Pylväs, L., & Nokelainen, P. (2017). Finnish WorldSkills achievers' vocational talent development and school-to-work pathways. *International Journal for Research in Vocational Education and Training*, 4(2), 95–116. <https://doi.org/10.13152/IJRVET.4.2.1>
- Pylväs, L., Nokelainen, P., & Rintala, H. (2018). Finnish apprenticeship training stakeholders' perceptions of vocational expertise and experiences of workplace learning and guidance. *Vocations and Learning*, 11(2), 223–243. <https://doi.org/10.1007/s12186-017-9189-4>
- Rambøll (2018a). *Evalueringsrapport. Bedømmelseskriterier og – kultur samt talentsprog og fag på højere niveauer. [Talent track and subjects at higher levels]*. <https://emu.dk/eud/forskning-og-vi-den/erhvervsuddannelsesreformen/bedommelseskriterier-og-kultur-samt-talent-og>.
- Rambøll (2018b). *Talentspor og fag på højere niveau i EUD*. Vidensnotat.
- Rasmussen, A. (2012). The use of talent classes to reproduce differentiated education. *Ethnography and Education*, 7(1), 93–107. <https://doi.org/10.1080/17457823.2012.661590>

- Rasmussen, A., & Lingard, B. (2018). Excellence in education policies: Catering to the needs of gifted and talented or those of self-interest? *European Educational Research Journal*, 17(6), 877–897. <https://doi.org/10.1177/1474904118771466>
- Rasmussen, A., & Rasmussen, P. (2015). Conceptions of student talent in the context of talent development. *International Journal of Qualitative Studies in Education*, 28(4), 476–495. <https://doi.org/10.1080/09518398.2014.916013>
- SkillsDenmark (2019). *Hvem er SkillsDenmark?* <https://skillsdenmark.dk/>
- Stroeger, H., Balestrini, D. P., & Ziegler, A. (2018). International perspectives and trends in research on giftedness and talent development. In S. I. Pfeiffer (Ed.) *APA handbook of giftedness and talent* (pp. 25–38). American Psychological Association.
- Talents of Retail (2019). <http://talentsofretail.dk>.
- Talentvejen (2019). *Talentvejen*. <http://talentvejen.nu/>
- Teknologisk Institut (2015). *Afsluttende evaluering. [Road to talent]*. <http://talentvejen.nu/>
- Uddannelse (2005). *Uddannelse* 8.

Biographical notes

Henriette Duch is an associate professor and PhD. Her research is addressing vocational teacher education and qualification as well as students at vocational colleges.

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Development of a Video-Based Instrument for the Assessment of Professional Competence: Video Vignettes

Faath-Becker, Andrea

Technical University of Kaiserslautern, Germany, Department of Technical Didactics, faath-becker@mv.uni-kl.de

Walker, Felix

Technical University of Kaiserslautern, Germany, Department of Technical Didactics, walker@mv.uni-kl.de

Abstract

One objective of the Teacher Training Program for Vocational Schools in Germany is to enable students to plan, implement and reflect on effective teaching. University teacher training for vocational schools exclusively builds up content and pedagogical knowledge, which is only one facet of professional teacher competence. University graduates state at the transition to professional practice that they do not feel sufficiently prepared for the concrete, complex demands of teaching (Saas et al., 2020). It can be assumed that this gap could be bridged by the targeted development of action-oriented competences. Video vignettes represent an instrument for the assessment of action-oriented competence facets in theoretical teacher training – at an early stage of training – that can otherwise only be observed in real lessons. This work studies the suitability of the action-based model of professional competence, with regard to its objectivity and the operationalizability of the features for the development of video vignettes.

Keywords

professional competence; vocational teacher training; video vignettes

1 Introduction

University education for the vocational teaching profession in Germany is intended to create the conditions for a successful transition to preparatory service (Saas et al., 2020). The aim is to develop the professional competence of future teachers. A frequent focus of empirical work is on professional knowledge as part of professional action or professional competence. However, the reduction of professional competence to the knowledge facet (based on Shulman (1986) pedagogical knowledge (PK), technical knowledge (CK) and didactic knowledge (PCK) seems to fall short. To solve practical problems in concrete teaching situations, prospective teachers often feel unable to translate these knowledge components they have acquired during their studies into effective action. The national curriculum standards for teacher training at vocational schools (Kultusministerkonferenz [KMK], 2004) require that students be able to plan, implement and reflect on competence-enhancing (high-quality) teaching. These demands make it clear that the KMK assumes an understanding of professional competence that includes both knowledge elements and practical competences, without, however, explaining this (Walker &

Faath-Becker, 2019). To date, university tutorials on teaching methodology for the vocational teaching profession have been focused almost exclusively on the planning of lessons (e.g., in the form of written elaborations on a fictitious teaching sequence). Until now, the students' competence to carry out lessons or to reflect is being largely disregarded.

2 State of research and theoretical framework

The fields of action described, and the resulting requirements give rise to three starting points for examination: the professional competence of teachers, the quality of teaching and, on the technical part, the production of video-based instruments to assess both aspects. The complexity of teaching interaction is due, among other things, to the fact that personal, individual dispositions (PID model by Blömeke et al. (2015) and the competence structure model by Zlatkin-Troitschanskaia et al. (2019) of both teachers and learners influence its course and, in particular, its effectiveness.

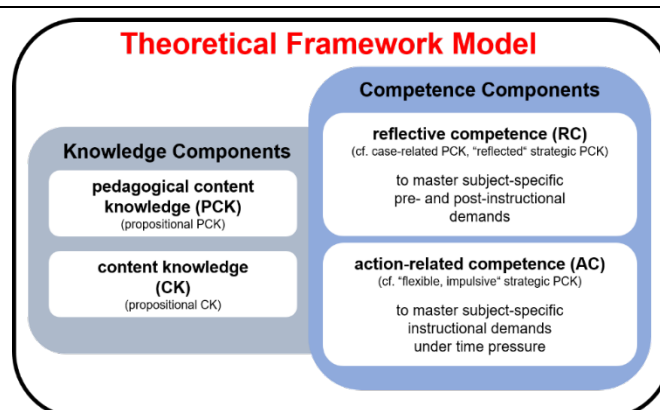
2.1 Professional competence

Lindmeier (2011) proposes a model for professional competence that meets the requirement to include both knowledge and action-related competence facets (Figure 1). (Lindmeier, 2011). The professional knowledge of teachers with the above-mentioned components, based on Shulman (1986), stands alongside action-oriented professional skills. Competences are thereby understood in the sense of Klieme and Hartig (2007) as requirement-specific achievement dispositions and thus understood more broadly than the knowledge components (Lindmeier, 2013). Lindmeier's examinations of these teacher cognitions are also reflected in the analytical part of the PID model from Blömeke et al. (2015).

The knowledge components (Figure 1, left) comprise the basic pedagogical content knowledge (PCK) and the content knowledge (CK), which form the basis of professional action. The competence components (Figure 1, right) are again divided into a component of reflective competence (RC) and a component of action-related competence (AC). In this model, action-related competence components are thus formulated as a component of professional competence (Lindmeier et al., 2013). "Reflective competence" (RC) refers to the ability to cope with pre- and post-instructive requirement situations on the basis of subject-specific basic knowledge (Lindmeier, 2013). These are complex skills that are needed to draw conclusions from the reflection on lessons held and to prepare future lessons. "Action-based competence" (AC) refers to the ability of a spontaneous teacher reaction based on professional knowledge in teaching situations under time pressure (Lindmeier, 2013, p. 10). Spontaneous means that an activation of reflective processes is not possible (Lindmeier et al., 2013). These two characteristics represent the central difference to reflective competence.

Figure 1

Competence structure model according to Lindmeier (2011).

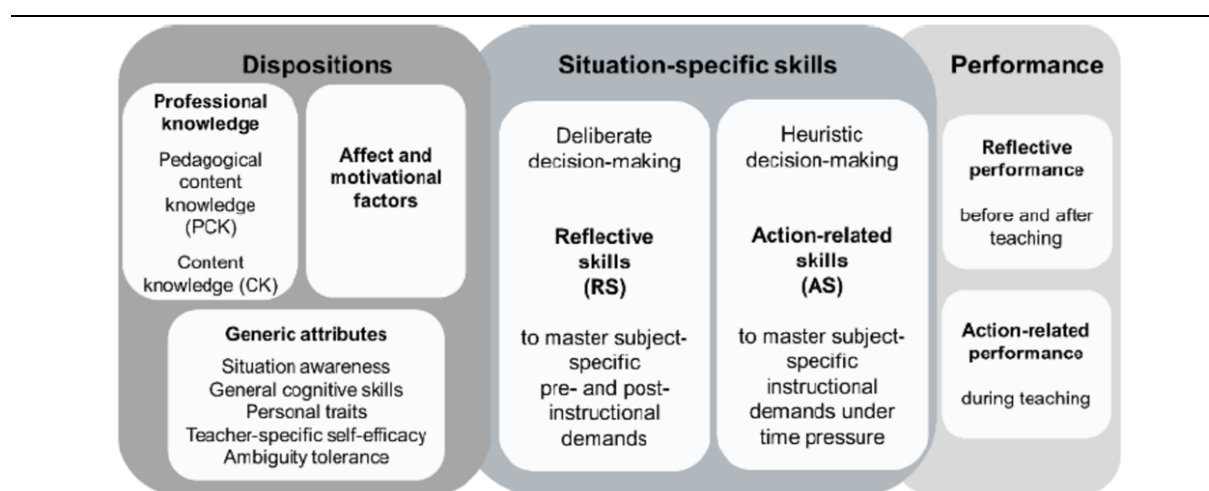


Zlatkin-Troitschanskaia et al. (2019) draw on the Lindmeier model (2011) and distinguish between action-related and reflective competences. This holistic approach comprises two levels: a latent one with two areas (Figure 2, left: dispositions; centre: situation specific skills) and a manifest one (Figure 2, right: performance).

According to Zlatkin-Troitschanskaia et al. (2019), dispositions of teachers (Figure 2, left, dispositions) include knowledge components (cf. Figure 1, left) as well as generic characteristics and motivational factors as a basis for all teaching. According to this model, the quality of this teaching action is manifested in the reflective or action-based performance (Figure 2, right) of the teachers. This requires situation-specific skills (Figure 2, centre): on the one hand, the (direct) reaction of prospective and experienced teachers to real instruction (i.e., AS) (Figure 2, action-related skills) and, on the other, the ability to prepare and follow-up instruction (i.e., RS) (Figure 2, reflective skills) in the specific discipline (Zlatkin-Troitschanskaia et al., 2019). This model thus focuses on those situation-specific skills in which university graduates themselves do not feel adequately prepared.

Figure 2

Competence structure model according to Zlatkin-Troitschanskaia, Kuhn, Brückner, and Leighton (2019).



2.2 Quality of teaching

Teaching action always raises the question of the quality of these actions – regardless of a distinction between reflective (RC) and action-related (AC) competences. The consideration of the understanding of competence-enhancing or quality teaching can create a possible approach here. Following Berliner (2005), quality teaching represents the synergy of good and effective teaching. According to Berliner (2005), good teaching is characterised by the fact that it follows normative principles and current standards of the field. A second evaluation criterion for teaching is its effectiveness (Berliner, (2005). Teaching is considered effective when it achieves the desired goals.

According to Kunter and Ewald (2016), it does not make sense to view and evaluate lessons superficially, but always to include interactions that are not easy to evaluate at first glance as well as the role of learners and teachers. A meaningful conceptual distinction in this context – dating back to Oser and Patry (1990) – is that between the visual and depth structures of teaching (Kunter & Ewald, 2016). The visual structures of teaching are the easily accessible features of teaching that refer to superordinate structures and settings (Kunter & Ewald, 2016). The depth structures represent the levels of interaction between teachers and learners and their

quality. The quality of the interaction between the learners and the way in which the learners deal with the subject matter is therefore at stake (Kunter & Ewald, 2016), irrespective of the overarching organisation of the learning situation. In empirical studies on the quality of teaching, the depth structures of teaching in particular have proven to be significant (Hattie, 2009; Kunter & Ewald, 2016; Seidel & Shavelson, 2007). Compared to the depth structures of teaching, the visual structures have proven to be less relevant for the effect of teaching (Kunter & Ewald, 2016). Lipowsky (2015) also categorises the subject by citing as quality characteristics the structured nature of teaching, clarity and coherence of content, feedback, cooperative learning, practice, cognitive activation, supportive learning climate and inner differentiation.

2.3 Video-based tools for measuring professional competence

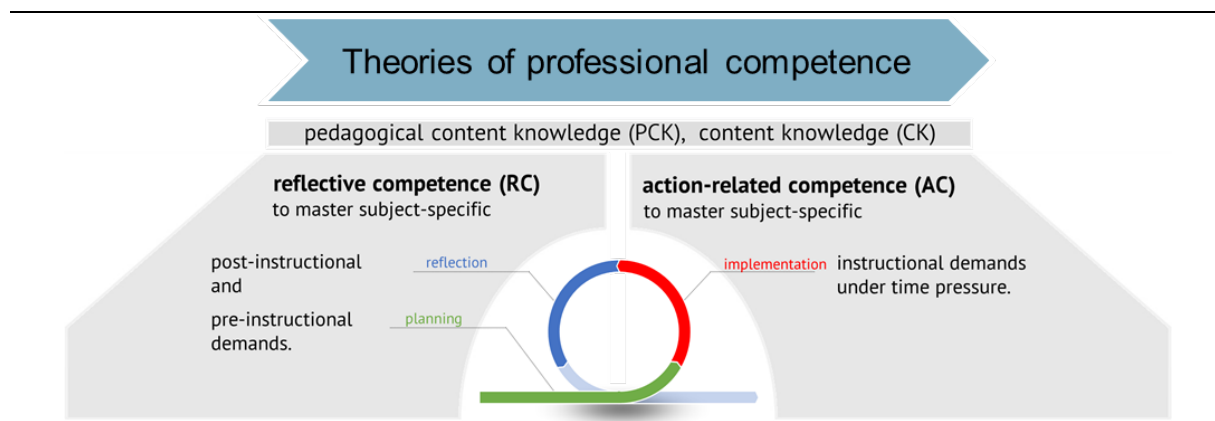
Basically, there are various conceivable ways of capturing action-related competences as part of the professionalisation of prospective teachers during their studies, like through practical phases (effectiveness discussed controversially; e.g., König et al., 2018) or forms of teaching simulation, such as microteaching or role plays (effectiveness proven; e.g., Hattie, 2009, p. 112, $d=0.88$).

Video vignettes (didactically integrated video segments/sequences) are a diagnostic approach that can be easily integrated into studies due to technological progress or digitalisation. They are suitable for acquiring professional competence through an authentic depiction of the teaching reality – especially in the area of university teacher training (Riegel, 2013). The fact that the use of video vignettes can promote the skills of (prospective) teachers is well documented (at a glance, e.g., Hatch et al., 2016). In recent years, increasing numbers of video vignettes have been produced for the continuation or reflection of teaching in general education (Seidel & Thiel, 2017). No video vignettes are currently available for the industrial-technical part of vocational (teacher) education (Riegel, 2013; Walker & Faath-Becker, 2019). Internationally, worth mentioning is the approach of Darling-Hammond (2010), who, for example, has students of the teaching profession or trainees analyse the videography of their teaching attempt in order to reflect on their lesson planning as part of the "Performance Assessment for California Teachers (PACT)". The focus in this context is on effective teaching and includes the development of students' competences (Darling-Hammond, 2010, p. 44).

2.4 An action-oriented model of professional competence

If one takes up the critical feedback mentioned at the beginning, this must be manifested in a model of professional competence as the basis for the development of video vignettes. Here, both the idea and understanding of professional competence (Blömeke et al., 2015; Lindmeier, 2011; Zlatkin-Troitschanskaia et al., 2019) of future teachers and the central aspect of teaching quality (Berliner, 2005; Kunter & Ewald, 2016; Lipowsky, 2015; Oser & Patry, 1990) must be taken into account.

On the basis of the above considerations, the approach of Lindmeier (2011) on subject-specific competences (competence structure model, Figure 1) required for the preparation and follow-up of teaching (Lindmeier et al., 2013), is an essential part of this theoretical framework. Accordingly, in line with the first objective, the question was which idea or understanding is the basis of the professional competence of future teachers. On the basis of the models presented, a model of teachers' professional competence was to be selected whose components reflect both the above-mentioned arguments regarding the training situation and the practical situation, as well as the requirements of the KMK. The action-oriented model shown in Figure 3 is based on the work of Zlatkin-Troitschanskaia et al. (2019), Blömeke et al. (2015) and Lindmeier (2011). The elements of the PCK and CK (Figure 3) are summarised according to Lindmeier (2011) under basic knowledge (Figure 1), while below they can be distinguished between two fields of competence.

Figure 3*Action-oriented model of professional competence of*

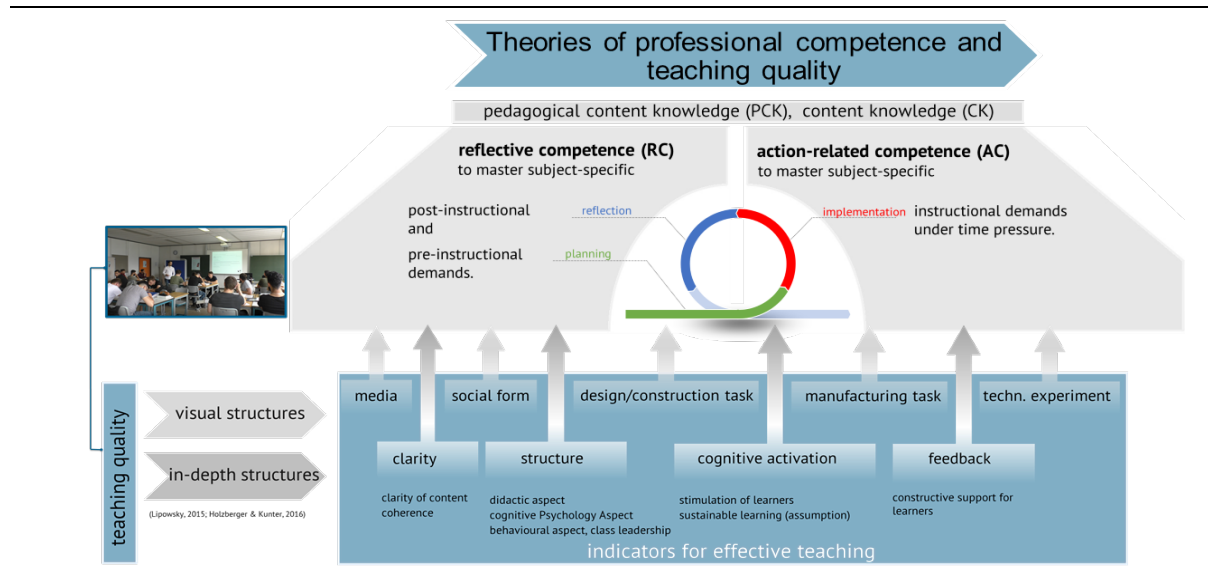
Legend. Walker and Faath-Becker (2019) based on Zlatkin-Troitschanskaia, Kuhn, Brückner und Leighton (2019), Blömeke, Gustafsson und Shavelson (2015), and Lindmeier (2011).

In the model by Zlatkin-Troitschanskaia et al. (2019), these competence components can be found under situation-specific skills. The ability to act under time pressure and make teaching decisions can be related to the delivery of instruction under the concept of action-based competence (Figure 3, right). For our model, action-based competence is defined as follows: Action-based competence refers to the ability of a teacher to react spontaneously and adequately based on professional knowledge (Lindmeier, 2013) and taking into account the dimensions of teaching (Lipowsky, 2015) in teaching situations under time pressure. Spontaneous means that an activation of reflective processes is not possible. With the other two phases, planning and reflection (Figure 3, left), the competence facet of reflective competence is linked. This is understood to mean coping with pre-instructional (planning) and post-instructional (reflection) teaching requirements (Lindmeier, 2011). Reflective competence is the ability to cope with pre- and post-instructional situations (Lindmeier, 2011) on the basis of subject-specific basic knowledge (Lindmeier et al., 2013) and taking into account the dimensions of teaching quality (Lipowsky, 2015). These are complex skills that are needed to draw conclusions from the reflection of lessons held and to plan lessons (Lindmeier, 2011). Pre-instructional reflective competence refers to the ability to reflect the didactic design of instruction on the basis of subject-specific basic knowledge and the characteristics of teaching quality. Post-instructional reflective competence is defined as the ability to reflect on learners' learning processes and products, the quality of interaction between teachers and learners and their (re-)actions, and the methodological and organisational design of teaching based on the characteristics of teaching quality through class observation.

The second goal of the work – what is meant by competence-enhancing or quality instruction – is covered by the presentation of Berliner (2005). Following this idea, instruction is of high quality if it is good (by adhering to normative principles) and effective (by achieving the required competence goals). The distinction between visual and depth structure in class observation is important here. Above all, the characteristics of the depth structure proved to be characteristics of effective teaching and are operationalised by corresponding quality characteristics. In addition to class leadership, cognitive activation and constructive, Lipowsky (2015) emphasises, among other things, structured teaching, clarity and coherence of content, cognitive activation and informative feedback as quality characteristics (Lipowsky, 2015, p. 95). (Kunter & Ewald, 2016).

Figure 4

Action-oriented model of professional competence (Figure 3), combined with characteristics of teaching quality (Walker & Faath-Becker, 2019; translated from German into English)



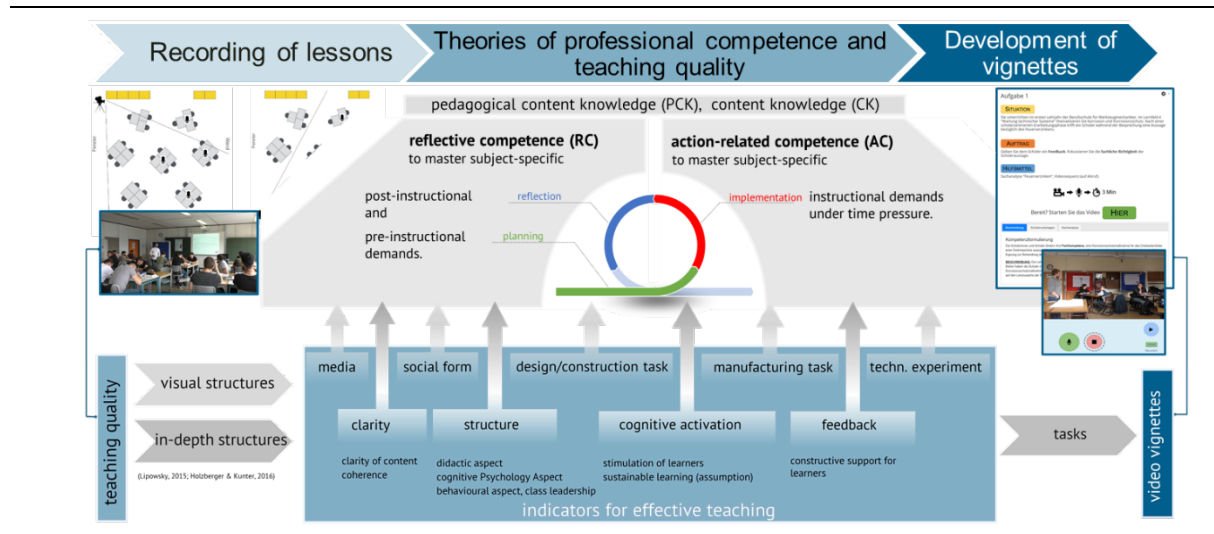
Based on the models mentioned above and the idea of quality teaching, the action-oriented competence facets are now combined with the quality criteria of teaching (Figure 4). The characteristics of the depth structure in particular are seen as indicators of quality teaching, which can be related to the expression of the reflective and action-based competence facets as part of the professional competence of the (prospective) teachers. These exemplarily listed characteristics of the depth structure (Figure 4, below, in the middle) are operationalised for a more detailed examination of the assessment of action-related professional competences in interaction with teaching quality in video vignettes. For this purpose, the respective feature definitions are related to concrete teaching situations in which actions can be observed and reflected upon or which can provide occasions for the active continuation of a teaching action. As an example of the characteristics of teaching quality, the feedback characteristic is considered in more detail here. First, a definition of feedback/constructive support is given on the basis of the above-mentioned literature: This dimension focuses on supporting learners with comprehension problems and creating a learning environment in which the interaction between teachers and learners is characterised by respect and appreciation (Kunter & Ewald, 2016).

2.5 Development of a video-based instrument for the assessment of professional competence: video vignettes

In a first step, real lessons in the industrial-technical field of vocational training are recorded by means of standardised videography (Seidel & Thiel, 2017). For this purpose, student and teacher perspectives are each captured with a fixed camera as well as selectively interesting scenes with a moving camera, and separate microphones are used for teacher and learner. The evaluation objectivity of the criteria for capturing professional competence in this context is determined after the next step: The video recordings are then divided by trained observers into sections in which specific characteristics of teaching quality and the requirements of the RC and AC can be identified (Figure 5) (Walker & Faath-Becker, 2019). From these video sequences video vignettes can be produced in the last step.

Figure 5

Overview of the development of video vignettes (Walker & Faath-Becker, 2019; translated from German into English)



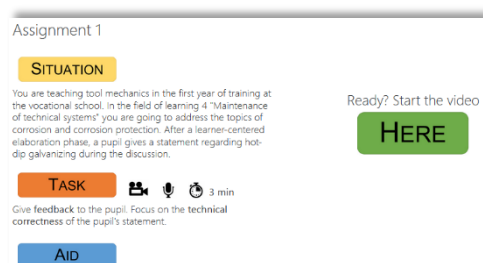
So far, 21 vignettes have been identified from the recorded lessons and assigned to the two competence areas RC (13) and AC (8). For the above-mentioned characteristic "feedback", the corresponding definition was used as a basis and a targeted search was made in the video material for passages in which the designated actions could be observed either in terms of reflective or action-based competence. Thus, for example, the support of learners with comprehension problems is expressed in the fact that the teacher shows a corresponding reaction (AC) to a pupil's question by either answering directly, reflecting the question back to the class, putting the answer to the question back and referring to another process, or leaving the question as is without clarifying it. So it is not yet a question of checking the quality of feedback given or evaluating it as positive or negative. Rather, sequences in the video material were selected for the mere occurrence of the feature and thus only perception – whether positive or negative – played a role. This characteristic is thus assessed purely from an observational and not a judgmental attitude. A suitable sequence can thus be selected both by the occurrence of the feature and the absence of an expected feature. The assessment and allocation of the observed actions to the features is carried out by two independent observers, in order to secure each of them against each other in a first step. The observations of both are examined with respect to the agreement in the assignment of the vignettes to the same characteristic of teaching quality regarding the associated competence area (AC or RC). Initial analyses of the objectivity of the evaluation show sufficient quality ($\kappa_{RC} = .64$; $\kappa_{AC} = .47$) with a simultaneous large variance between the vignettes (Walker & Faath-Becker, 2019, p. 18).

Finally, the vignettes are integrated into an online environment and enriched with additional materials. The following example shows the video vignette implemented on the online platform for action-based competence and the feedback feature. The introduction to the online environment is a brief description of the teaching situation (Figure 6, "situation" above). In addition, it is possible to view further planning documents for the lessons, such as essential information on the learning group, the classification in the curriculum and a reference to the subject content (Figure 6, left). Once the required information on the lessons has been obtained, the processing of the assignment can begin. In this example, a technically correct feedback on a pupil's answer is to be provided (Figure 6, above). Before the video is started, the editors of this action-based competence video vignette are informed that the editing must take place with an audio recording/voice output within a predefined period of time. After confirmation of the message, the video starts automatically and the editing time runs (Figure 6, right). Now it is

possible to document one's own reaction orally, thereby providing technically correct feedback on the student's response within the given time. The recording is automatically saved (Walker & Faath-Becker, 2019).

Figure 6

Start view of a video vignette in the online environment (Walker & Faath-Becker, 2019; translated from German into English)



3 Discussion and limitations

A video-based instrument for the assessment of "action-oriented" facets of professional competence was presented in the context of the article. This development took place on the theoretical basis of the models of Zlatkin-Troitschanskaia et al. (2019) and Lindmeier (2011), whereby the action-based competence facets focus in particular on the characteristics of competence-enhancing and quality teaching action. The generated video vignettes are based on real teaching. The video vignettes developed in this way (21 pieces) and the characteristics of quality teaching contained therein could be identified with satisfactory objectivity. The integration of the video vignettes into an online environment in which further information on the teaching situation (lesson plans, worksheets, specialist information, etc.) can be viewed completes the instrument.

To the authors' knowledge, the instrument presented here represents the first video-based instrument in the industrial-technical field of teacher training in Germany and Europe. The use of the instrument is not limited to diagnostic purposes: the identified video vignettes can be used to build up action-oriented competences within the framework of the studies or the second phase of teacher training. The focus on the characteristics of quality teaching obviously limits the meaningfulness of the instrument developed here, as only a part of the characteristics of quality teaching is depicted. The same applies to the construct of professional competence. Although, in comparison to other models of professional competence, "action-oriented" competence facets were integrated into the model, knowledge aspects remained only implicit in the instrument, that is, as a basis for teaching action. The video vignettes integrated into the instrument show real lessons, which have both negative and positive consequences. It should be positively emphasised that the teaching situations represented in the video vignettes depict authentic teaching in all its complexity. But this is also connected with the negative aspect. It is precisely this multidimensional nature of teaching that can lead to the fact that several characteristics of quality teaching of varying intensity occur in the video sequences and thus the construct to be captured is not exactly depicted (construct irrelevant variance [Downing & Haladyna, 2006; Haladyna & Rodriguez, 2013]). With the help of these online-based video vignettes, both the assessment as perspective and the development of professional competence can be authentically integrated into the teacher training course for vocational schools (Walker & Faath-Becker, 2019).

References

- Berliner, D. C. (2005). The near impossibility of testing for teacher quality. *Journal of Teacher Education*, 56(3), 205–213. <https://doi.org/10.1177/0022487105275904>
- Blömeke, S., Gustafsson, J.-E., & Shavelson, R. J. (2015). Beyond dichotomies. *Zeitschrift für Psychologie*, 223(1), 3–13. <https://doi.org/10.1027/2151-2604/a000194>
- Darling-Hammond, L. (2010). *Evaluating teacher effectiveness: How teacher performance assessments can measure and improve teaching*. Center for American Progress.
- Downing, S. M., & Haladyna, T. M. (Eds.). (2006). *Handbook of test development*. Erlbaum. <http://www.loc.gov/catdir/enhancements/fy0709/2005030881-d.html>
- Haladyna, T. M., & Rodriguez, M. (2013). *Developing and validating test items*. Routledge.
- Hatch, T., Shuttleworth, J., Jaffee, A. T., & Marri, A. (2016). Videos, pairs, and peers: What connects theory and practice in teacher education? *Teaching and Teacher Education*, 59, 274–284. <https://doi.org/10.1016/j.tate.2016.04.011>
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Klieme, E., & Hartig, J. (2007). The concept of competence in social and educational sciences. In M. Prenzel, I. Gogolin, & H.-H. Krüger (Eds.), *Zeitschrift für Erziehungswissenschaft. Sonderheft. 8. Kompetenzdiagnostik* (pp. 11–29). VS Verl. für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-90865-6_2
- König, J., Rothland, M., & Schaper, N. (Eds.). (2018). *Learning to practice, learning to reflect?* Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-19536-6>
- Kultusministerkonferenz. (2004). *Standards für die Lehrerbildung: Bildungswissenschaften*.
- Kunter, M., & Ewald, S. (2016). Bedingungen und Effekte von Unterricht: Aktuelle Forschungsperspektiven aus der pädagogischen Psychologie. In N. McElvany, W. Bos, H.-G. Holtappels, M. M. Gebauer, & F. Schwabe (Eds.), *Dortmunder Symposium der Empirischen Bildungsforschung: Band 1. Bedingungen und Effekte guten Unterrichts*. Waxmann.
- Lindmeier, A. (2011). *Modeling and measuring knowledge and competencies of teachers: A threefold domain-specific structure model for mathematics*. Empirische Studien zur Didaktik der Mathematik (7). Waxmann.
- Lindmeier, A. (2013). Video-vignettenbasierte standardisierte Erhebung von Lehrerkognitionen. In U. Riegel & K. Macha (Eds.), *Video-vignettenbasierte standardisierte Erhebung von Lehrerkognitionen: Videobasierte Kompetenzforschung in den Fachdidaktiken* (Vol. 4). Waxmann.
- Lindmeier, A., Heinze, A., & Reiss, K. (2013). Eine Machbarkeitsstudie zur Operationalisierung aktionsbezogener Kompetenz von Mathematiklehrkräften mit videobasierten Maßen. *Journal für Mathematik-Didaktik*, 34(1), 99–119. <https://doi.org/10.1007/s13138-012-0046-6>
- Lipowsky, F. (2015). Unterricht. In E. Wild & J. Möller (Eds.), *Pädagogische Psychologie* (pp. 69–105). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-41291-2_4
- Oser, F., & Patry, J.-L. (1990). *Choreographien unterrichtlichen Lernens: Basismodelle des Unterrichts. Berichte zur Erziehungswissenschaft*. Pädagogisches Institut der Universität Freiburg. <https://books.google.de/books?id=uqIUcgAACAAJ>
- Riegel, U. (2013). Videobasierte Kompetenzforschung in den Fachdidaktiken. In U. Riegel, & K. Macha (Eds.), *Video-vignettenbasierte standardisierte Erhebung von Lehrerkognitionen: Videobasierte Kompetenzforschung in den Fachdidaktiken* (pp. 9–24). Waxmann.
- Saas, H., Kuhn, C., & Zlatkin-Troitschanskaia, O. (2020). Ein videobasiertes Lehr-Lernformat als innovativer hochschuldidaktischer Ansatz in der wirtschaftspädagogischen Lehramtsausbildung. In I. Gogolin, B. Hannover, & A. Scheunpflug (Eds.), *Evidenzbasierung in der Lehrkräftebildung* (Vol. 4, pp. 315–340). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-22460-8_13
- Seidel, T., & Shavelson, R. J. (2007). teaching effectiveness research in the past decade: The role of theory and research design in disentangling meta-analysis results. *Review of Educational Research*, 77(4), 454–499. <https://doi.org/10.3102/0034654307310317>
- Seidel, T., & Thiel, F. (2017). Standards und Trends der videobasierten Lehr-Lernforschung. *Zeitschrift für Erziehungswissenschaft*, 20(1), 1–21. <https://doi.org/10.1007/s11618-017-0726-6>
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14.

- Walker, F., & Faath-Becker, A. (2019). Videovignetten: Ein Ansatz zur Einlösung der Anforderungen an die professionelle Kompetenz zukünftiger Lehrkräfte für berufsbildende Schulen? *Berufsbildung*, 73(177), 16–19. <https://doi.org/10.1177/0022487105275904>
- Zlatkin-Troitschanskaia, O., Kuhn, C., Brückner, S., & Leighton, J. P. (2019). Evaluating a technology-based assessment (TBA) to measure teachers' action-related and reflective skills. *International Journal of Testing*, 19(2), 148–171. <https://doi.org/10.1080/15305058.2019.1586377>

Biographical notes

Andrea Faath-Becker works as a research associate at the Department of Technical Didactics at the Technical University of Kaiserslautern, Germany. Her research interest focuses on the assessment of professional competence in vocational education. She works also as a teacher trainer in pre-service teacher training for vocational schools.

Dr **Felix Walker** is a professor and the head of the Department of Technical Didactics at the Technical University of Kaiserslautern. His research focuses on the assessment and promotion of vocational skills at various levels of the vocational training system in Germany.

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Detecting Occupation-Specific Creativity

Fischer, Silke

Swiss Federal Institute for Vocational Education and Training, silke.fischer@ehb.swiss

Barabasch, Antje

Swiss Federal Institute for Vocational Education and Training, antje.barabasch@ehb.swiss

Abstract

Today, creativity is considered a success factor across all occupational fields and a core competence of the 21st century. In vocational education and training (VET), creativity is defined as problem-solving ability and ascribed to the transversal competences, as such it has now found its way into the curricula. Above that, creativity is always context-dependent in terms of work environment and the specific demands of an occupation. The aim of the interview study introduced in this paper was to measure facets of creative potential in selected occupations. The results show that in the four occupations studied (“commercial clerks”, “specialist in care”, “IT specialist” and “design engineers”), different facets of creativity are relevant to successfully cope with creative situations. Overall, divergent and convergent thinking were identified as the most important facets of creativity in the professional creative situations examined.

Keywords

vocational education and training (VET); creativity; creative potential; facets of creative potential; occupational fields

1 Introduction

Today creativity is a critical requirement for success and is even regarded as an “indispensable prerequisite” for innovative ability (Schubert, 2009, p.1). Together with critical thinking, cooperation and communication skills, it is one of the four core competences of the 21st century and already embedded in some Swiss apprenticeship curricula, e.g. sales clerk (Lai et al., 2018). While psychologists have thoroughly investigated and mostly quantitatively measured individual creativity, it will be more important for VET to understand how the creative potential of employees can be released and used for innovation. Above that, creativity is always context-dependent in terms of work environment and the specific demands of an occupation; i.e. it can be assumed that different facets of creativity are relevant for different activities in different occupations.

In our study, we rely on the standard definition of creativity by Simonton (2012, p. 97) according to which: “Creativity requires (a) novelty [...] and (b) utility [...]”. To measure creativity, the construct is divided into the following two categories: creative potential and creative performance. In contrast to psychology, VET focusses primarily on performance, i.e. competences (Klieme, 2004), rather than potential. Here, creativity is defined as “creative problem-solving ability”, which enables the individual to solve a problem successfully in a new way and to communicate the solution afterwards (Leone, 2001, p. 385). In order to support creativity as

an interdisciplinary competence (see Leutner et al., 2005), the creative potential of learners must be promoted.

Lubart et al. (2013) distinguish creative potential further according to the following facets: divergent thinking, convergent thinking, mental flexibility, associative thinking, selective combination, openness, risk taking, tolerance of ambiguity, intuitive thinking and motivation to create, which they argue play a smaller or bigger role in the exercise of professions. Moreover, creativity is always context-dependent in terms of work environment, i.e. depending on work conditions and specific job requirements, creativity can unfold or be constrained.

Due to the importance of creativity for innovation, various authors (Schubert, 2009; Tanggaard Pedersen, 2017) call for creativity to be promoted within the framework of VET. In order to support creative development and unleash creative potential, it is important to understand what creativity means or entails in the context of different occupations. This paper attempts to contribute to the understanding of the role of different facets of creativity in four occupations. The following research question guided the study: Which facets of creativity are of central importance in the occupations (“commercial clerks”, “specialist in care”, “IT specialist” and “design engineers”)? Hereby, two assumptions were made: (1) Everyone can be creative and (2) initial VET can help to promote creativity.

2 Literature review

Psychologists have largely attempted to measure creativity. For that, the construct can be divided into the following two categories: creative potential and creative performance. Creative potential is the latent characteristic of an individual to create something original and useful (Runco & Jaeger, 2012). It is closely associated with divergent thinking, which can be measured by the following indicators of creative potential: fluency, originality, flexibility, and elaboration (Runco & Acar, 2012). Fluency, for example, is assessed in terms of productivity, whereas many solutions as possible are to be developed for an ill structured problem. Originality is related to novelty, statistical infrequency or expert-rated quality of the developed ideas (Runco & Acar, 2012; Sordia et al., 2019). Flexibility, on the other hand, leads to various ideas that utilize several conceptual categories. The least common one is elaboration in which the individual at least temporarily follows an associative path.

Each individual has creative potential, whereby individual differences are reflected in a high or low creative potential (Chand O’Neal & Runco, 2016). Creative potential can be activated if an individual is given the opportunity. Individuals may be aware or unconscious of the creative potential they possess. Creative potential can be described as an ability that is unfulfilled until it is activated as part of an activity. Individuals with creative potential may implement their potential in creative activities in everyday life that are not acknowledged as such by society (Sordia et al. 2019). In contrast to creative activities, creative achievements are real-life accomplishments that are perceived by others. Thus, creative performance is reflected in the product created and is expressed in a clear creative behavior (Sordia et al., 2019; Saló i Nevado & Pehkonen, 2018). Not all individuals with creative potential make creative achievements, e.g. conversion of creative ideas into something new and useful.

The creative potential of a person is reflected in differential task performance. Depending on the nature of the task to be fulfilled, e.g. creating a landscape image or writing a short story, different factors of an individual's creative potential are used. Some individuals will have cut off well while painting a landscape, while others will be better at writing a short story. Still others have a different set of potentials (Lubart et al. 2013), which is why they will not perform either task satisfactorily. Since the creative potential of each individual is different, there will be a high degree of performance heterogeneity in the evaluation of the results of the above tasks (Lubart & Guignard, 2004).

Several authors (Lubart et al., 2013; Sternberg, 1988) have identified facets of creative potential that are connected to each other. Sternberg (1988), for example, introduced a three-facet-model consisting of intelligence, cognitive style and personality/motivation. Lubart et al. (2013), on the other hand, divided these facets into five cognitive (divergent thinking, analytic thinking, mental flexibility, associative thinking and selective combination) and five conative facets (tolerance of ambiguity, risk taking, openness, intuitive thinking and motivation to create). We took his differentiation as the starting point in our interview study. Among the facets, the most important ones in terms of creative potential are the following:

2.1 Divergent thinking

The best known facet of measuring creativity, divergent thinking, dates back to Guilford (1950). Divergent thinking is usually been measured by the following three or four variables: fluency, flexibility, originality and elaboration (Mumford, 2001; Runco & Jaeger, 2012). It is measured in the classical way, in which multiple different solutions to a given problem are generated (fluency) or individuals are encouraged to think “out of the box”. Generally, rare and unusual ideas (originality) are generated later in this process.

2.2 Convergent thinking (or analytic thinking)

Convergent thinking is the ability to choose the most suitable idea from several possible solutions in a highly domain specific manner (Hainselin et al., 2018). It is closely related to divergent thinking. This form of creative performance expects individuals to provide a concrete response or achieve a specific objective and assesses the strengths and weaknesses between different concepts (Mohamed, 2014).

2.3 Flexibility

Flexibility refers to the ability to change perspectives when solving problems by taking a new direction. The problem to be solved is analyzed in more depth, since the individual moves from one line of ideas or strategy to another new idea without any external pressure (Lubart et al., 2013). It is therefore closely related to the concept of cognitive ability which, “measures the transition from one location in idea space to another location in that idea space” (Borjas & Doran, 2012, p. 3).

2.4 Associative thinking

Associative thinking is the ability to bring seemingly unrelated ideas and thoughts together. It can lead to creative thinking. Here, personal experiences are of particular importance for creativity, as they are more likely to lead to new ideas. Usually, associations based on common knowledge are less likely to lead to novel ideas (Lubart et al., 2013).

2.5 Openness to experience (or intellect or culture)

Openness to experience is a positive predictor of creativity. It is reflected in a general appreciation of art, adventure, unusual ideas, fantasy, autonomy, intuition, self-confidence etc. (Lubart et al., 2013). In addition, open-minded individuals consider values such as beauty and imagination as important (Dollinger et al., 1996). Individuals with less openness have more traditional interests, behave more conventionally and think more authoritatively.

2.6 Risk taking

Risk taking refers to selecting an alternative with a wider range of possible outcomes (Figer & Weber, 2011). Usually, alternatives with higher risks come with greater returns. Risk taking is

domain-specific, meaning that someone's willingness to take risks differs in different domains like gambling, investing, behaviours relating to health etc. (Figer & Weber, 2011). Risk taking is also highly influenced by the situation (what the decision is about and what the consequences of the decision are), the decision maker (age etc.), and the interplay of situation and decision maker (Figer & Weber, 2011).

2.7 Tolerance of ambiguity

According to McLain, Kefallonitis and Armani (2015) there is agreement that tolerance of ambiguity is a robust individual difference. It describes the way an individual reacts to ambiguous stimuli or behaves in ambiguous situations (Furnham & Avison, 1997). Individuals who are tolerant of ambiguity favor creative thinking because these individuals are looking for the most optimal solution possible. Their creative potential is therefore not blocked by unsolved ambiguity (Zenasni et al. 2008).

2.8 Motivation to create

Motivation to create can be intrinsically or extrinsically motivated and depends on the task at hand. Intrinsic motivation is guided by curiosity, spontaneity and joy, whereas extrinsic motivation is guided by external impulses, e.g. monetary ones, prizes etc. (Deci & Ryan, 1993). Extrinsic motivation, which has long been considered detrimental to creative work, is increasingly recognized, at least in part, as relevant and beneficial, as it also contributes to the completion of creative work (Lubart et al., 2013).

3 Methods

In accordance with the definition of creativity in VET, which emphasises the importance of communication (Leone, 2001), professions have been selected in which there is close cooperation with the customer or other occupational groups. People in these professions often need to be able to react spontaneously to requests from customers and team colleagues. Above that, all selected professions should require creativity in a variety of tasks, but should not belong to typical creative professions, e.g. musicians, artists, graphic designers etc., as these have already been more thoroughly researched (cf. Theorell et al, 2019). The selected professions should also represent important sectors of the Swiss vocational training system and cover a great variation of professional fields, which show different components of creative potential in order to showcase that creativity is relevant across different professions.

A total of 10 interviews were conducted with three “specialists in care”, three “IT specialists”, two “commercial clerks” and two “design engineers”. The average interview duration was about 50 minutes. 60% of the interviewees were female, 40% were male. The average age of the interviewees was 36.5 years, where the youngest interviewee was 27 years old and the oldest interviewee was 55 years old at the time of the interview. The interviewees' professional experience in the respective profession ranged from 10 to 30 years and averaged 17.3 years. All interviewees had a leading position at the time of the interview, e.g. managing director, project manager, founder, day care manager etc., within the respective company.

First, the interviews were transcribed, then the creative work situations were listed in tabular form based on the factors mentioned in most interviews: creative action, creative competence, specialized knowledge, and creative non-cognitive aspects in a work situation. This standardization served to make the transcribed data clearer (use of codified procedures, Steinke, 2000). Afterwards, the data were discussed and deductively evaluated by a content analysis (Kuckartz, 2016) according to the most common facets of creativity in the scientific literature (cf. Lubart et al., 2013). For an intersubjective understanding, the evaluation process was carried out by two persons independently of each other (Steinke, 2000).

4 Results

4.1 Facets of creative potential in selected occupational fields

Table 1 provides an overview of the four most important facets of creative potential that were assigned to the professional situations described by the interviewees. This shows that different facets of creative potential were identified in the occupations studied.

Table 1

Assignment of facets of creative potential to professions.

Occupations	<i>“Commercial clerk”</i>	<i>“Specialist in care”</i>	<i>“Design engineer”</i>	<i>“IT Specialist”</i>
Facets of Creative Potential	<ul style="list-style-type: none"> • Divergent thinking • Convergent thinking • Associative thinking • Motivation to create 	<ul style="list-style-type: none"> • Divergent thinking • Convergent thinking • Openness to Experience • Tolerance of Ambiguity 	<ul style="list-style-type: none"> • Divergent thinking • Convergent thinking • Associative Thinking • Flexibility 	<ul style="list-style-type: none"> • Convergent thinking • Motivation to create • Associative Thinking • Flexibility

Source. Own depiction.

In the following, results are presented for two of the four professions. We first list creative situations as described by the interviewees and some information, e.g. special features, similarities, background information. Subsequently, one of these situations is explained by way of example. The example serves as a foundation for explaining creative action by the respective expert and the knowledge necessary to cope with the situation outlined. Finally, identified facets of creative potential are explained.

4.2 “Commercial clerk”

The “commercial clerks” reported three professional creative situations: The planning and implementation of an event, the organization and realization of a newsletter for a specific target group and the evaluation and support in a change process by introducing a new tool. Common to all the situations described is that “commercial clerks” are not only heavily involved in planning, but also in the implementation processes themselves:

It starts with the concept design of the event. We have a series of events for young 'commercial clerks' where we invite speakers who talk about current topics. It starts in such a way that at the end of the year I collect ideas about what the people are interested in [...]. Then we brainstorm what we do and decide which topics will be used for an event and I check which suitable speakers are available [...]. Once that is set, I start with the design of the event, which I do in close cooperation with the speaker, [...]. [...], and then it goes on to advertising measures, how do we make people aware of it? In the age of digitalization, we are particularly keen to ensure that we really do advertise via these channels, wherever the target group is located. [E1_commercial clerk].

The creative action in this situation is the whole design, e.g. planning and realization, of the event. The aim is not only to draw the attention of the young “commercial clerks” to a specific topic in general, but also to illustrate the benefits of the topic. To successfully cope with this creative situation, “commercial clerks” first need declarative knowledge, e.g. knowledge about the general procedure for event planning, knowledge about budget planning and knowledge about certain advertising channels for youngsters like Snapchat. In this work situation transversal skills, methodological and social skills are essential. The methodical skills include planning ability, ability to access information independently as well as search strategies when using google search. The required social skills comprise communication skills and empathy, e.g. feeling of moods and emotions.

In order to cope with the situation described above, the commercial clerks must first generate various ideas, e.g. topic suggestions, speakers, locations etc. for an event (divergent thinking), from which they then select the most suitable one based on certain criteria, e.g. costs, image etc. (convergent thinking). Afterwards, the different ideas and preferences around the event should be linked together (associative thinking). In this case, the planning and organization of an event is usually carried out by one “commercial clerk” alone. Since “commercial clerks” do not work with a team here, especially during the planning process, commercial clerks must have intrinsic, e.g. personal desire to design an interesting event, or extrinsic motivation, e.g. reward-oriented motivation, to fulfil the creative task (motivation to create). On this basis, the following facets of creative potential were pointed out for this situation: divergent thinking, convergent thinking, associative thinking and motivation to create.

4.3 “Specialist in care”

In the profession “specialist in care” many professional creative situations were described by the interviewees, such as handing over the child in the morning in the nursery, organizing a free play, i.e. a non-derived play which is guided by a specialist in care as little as possible, designing the morning ritual, i.e. morning sing-along, or creating a play situation with unfinished materials, i.e. moss or other natural materials etc. The creative situations described above have in common that it is expected that the “specialist in care” generates appropriate problem solutions independently, whereby other “specialists in care” may be present during the application of the problem solution. As an example, the handover situation of the child in the morning at the nursery will be presented here, which an interviewed expert commented as follows:

Most of the time these are transitional periods and not long term conditions, but short term things, [...]. If the situation at home is new, or it [the child] is going through something [...] that keeps him/her very busy, especially on the emotional level this happens all the time. [...] It is never the same. The situation comes again and again, but you always have to think of something new. [E1_specialist in care].

The creative action in this situation is to find a solution, a ritual, to guide the child through this process. A possible solution would be *“using a hand puppet or by creating an incentive, for example a magic glass, where the child is allowed to put a button in it every time it comes”* [E1_specialist in care]. The professionally relevant knowledge for successfully coping with this situation includes declarative knowledge, e.g. knowledge about the different developmental stages of the child and knowledge about occupation-related verbal and non-verbal communication with the child and the parents. In addition, also knowledge about best-practices, e.g. what has worked in similar situations, is necessary. As transversal skills, social skills like child- and parent-oriented verbal and non-verbal communication, empathy and self-competence, e.g. independence and self-confidence were assigned to this creative situation. Besides, the following soft skills played a role in it: observational skills, knowledge about the particular child, e.g.

likes, dislikes and development status, inner strength, needs-oriented thinking, e.g. putting the needs of the child first, persuasiveness and imagination.

In order to solve the described situation, “specialists in care” first have to generate possible solutions, rituals, to guide the child through it (divergent thinking). Afterwards, the best solution should be chosen depending on the situation, taking into account the child's and the parent's interests as well as the local conditions (convergent thinking). Since the outcome of this situation varies greatly from child to child, “specialists in care” need unusual, sometimes artistic, but also adventurous ideas and imagination to distract the child from the situation described (openness to experience). In addition, working with children is often unpredictable; what was successful for a certain child in this handover situation in the nursery does not necessarily work for another child. Therefore, the “specialist in care” must deal with situations that are characterized by contradictions and a certain degree of uncertainty (tolerance of ambiguity). Consequently, the following facets of creative potential were primarily attributed to this situation: divergent thinking, convergent thinking, openness to experience and tolerance of ambiguity.

5 Conclusion

Due to the increasing importance of creativity for innovative ability, entrepreneurial success and employability, it is important to promote creativity already in VET. The targeted promotion of creativity within VET would also help to maintain the attractiveness and competitiveness of VET systems in the future. Therefore, it is important to understand what creativity means or entails in the context of different occupations and how creativity can be promoted within VET in an occupation-specific way. This study offers a first approach in this respect by exploring facets of creative potential in selected professions that are assigned to different occupational fields in Switzerland.

The results show that different facets of creativity are important in the occupations studied. The facets of divergent and convergent thinking were identified in most described occupational situations of almost all professions. This is probably due to the fact that in professional creative situations, there are several suitable options, e.g. pathways for problem solving (divergent thinking), from which the individual can select the most suitable solution for oneself and one's situation (convergent thinking). Creative professional situations are characterized by a higher level of autonomy of the individual and by rather few framework requirements, which is why there is generally more than one possible solution (cf. Fujiwara et al. 2015). Accordingly, divergent and convergent thinking seem to be the most important facets of creativity in the professional creative situations examined.

Generally, the CIT has proven to be a suitable instrument to gain knowledge about creative performance in different professions. In principle, however, it would certainly be desirable to develop a valid, objective and reliable instrument for measuring occupation-specific creativity in VET. To this end, it would be useful to extend this interview study to other occupations and occupational fields. Moreover, the quantitative measurement of creative potential within didactically prepared, occupation-specific teaching units would also be useful. On this basis, a comprehensive didactic discourse on occupation-specific creativity in VET could emerge, which is equally important for all vocational teachers due to the classification of creativity as a transversal competence. Overall, teaching materials could be developed on this basis, which could help to eliminate the existing uncertainty of teachers regarding the integration of creativity in the classroom.

References

- Borjas, G. J., & Doran, K. B. (2012). *Cognitive mobility. Labor market responses to supply shocks in the space of ideas*. Retrieved 18 March 2020, from https://www3.nd.edu/~tjohns20/RePEc/deendus/wpaper/019_cognitive.pdf
- Chand O'Neal, I., & Runco, M. A. (2016). *Uncover & unleash students' creative potential. Translating research into practice*. Principal, National Association of Elementary School Principals and Crayola.
- Deci, E. L., & Ryan, R. M. (1993). Die Selbstbestimmungstheorie der Motivation und ihre Bedeutung für die Pädagogik. *Zeitschrift für Pädagogik*, 39, 223–238.
- Dollinger, S. J., Leong, F. T. L., & Ulicni, S. K. (1996). On traits and values. With special reference to openness to experience. *Journal of Research in Personality*, 30, 23–41.
- Figer, B., & Weber, E. U. (2011). Who takes risks when and why? Determinants of risk taking. *Current Directions in Psychological Science*, 20, 211–216. <https://doi.org/10.1177/0963721411415790>
- Fujiwara, D., Dolan, O., & Lawton, R. (2015). *Creative occupations and subjective wellbeing*. London: Nesta Working Paper.
- Furnham, A., & Avison, M. (1997). Personality and preference for surreal paintings. *Personality and Individual Differences*, 23, 923–935.
- Guilford, J. P. (1950). Creativity. *American Psychologist*, 5, 444–454.
- Hainselin, M., Aubry, A., & Bourdin, B. (2018). Improving teenagers' divergent thinking with improvisational theatre. *Frontiers in Psychology*, 9, 1759. <https://doi.org/10.3389/fpsyg.2018.01759>
- Klieme, E. (2004). Was sind Kompetenzen und wie lassen sie sich messen? *Pädagogik*, 6, 10–13.
- Kuckartz, U. (2016). *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung*. 4. Aufl. Beltz Juventa.
- Lai, E. R., Yarbrow, J., DiCerbo, K., & de Geest, E. (2018). *Skills for today: What we know about teaching and assessing creativity*. Pearson.
- Leone, D. (2001). Die Förderung der Kreativität in der Berufsschule. *Zeitschrift für Berufs- und Wirtschaftspädagogik*, 97(3), 375–403.
- Leutner, D., Funke, J., Klieme, E., & Wirth, J. (2005). Problemlösefähigkeit als fächerübergreifende Kompetenz. In E. Klieme, D. Leutner & J. Wirth (Hrsg.), *Problemlösekompetenz von Schülerinnen und Schülern* (pp. 11–19). VS Verlag für Sozialwissenschaften.
- Lubart, T. I., & Guignard, J-H. (2004). The generality-specificity of creativity. A multivariate approach. In R. J. Sternberg, E. Grigorenko, & J. L. Singer (Eds.), *Creativity. From potential to realization* (pp. 43–56). APA.
- Lubart, T. I., Zenasni, F., & Barbot, B. (2013). Creative potential and its measurement. *International Journal of Talent Development and Creativity*, 1(2), 41–51.
- McLain, D. L., Kefallonitis, E., & Armani, K. (2015). Ambiguity tolerance in organizations. Definitional clarification and perspectives on future research. *Frontiers in Psychology*, 6, 344. <https://doi.org/10.3389/fpsyg.2015.00344>
- Mohamed, A. D. (2014). The effects of modafinil on convergent and divergent thinking of creativity. A randomized controlled trial. *The Journal of Creative Behavior*, 0, 1–21. <https://doi.org/10.1002/jocb.73>
- Mumford, M. D. (2001). Something old, something new. Revisiting Guilford's conception of creative problem solving. *Creativity Research Journal*, 13, 267–276. https://doi.org/10.1207/S15326934CRJ1334_04
- Runco, M. A., & Acar, S. (2012). Divergent thinking as an indicator of creative potential. *Creativity*, 24(1), 66–75. <https://doi.org/10.1080/10400419.2012.652929>
- Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research Journal*, 24(1), 92–96. <https://doi.org/10.1080/10400419.2012.650092>
- Saló i Nevado, L., & Leila Pehkonen, L. (2018). Cabinetmakers' workplace mathematics and problem solving. *Vocations and Learning*, 11, 475–496. <https://doi.org/10.1007/s12186-018-9200-8>
- Schubert, T. (2009). Kreativität und Innovationen: Schlüsselkompetenzen in der Wissensgesellschaft. *BWP*, 6, 10–13.

- Simonton, D. K. (2012). Taking the US Patent office criteria seriously: A quantitative three-criterion creativity definition and its implications. *Creativity Research Journal*, 24(2-3), 97–106. <https://doi.org/10.1080/10400419.2012.676974>
- Sordia, N., Martskvishvili, K., & Neubauer, A. (2019). From creative potential to creative achievements. Do emotional traits foster creativity? *Swiss Journal of Psychology*, 78(3-4), 115–123. <https://doi.org/10.1024/1421-0185/a000227>
- Steinke, I. (2000). Gütekriterien qualitativer Forschung. In U. Flick, E. von Kardorff & I. Steinke (Hrsg.), *Qualitative Forschung: Ein Handbuch* (pp. 319–331). Rowohlt Taschenbuch.
- Sternberg, R. J. (1988). *The nature of creativity. Contemporary psychological perspectives*. Cambridge University Press.
- Tanggaard Pedersen, L. (2017). Wenn Europa seine innovative Kapazität erhalten will, muss das kreative Potenzial der Auszubildenden gefördert werden. Accessed 17 July 2019. <https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-65990.html>
- Zenasni, F., Besançon, M., & Lubart, T. I. (2008). Creativity and tolerance of ambiguity. An empirical study. *Journal of Creative Behavior, Creative Education Foundation*, 42(1), 61-72.

Biographical notes

Dr **Silke Fischer** is senior researcher in the research area «Integration in VPET and the labour market» and in the research field «Learning Cultures and Didactics» at the Swiss Federal Institute for Vocational Education and Training (SFIVET). Her research focuses on creativity in VET and game-based learning and instruction.

Dr **Antje Barabasch** is a Professor and head of the research axe «Teaching and Learning in Vocational Education and Training» and the research field «Learning Cultures and Didactics» at the Swiss Federal Institute for Vocational Education and Training (SFIVET). Her research is concerned with innovation in apprenticeships at Swiss enterprises, creativity support in VET, art-based research, comparative education and the integration of refugees into the labour market.

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First Findings of the Ethnographic Comparative Study on Different VET Cultures in Motor Vehicle Classes in England and Germany

Gericke, Erika E.

Otto-von-Guericke-University Magdeburg, erika.gericke@ovgu.de

Abstract

The ethnographic study “VET cultures in a European comparison: social practices in vocational classes/courses for car mechatronics and business administration in England and Germany” aims at reconstructing a) which social practices are evident in lessons for students for car mechatronics and business administration in German and English FE Colleges and b) which and how national cultural values, education traditions/philosophies are reproduced in those social practices. The first empirical findings indicate that two levels need to be differentiated: 1) culture of the respective apprenticeship trade (car mechatronics and business administration) and 2) vocational educational culture of the respective society (England and Germany). The paper, which focuses on the motor vehicle classes, illustrates through the two social practices ‘student motivation’ and ‘student-teacher relationship’ that social practices have underlying values/ educational traditions and structural conditions. These in turn foster the values/ educational traditions and thus the social practices in English and German FE Colleges classrooms.

Keywords

ethnography; motor vehicle classes; apprenticeship culture; vocational education and training culture; England and Germany

1 Introduction

Starting point for the ethnographic study “VET cultures in a European comparison: social practices in vocational classes/courses for car mechatronics and business administration in England and Germany” is the argument, that teaching and learning are not only influenced by institutions, policies and so on, but also by values and educational traditions (McLean, 1990; Georg, 1997; Osborn et al., 2003). Thus, the study aims at reconstructing how values and educational traditions shape and influence learning environments and social practices (Reckwitz, 2003) of teaching and learning in VET.

The term ‘VET culture’ is understood as a physical and at the same time a symbolic frame for the different facets, which influence vocational education and learning processes. This includes but is not limited to communication and negotiation processes, learner and teacher identity but also learning environment and subject culture as well as historical development and VET policy. The term underlying concept consists of three interwoven elements: culture, learning environment and social practices (Gericke, 2020).

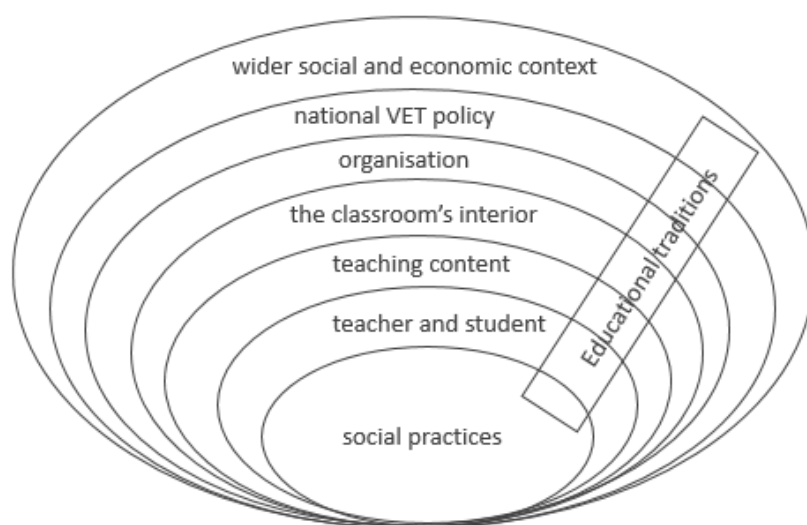
The author’s understanding of the first element culture is one according to the cultural turn, i.e. culture is understood as a basic phenomenon of social order, which penetrates all areas of

society, including VET (Hörning & Reuter, 2004). Culture is thus reproduced in learning environments and through social practices and these social practices are shaped by culture (Hörning & Reuter, 2004). The second element learning environment is a heuristic and at the same time spatial-material and symbolic frame of activities (Schmidt, 2012). According to Reckwitz' social practices theory (based on Schatzki, 1996 and 2002) social practices – the third element – are behavioural routines, which are based on the actor's incorporated knowledge and which are connected with objects, which the actor uses (Reckwitz, 2003).

Now these three interwoven elements have been differentiated in single layers and applied to the VET system. "The result is a work model which is deliberately designed as a container-like model of VET culture as it provides a frame or starting model for comparative VET research" (Gericke, 2020, p. 279). The onion layer model consists of seven layers (from the inside out): social practices (the core), which are carried out by actors, such as the VET teacher and her students (layer 2). The reason for the actors' interaction is the teaching and learning objective (layer 3). This interaction takes place in a concrete physical learning environment, such as the classroom (layer 4). The physical learning environment is part of an educational institution, the VET College (layer 5). This institution is part of the country's VET system and policy (layer 6). The country's VET system and policy is set within the country's wider economic and social context (layer 7). The important point about this work model is that (a country's) values and educational traditions lay across and affect all those layers. (Gericke, 2020).

Figure 1

Work model VET culture



This comparative study on VET cultures revolves around values and educational traditions and "how they explain observable practices" (Alexander, 2009, p. 932) in vocational classes/courses for car mechatronics and business administration in England and Germany. The research questions raised are:

- What social practices are evident in lessons for students for car mechatronics and business administration in German and English vocational colleges?
- Which and how are national cultural values, education traditions/philosophies reproduced in those social practices?

2 Methods

The two questions raised can be tackled by applying an ethnographic research design. Aiming at data triangulation in order to examine a phenomenon — in this case, educational traditions acted out in social practices — in a number of different settings and at different points in time and space, three kinds of data are collected.

First, the researcher undertakes lesson observations. Her role is primarily one of a non-participative observer. The lesson observations allow the researcher to see social practices of teaching and learning within specific settings.

Second, the researcher conducts guided interviews with the same students and VET teachers observed in the lessons. Here the researcher is able to gain an insight into motifs for certain social practices and the persons' self-understanding. Values and educational traditions which have been observed in lessons, can now be addressed directly and connected to the person's self-understanding.

Last, the researcher asks the students to provide one photograph of their most important place of learning within the VET college premises. The world is not only constructed through language but also through pictures. By analysing the photographs, the researcher can reconstruct the habitus of the picture producer (Bohnsack, 2008).

The sample consists of German and English VET teachers and students for car mechatronics (maintenance) and business administration. The data gets collected in two different countries: England and Germany: in each case an economically weak/rural and an economically strong/urban region.

So far two of four datasets have been collected. This data collection has been completed in economically weak/rural areas: in Germany, namely Saxony-Anhalt and in England, Cornwall.

The German data set consists of:

- 13 teaching hours each in classes for car mechatronics and business administration (2nd and 3rd year of training)
 - 6 guided interviews with FE teachers (three motor vehicle teachers, 3 business administration teachers)
 - 6 guided interviews with students (three motor vehicle students, 3 business administration students)
- 2 photographs of the most important learning place within the college premises (business administration students)

The English data set consists of:

- 25 teaching hours in classes for car mechatronics and 23 teaching hours in business administration classes (NVQ 2 and 3)
- 2 guided interviews with FE teachers for motor vehicle, three guided interviews with FE teachers for business administration
- 2 guided interviews with motor vehicle students, two guided interviews with business administration students

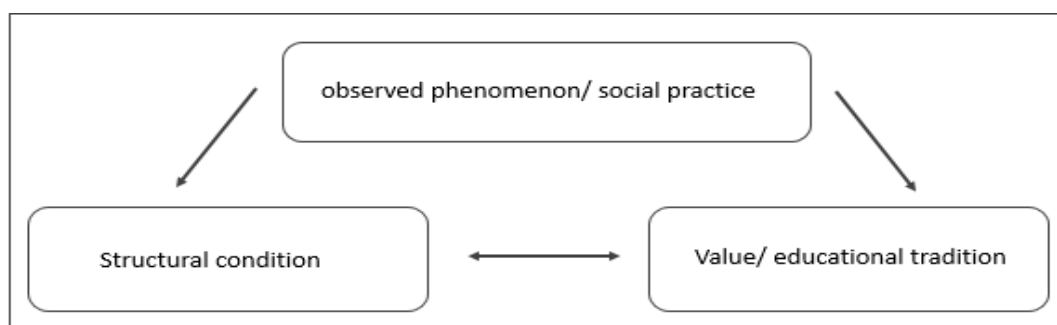
As the second data set collection has been finished at the end of February (business administration in Cornwall) but has not been analysed yet, the presented findings thematise only the English and German motor vehicle classes.

The observation protocols and guided interviews are analysed using the grounded theory methodology. For the study's research object an adapted coding paradigm has been developed.

The empirical results presented in the next chapter are structured the following way: first, the researcher identified single phenomena/ social practices in the data material (chapter 3.1.1 and 3.1.2); second, the researcher searched for the value/ educational tradition behind it by analysing the data and studying relevant literature (chapter 3.2); third, the author looked for the structural conditions present in the data material but also in relevant literature, which foster the value/ educational tradition and in consequence the social practice (chapter 3.2).

Figure 2

Structure of presented empirical findings



3 Results

A first glance at the English and German data for motor vehicle classes in economically weak/ rural areas shows that the social practices regarding ‘student motivation’ and ‘teacher-student relationship’ are different in both countries. Having the business administration data in mind, though not analysed yet, it is important to differentiate these findings at two levels:

1. vocational educational culture of the respective society (England and Germany) and
2. culture of the respective apprenticeship trade (car mechatronics and business administration).

3.1 Culture of the apprenticeship trade motor vehicle

3.1.1 Student-motivation

At the societal level it may be interesting to note that in England the societal status of car mechatronics is for various reasons low. In a previous comparative qualitative study (Gericke, 2014) a 67-year old English car mechanic says:

... little was I to know that probably motor mechanics is one of the poorest paid of any sort of trade, that compared to virtually almo/ and very poorly thought of ehm in this country eh car mechanics, you know. People still felt/ thought of them the/ the name they would give him was ‘grease monkeys’ because it was eh, you know, they sort of liken to people that all their job was to put ehm grease on the wheels of ehm trains and/ and/ and vehicles whatever they were in previous sort of/ in/ in earlier years, you know. But anyway, it was, that/ that was a fact. It was quite a poorly paid trade. It never been very/ it never really had credit yet. Being credited for the amount of knowledge that’s required, you know... (Int. AW 1.435-448)

The low social status shows itself in the derogatory name given to mechanics and the societal assumption that there is not much knowledge needed to do the job.

At the apprenticeship trade culture level it was observed, that English motor vehicle FE teachers motivate their students by addressing them as experts and that they are a special group.

They are the ones who understand cars and know how to deal with them properly. The normal car driver and customer is acknowledged as the other and is in most cases absolutely clueless regarding automobile technology.

For illustration purposes three extracts from observation protocols (OP) are presented: The author observed the following in a VRQ level 3 full-time class (Vehicle Maintenance & Repair Diploma):

The English Further Education (FE) teacher Isaac talks with his students about the different naming of car components depending whether it is a Diesel or not. They had just established – most of his students knew this already – that the term ‘common rail’ is used with diesel-driven cars. Then he tells his students about a common incident when he was working in a garage. As he was talking to his customers about their cars’ problem using the correct terminology “‘So people said, when I said common rail, ‘It’s a Diesel.’ And Isaac would respond ‘Yeah, listen to what I say’.” (OP 1 14:10-11)

So, Isaac customers thought that he uses the wrong terminology for their diesel-driven cars, although it was the correct one. In the same class the FE teacher Isaac states

There are people, who can’t drive a car. They sit in the car, have a driving license but have no sensation. They say, there are so many accidents. ‘Yes, and you may cause some of them.’ The class laughs. (OP 2 4:23-25)

Here the FE teacher suggests that his students have a feeling for driving a car and that they are good car drivers. That makes them a special group as there are many people who lack both. The same teacher talks in a VRQ level 3 apprenticeship class about tyres.

Most people don’t check their tyres. They are black and round.’ The class laughs. Isaac keeps mocking people, who are not knowledgeable about cars. Now he asks the class ‘Who checks his tyres every week?’ Student 2 and student 3 raise their hands. (OP 2 5:6-9)

Again, the teacher establishes a group membership, even a feeling of belonging to the group through knowledge about cars, in this case tyres and the proper handling of cars, in this case tyre checks. In all three incidents the FE teacher shows his students that they are much more knowledgeable about cars, have a deeper understanding of the car’s technology and proper handling and that they are a special group, apart from the common car driver. He instils a special kind of pride and a feeling of belonging to the group.

In Germany the societal status of car mechatronics is high. It is still the most popular training occupation among young men (Statistisches Bundesamt, 2019, p. 17). In the above-mentioned previous study (Gericke, 2014) a German car mechatronic talks about the high demand of knowledge needed when doing the job:

... baker or bricklayer, surely a good occupation, no question at all, but they probably don’t have this demand for learning and continuing education and so on, like this field... (Int. ThS 1.612-615, translated by the author).

This need for knowledge and continuing education is a topic, which re-emerges in the current study, when German FE motor vehicle teachers talk about the value of expert knowledge and thus the value of vocational qualification and the standing and pride which comes with having acquired it. A German FE teacher in his fifties says to his students. If there is no

specialist knowledge, then every idiot could do the occupation” (OP HN p. 6). The reader may note on the linguistic level that German FE teachers, car mechatronics and students use the term ‘occupation’ and not like the English colleagues the term ‘job’. In the German working world, the term ‘job’ is mostly used for unskilled labour and side-jobs. Another German FE teacher also in his fifties emphasises the quality and value of the vocational training compared to the vocational training older colleagues had had. The lesson is about disconnecting the voltage at hybrid cars – a new topic in the syllabus.

There you see, how good our training is. [...] You are qualified to disconnect the vehicle from voltage and secure it against being switched on again and determine that it has been disconnected. [...] Then put a sign on the car. And then you tell your colleague that he is allowed to work on the car now. This is your advantage over older colleagues. (OP HK 1.74-79)

So, this FE teacher gives credit to an up-to-date vocational qualification. In a nutshell the English car mechatronic industry is not very favourably looked upon by society. The observed FE teachers try to instil a certain pride in their students and form and address them as a special in-group. Whereas in Germany the car mechatronic trade has a good reputation. The German FE teachers stress the quality and value of acquiring a vocational qualification in this trade.

3.1.2 Student-teacher relationship

The observed apprenticeship trade culture of car mechatronics shows that English motor vehicle FE teachers foster a close relationship. They are well informed about the students’ private and work life. The following extract from an observation protocol illustrates this:

As we walk to the break room Isaac tells me that the young woman is a very good student. He had taught her brother. Her father owns his own garage and thus the young woman has grown up in the garage and has already profound knowledge. Then Isaac comments in respect to the young lad who had approached him that he seems to be something like a father figure for quite a few of his students as they tell him a lot private things. (OP 2 5:18-22)

During the researcher’s two-week stay nearly all FE teachers told her about their students’ private lives. In Todd’s VRQ level 2 HGV class (Heavy Goods Maintenance & Repair Diploma) the author observed the following:

He asks student B about the well-being of his younger son as he had been in hospital. After class Todd tells the author about the student’s biography and personal circumstances in detail. (OP 3 1:14)

That the English FE teachers are well-informed about their students’ private and work life is partly *due to two structural reasons*. First, motor vehicle FE teachers have to conduct interviews with every student, who wishes to take on the motor vehicle course. The English FE motor vehicle teachers tell the author the following:

Every second week the FE motor vehicle teachers have interviews with prospective students on Tuesday night. Isaac tells me about one guy, who only goes to school once a week in order to do his maths. He said to the prospective student ‘If you are in my class, you won’t mess me up, right? You promise me that?’ ‘Yes’. Isaac comments that the student’s father attended the interview. Isaac’s colleagues tell me about the additional work which comes along with those interviews. On the one

hand they get to know the prospective students, on the other hand they sacrifice their evenings for this. (OP 4 p.2)

Second, motor vehicle FE teachers are also the assessors at the work site. In addition, the observed and interviewed motor vehicle FE teachers have a deliberately informal, casual interaction with their students. There are *two reasons* for this. *First*, they do not see themselves as ‘normal’ teachers like primary or secondary teachers, who represent the education system and the often difficult school careers, which their students bring along. Here are three examples of casual tone and friendly banter:

Student A and Isaac get into a hypothetical discussion. Student A ends the discussion with ‘Fuck you.’ Isaac responds with ‘I love you too’. (OP 1 13:11-13)
Student A comments ‘Nice drawing, Isaac.’ Isaac asks back ‘Is it?’ Student A answers ‘Yeah.’ Isaac comments ‘I get a hang of it’. (OP 1 19:9-10)

Student A comments on the panel picture which he finds chaotic. Isaac acknowledges that and promises that he will get new pens [the pens are nearly dried out]. He says to student A

‘That’s your OCD [obsessive compulsory disorder]. (..) Believe it or not, I didn’t want to go there [into this topic]. I tell you all that, so you know what’s out.’ Student A and B want to find out which name Isaac gave his car. Isaac says ‘Wash your mouth out, when you talk about my little car.’ Student A guesses the name ‘Susan.’ Isaac responds ‘Who would call a BMW ‘Susan?’’ The class laughs. Student A gives it another try ‘Hortense.’ ‘Hortense?’ ‘Agnes?’ The class laughs. Isaac says “You’ll never find out the name of my car’ (OP 1 20:19-26).

All three examples are from one particular VRQ level 3 class, which is due to the researcher’s lack of time for data preparation. However, this kind of banter had been observed in all other motor vehicle classes too.

The *second* reason for the deliberately informal and casual tone is the FE teachers’ professional identity. The observed and interviewed FE motor vehicle teachers’ professional identity is that of an industry expert, who is passing on knowledge and gives insight into the working world. Thus they use to a large extent the same language and manners with their students as with their colleagues in garage in order to socialise them for the work in the garage.

The observed apprenticeship trade culture of car mechatronics shows that German motor vehicle FE teachers foster a friendly but distant relationship. First of all, they address their students with their surname. Furthermore, the German motor vehicle FE teachers use a very masculine tone:

‘Gentlemen, when you have copied that [...], further instructions follow. Mr Meier asks the class that one or two people are available for the experiment. The class is silent. ‘Are you all cowards?’ (short pause) ‘Mr Albrecht. I have chosen Mr Albrecht because he is a cosmopolitan.’ (OP 1, p. 3; translation by the author) [the student Mr Albrecht is a former soldier, who had been in different war missions around the world].

Here the teacher addresses the stereotype of brave men vs. cowards.

A spring falls loudly off the table. The class is startled. Student Albrecht pumps the spring up to 90 bar in increments of 10. At 70 or 80 bar, the spring suddenly crackles

loudly. Student Schmidt, who is sitting directly in front of the experimental setup, is startled and moves away with his chair. Mr. Meier explains that there is no danger and asks student Albrecht to increase the pressure. Mr. Meier comments, ‘Mr. Schmidt, that almost borders on fear’. (OP 1, p. 4)

Again, the teacher draws upon stereotype male characteristics like men have no fear.

Mr Neumann exhorts the student with loud words, ‘Pull yourself together! If you think you have to go crazy in the last few seconds! It only ends when everything is packed away’. (OP 1, p. 9)

This example shows that this German FE teacher is clearly the leader of the class. He decides what and when to do things. Another difference to the English colleagues is that German motor vehicle FE teachers have no say in matters regarding the students’ training companies and thus do not talk about this issue with their students. They are quite clear in marking boundaries regarding the issues they talk about with their students. The researcher asks the German motor vehicle FE teacher Mr Neumann “How do you deal with this information when they report on the inter-company training courses? Like last time, when one of your students says that the HGV instructor was gone and then they sat there.” Mr Neumann answers:

By the end of the day, you can't say anything about it. If it's too blatant, you can only recommend to the students that they turn to their trainers, that is, inter-company training. The school doesn't have to interfere here. (Int. Mr. Neumann 1.559-564)

In a nutshell the English observed and interviewed motor vehicle FE teachers foster a close student-teacher relationship and their communication is characterised by friendly banter. They also have the strong professional identity of being an industry expert. There are structural reasons for this. The German observed and interviewed motor vehicle FE teachers have friendly but distant student-teacher relationship. They determine about which topics the students can talk to them. They are quite clear about that they lead the class. Their professional identity is one of a teacher.

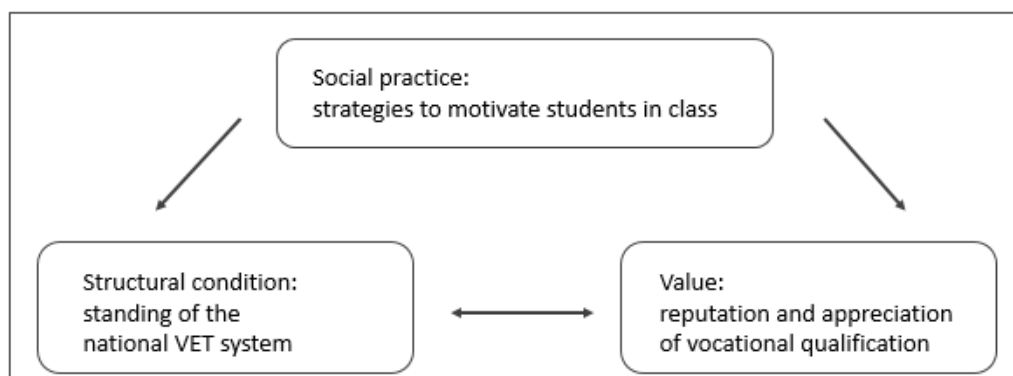
3.2 Vocational educational culture

Although the majority of the data has not been analysed yet, there are first indications that the range of some empirical findings is on a broader general level, namely the vocational educational culture of the respective country.

In section 3.1.1 which deals with student motivation it was recognized that the reputation and appreciation of the motor vehicle trade is low in England and high in Germany. It can certainly be seen as a consequence of this that the reputation and appreciation of vocational qualification in this trade is also viewed upon differently in both countries and thus leads to different ways of motivating students. In Germany a formal vocational qualification is very important in order to enter the labour market – this is not limited to the automotive industry (Presse- und Informationsamt der Bundesregierung, 2020). Whereas in England in order to enter the labour market one needs to have gained experiences first and only then is a vocational qualification of worth. This was often addressed by English motor vehicle FE teachers as well as business administration FE teachers and is also found in relevant literature (Omre, 2007; Gericke, 2014; Hyland, 2014). In short, the line of argument is: the different standing of the national VET system leads to a different reputation and appreciation of vocational qualification, which results in different strategies to motivate students in class.

Figure 3

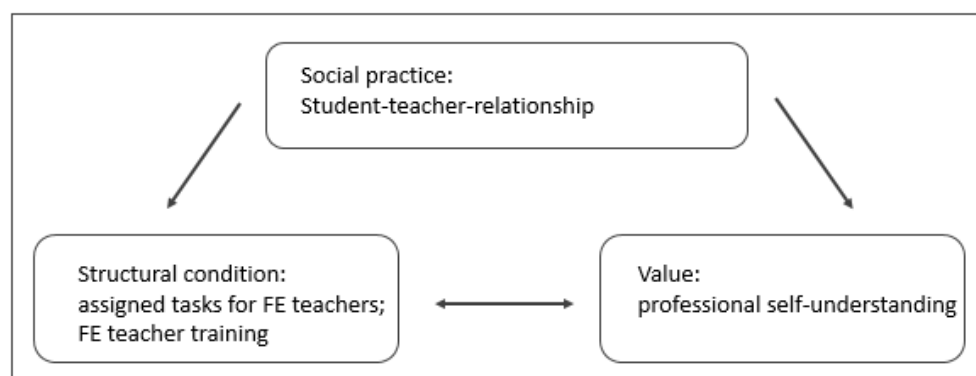
Line of argument in respect to the social practice 'student motivation'



In section 3.1.2 it was shown that the student-teacher relationship in English motor vehicle classes is friendly, even close as the teachers are well informed about their students' private and work lives. This has also been observed in the English business administration classes, though friendly banter has been to a lower extent than in the motor vehicle classes. So, there seems to be a general close relationship, even a personal relationship in England due to structural reasons. In the observed German motor vehicle classes the student-teacher relationship is friendly, but distant. This has also been observed in German business administration classes, though there has not been such a masculine way of communication like in the motor vehicle classes. These differences are (partly) based in a) the different assigned tasks for English and German FE teachers and b) the different professional self-understanding, which is partly due to the national FE teacher training. All interviewed English FE teachers (motor vehicle and business administration) see themselves as industry experts (Esmond & Wood, 2017), whereas all interviewed German FE teachers see themselves as teachers. In a nutshell, the different professional self-understanding and task areas lead to different student-teacher relationships.

Figure 4

Line of argument in respect to the social practice 'student-teacher-relationship'



4 Conclusions

This paper shows that social practices in motor vehicle classes in England and Germany have underlying values and structural conditions, which in turn foster social practices.

The two presented findings are that there are differences in a) how English and German motor vehicle FE teachers motivate their students and b) the student-teacher-relationship. The reasons for the differences are to be found in the practices' underlying values and structural conditions.

With the social practice ‘student-motivation’ and the social practice ‘student-teacher-relationship’ it was illustrated, how educational traditions/ values and structural conditions affect each other and in consequence shape social practices in the FE College classrooms in England and Germany.

References

- Alexander, R. J. (2001). Border crossings: Towards a comparative pedagogy. *Comparative Education*, 37(4), 507–523. <https://doi.org/10.1080/03050060120091292>
- Bohnsack, R. (2008). The Interpretation of pictures and the documentary method. *Forum Qualitative Social Research*, 9(3). <http://www.qualitative-research.net/index.php/fqs/article/view/1171/2591#g3>
- Esmond, B., & Wood, H. (2017). More morphostasis than morphogenesis? The ‘dual professionalism’ of English Further Education workshop tutors. *Journal for Vocational Education & Training*, 69(2), 229–245. <http://dx.doi.org/10.1080/13636820.2017.1309568>
- Gericke, E. (2014). *Biografische Berufsorientierungen von Kfz-Mechatronikern in Deutschland und England: Eine qualitative Vergleichsstudie*. Budrich UniPress.
- Gericke, E. (2020). The value of ethnography and the comparative case study approach in VET research. In M. Pilz, & J. Li (Hrsg.), *Comparative Vocational Education research. enduring challenges and new ways forward* (pp. 275–290). Springer VS Verlag. <https://doi.org/10.1007/978-3-658-29924-8>
- Georg, W. (1997). Kulturelle Tradition und berufliche Bildung. Zur Problematik des internationalen Vergleichs. In W.-D. Greinert, W. Heitmann, R. Stockmann, & B. Vest (Eds.), *Vierzig Jahre Berufsbildungszusammenarbeit mit Ländern in der Dritten Welt. Die Förderung der beruflichen Bildung in den Entwicklungsländern am Wendepunkt?* (pp. 65–93). Nomos Verlagsgesellschaft.
- Hyland, T. (2014). *Reconstructing Vocational Education and Training for the 21st century: Mindfulness, craft, and values*. SAGE Open. <https://journals.sagepub.com/doi/pdf/10.1177/2158244013520610>
- MacLean, M. (1990). *Britain and a single market Europe: Prospects for a common school curriculum*. Kogan Page.
- Orme, V. (2007). You will be ...: A study of job advertisements to determine employers’ requirements for LIS professionals in the UK in 2007. *Library Review*, 57(8), 619–633. https://www.emerald.com/insight/content/doi/10.1108/00242530810899595/full/pdf?casa_to-ken=LvRpyaaAVIsAAAAA:PgcSAUkkKLK1QY-KFmM4wlUe5IYBs3TC9IP-mGryqWD1dUzDX7R9I7WaS8LHeOTvwdIq89rqkxZoMJaxo5i4hs0q5JfTth-CoQQmmls_4dINib_u6FPgbv
- Osborn, M., Boadfoot P., McNess, E., Planel, C., Ravn, B., & Triggs, P. (2003). *A world of difference? Comparing learners across Europe*. Open Univ. Press.
- Presse- und Informationsamt der Bundesregierung (2020). *Anerkennung ausländischer Berufsqualifikationen*. <https://www.eu-gleichbehandlungsstelle.de/eugs-de/eu-buerger/infothek/neu-in-deutschland/berufsqualifikationen>
- Reckwitz, A. (2003). Grundelemente einer Theorie sozialer Praktiken / Basic elements of a theory of social practices. *Zeitschrift für Soziologie*, 32(4), 282–301. <https://doi.org/10.1515/zfsoz-2003-0401>
- Statistisches Bundesamt (2019). *Bildung und Kultur. Berufliche Bildung 2018. Fachserie 11 Reihe 3*. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Berufliche-Bildung/Publicationen/Downloads-Berufliche-Bildung/berufliche-bildung-2110300187004.pdf?__blob=publicationFile

Biographical notes

Dr **Erika E. Gericke** is a lecturer at the Chair for Business Education, Department I education – vocation – media, Otto-von-Guericke-University Magdeburg, Germany. Her research focuses on vocational identity, the history of VET systems and VET cultures especially comparing England and Germany.

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Recruiting Apprentices - The Experience of On-boarding Practices in the Swiss Public Transportation Sector

Hämmerli, Christine

Eidgenössisches Hochschulinstitut für Berufsbildung (EHB), christine.haemmerli@ehb.swiss

Barabasch, Antje

Eidgenössisches Hochschulinstitut für Berufsbildung (EHB), antje.barabasch@ehb.swiss

Abstract

The professional socialization in a training company is a great challenge for young people. At the same time, they have to adapt to new organizational structures, integrate into a new workplace and competently master new tasks. Successful vocational socialization depends not only on the interests, abilities, and expectations of the young people but also on the company and its on-boarding practices. The aim of on-boarding measures is to help newcomers to get to know the company's structures and to facilitate their socialization into the culture of the company. Based on findings of an in-depth explorative case study within the public transportation sector in Switzerland, that included interviews with all stakeholders involved in apprenticeship training, the paper will address the practice of on-boarding in apprenticeship training and arrive at conclusions about innovative approaches.

Keywords

professional socialization, apprenticeship, workplace learning, case study

1 Introduction

About 73% of each cohort leaving compulsory education in Switzerland start an apprenticeship, the majority within the dual system of education. Most of the young adults are between 15 and 16 years old when they enter workplaces for a few days a week. In general, there is a high commitment of employers in the country towards training apprentices and most of the young adults find an apprenticeship placement.

However, the professional socialization in a training company is a great challenge for young people. At the same time, they have to adapt to new organizational structures, integrate into a new workplace and competently master new tasks. Successful vocational socialization depends not only on the interests, abilities, and expectations of the young people but also on the company and its onboarding practices. Research has shown that a high perceived fit between the young people's interests and abilities and their career choice can be seen both as a prerequisite and a consequence of successful vocational socialization (Singer et al., 2013). In Switzerland, within about 20-25% of all apprenticeships apprentices decide to terminate their contract, mostly in the first year of training (Kriesi et al., 2016). Although many of these apprentices eventually complete another apprenticeship, the process of terminating a contract is often a harmful

experience for young people and also causes costs for the enterprise that may be avoided by investing more in on-boarding measures (Schörger et al., 2013). Research has shown that a positive socialization ideally leads to high work motivation and work satisfaction and a long-lasting organizational commitment, by that reducing fluctuation (Gagné & Deci, 2005; Saks & Gruman, 2018).

Vocational socialization can be defined as the influence of work on the personality (Frese, 1983). It is also a process, in which a (young) person learns abilities, knowledge, attitudes, values and behaviour to work and learn as an integrated member of an enterprise (Feij, 1998; Singer et al., 2014). Working in a specific occupation requires specialized activities, for which the development of special (motor and intellectual) abilities and general social orientations, such as willingness to cooperate is necessary (Lempert, 2006).

On the learners' side, a positive parental relationship, a large amount of prior knowledge about the training company and a high degree of confidence in making the right career choice are key resources for successful vocational socialization, which in turn fosters the development of the perceived fit between the interests and abilities of young people and their career choice, respectively if the subjective self-concept of a person fits the subjectively perceived requirements of the environment (Singer et al., 2014).

On the training company side, the term "on-boarding" has become established in the research literature recently to describe the role a training company plays in socializing and integrating newcomers into its organizational structures and culture during the recruitment process (Klein & Polin, 2012). The term "on-boarding" can be distinguished from socialization in that it refers exclusively to formal and informal measures initiated by the company to facilitate the adjustment and integration of newcomers (Klein & Polin, 2012). The aim of on-boarding measures is to help newcomers to get to know the company's structures and to facilitate their socialization into the culture of the company (Klein & Polin, 2012).

The paper will address the following research questions:

1. How are on-boarding measures helping young adults in the public transportation sector in their early socialization in the workplace?
2. How is on-boarding organized within the public transportation sector in Switzerland?
3. Which attitudes, beliefs and values are found among the trainers involved in on-boarding measures?
4. How do the apprentices experience their onboarding?

Based on findings of an in-depth explorative case study within the public transportation sector in Switzerland, that included interviews with all stakeholders involved in apprenticeship training, the paper will address these questions and arrive at conclusions about innovative on-boarding practices for apprentices.

2 Professional socialisation and on-boarding practices

Professional socialisation in a training company is a major challenge for young people (Barabasch et al, 2020). At the same time, they have to get to know new organisational structures, integrate themselves into a new workplace and competently master new tasks. Successful professional socialisation depends not only on the interests, skills and expectations of the young people, but also on the company and its on-boarding practices. In the following, we will discuss the theoretical foundations and selected research findings for professional socialisation and on-boarding.

Professional socialisation begins when learners in vocational education and training start working in their training company. This is the time when young people move from a school environment that is quite structured in terms of social interaction, time and subject matter to a

much less structured workplace (Singer et al., 2013). In their professional socialisation in the workplace, learners have to deal with unknown tasks and role expectations (Ganser & Hinz, 2007). Professional socialisation can be defined as the influence of work on personality (Frese, 1983). It is also a process in which a (young) person learns skills, knowledge, attitudes, values and behaviour in order to work and learn as an integrated member of a company (Feij, 1998; Singer et al., 2013). Working in a particular profession requires specialised activities for which the development of specific (motor and intellectual) skills and general social orientations, such as willingness to cooperate, are necessary (Lempert, 2006).

According to Singer and colleagues (2013), successful professional socialisation is characterised by a high degree of fit between a young person and his or her chosen profession, if the young person's subjective self-image corresponds to the subjectively perceived demands of the environment. In this context, the term fit refers to the correspondence between a person's interests and skills and his or her vocational training. In analogy to the stage-environment fit theory of Eccles and colleagues (Eccles et al., 1993), fit is not defined in terms of the profession, company or workplace, but holistically in terms of the apprenticeship as a form of training for a specific occupation. The perceived fit develops continuously in a dynamic and reciprocal process, because both the working environment and the learners change because of the professional socialisation in the training company (Singer et al., 2013; Solinger et al., 2013).

Solinger et al. (2013) found in their study that even if a large part of the adaptation in the form of attraction and selection mechanisms had taken place before the time of entering an apprenticeship, there are additional dynamic adjustments during the beginning months (Solinger et al., 2013). The question of under what conditions young people succeed in professional socialization during the first phase of their vocational training and how they experience this has hardly been researched to date. This may be due to the fact that the question only arises in countries with a dual vocational training system and that the focus of vocational training research there has been placed differently to date (Singer et al., 2013). The results of a longitudinal study by Singer et al. (2013) show that, as areas of professional socialisation, integration into the working group in the training company and mastering company tasks positively influence changes in the perceived fit between oneself and the training place. On the one hand, this results in the fact that it is central to successful professional socialisation that young people are able to fulfil the professional requirements of their apprenticeship (Singer et al., 2013). On the other hand, successful integration into the working group and thus the establishment of positive social relationships is just as important for experiencing a high degree of fit (Singer et al., 2013). According to their findings, a positive parental relationship, confidence in making the right career choice and sufficient prior knowledge about the training company are important resources for successful professional socialisation. Furthermore, if the degree of self-regulation of the young people was low it had a negative effect on their mastering of company tasks but not on their integration into the working group (Singer et al., 2013).

With regard to our research questions, the findings on the career choice process as a resource for successful social integration are of particular importance. Young people, who were confident in their choice of occupation and had acquired a great deal of knowledge about the training company during their career choice process, found it easier to integrate into the working group and had less difficulty in coping with in-company tasks (Singer et al., 2013). By acquiring prior knowledge, young people seem to be able to form a realistic idea of what to expect in the training enterprise. This enables them to prepare mentally for the transition, which in turn makes it easier for them to adapt to the new environment and the new requirements (Singer et al., 2014). In addition to a high perceived fit between the young person and his or her apprenticeship, Nägele and Neuenschwander (2016) also found that personality traits, such as reliability, help for socialisation in the training company.

A successful socialisation process is further dependent on the on-boarding practices of the training companies, which support young people both in the process of choosing a profession and in starting an apprenticeship. On-boarding can be distinguished from socialisation in that it refers exclusively to formal and informal measures initiated by the company to facilitate the adaptation and integration of newcomers (Klein & Polin, 2012). Through targeted on-boarding strategies, a company can support learning and adaptation processes during job entry (Klein & Polin, 2012). It is important that newcomers receive the information and advice they need, which can be achieved through the provision of specific information and the allocation of sufficient and appropriate resources.

From a talent development perspective, on-boarding also offers training companies the opportunity to realise a return on investment in the recruitment process and ensure that newcomers become quickly engaged and productive (Becker & Bish, 2019). Following the theory of human capital it can be assumed: The sooner newcomers can learn company-specific knowledge, understand and recognize the culture and unique aspects of the organization, the sooner they can contribute to the success and competitive advantage of the organization (Klein et al., 2015). Considering that the term "on-boarding" refers primarily to measures taken to facilitate the entry into a new company, these measures are designed to help learners to take on a role within the company as quickly as possible that suits both their own needs and those of the organisation (Klein et al., 2015).

Klein and Heuser (2008) have defined three main purposes of on-boarding practices: Practices that help to inform the newcomer, those that welcome him or her and those that guide him or her. These three on-boarding categories form the framework for the Inform-Welcome-Guide (IWG), which is applicable to all organisations, workplaces and contexts (Klein & Heuser, 2008). The inform category covers a wide range of specific practices and is divided into three subcategories: communication, resources and training (Klein & Heuser, 2008). The subcategory communication covers both communications from the company to newcomers (e.g. a welcome letter) and opportunities for dialogue (e.g. a planned phone call). The subcategory resources covers practices beyond direct communication that provide resources to new employees to help them adapt (e.g. FAQs on hiring new employees on the company intranet) (Klein & Heuser, 2008). The subcategory training covers planned programmes to facilitate the systematic acquisition of knowledge and skills that a newcomer needs to know (e.g. orientation training, induction events). The category welcome includes activities aimed at celebrating the new employee, expressing appreciation for joining the organisation and giving him or her the opportunity to meet other members of the organisation (e.g. a welcome dinner) (Klein & Heuser, 2008). This category includes practices that address the emotional needs of newcomers and help them to develop social capital (Klein & Polin, 2012). The third category includes those practices that aim to assist actively and directly newly hired persons (e.g. by an assigned employee) to help them with their transition "from a naive outsider to an effective insider" (Klein & Heuser, 2008, p. 265).

Little research has been done so far on on-boarding practices and their effectiveness. For instance, Klein et al. (2015) examined on-boarding practices of ten companies from different industries, interviewing managers and HR professionals as well as employees. Another purpose of their study was to test the IWG-framework. The results show that for all five IWG-categories, the number of practices offered (or experienced) was positively correlated with increased socialisation of newcomers (Klein et al., 2015). It turned out that the socialization becomes easier with an increasing amount of different on-boarding practices and their positive experience by newcomers (Klein et al., 2015). Employees tended to mention practices more frequently in some IWG-categories than in others, while all five IWG-categories were experienced more formally than informally (Klein et al., 2015). In addition, newcomers found practices more helpful if they were mandatory rather than voluntary (Klein et al., 2015).

The timing of on-boarding practices also seems to play an important role. However, the optimal timing of practices is more complex than simple "the earlier the better" (Klein et al., 2015). The optimal timing for a particular on-boarding practice may depend on the needs of the new employee, the type of practice and the number of offers. Other studies provide evidence that organisations have different types of employees on board in different ways. (Klein et al., 2015). For example, Fondas and Wiersema (1997) found that the broad socialisation practices used to on-board managers often differ from those used at lower levels (more informal, non-sequential and individual). Furthermore, in a recent descriptive survey of on-boarding practices conducted by the Society for Human Resource Management (SHRM, 2011), they found that slightly less than half of the organisations persons surveyed handled on-boarding differently for entry, mid- and senior level employees. However, which specific practices within the IWG categories are most effective in certain situations has not yet been investigated (Klein et al., 2015).

To our knowledge, there is also little research evidence on on-boarding practices in recruiting apprentices and their entry into the new company. Barabasch et al. (2020) found in their case study on learning cultures at the Swiss communications company Swisscom that young people are supported in their transition from the highly structured school to the less structured work environment by an introduction week, the 'First Steps Week'. During this week apprentices are introduced to the companies learning culture, learn how to use technical tools and gain initial insights into company concepts and organisational structures. In Switzerland, however, training companies play a key role not only when it comes to starting an apprenticeship, but also in young people's process of choosing a profession. Even during the upper school years, training companies, in cooperation with compulsory schools and regional vocational information centres, organise information events to support young people in their process of choosing a profession. Training companies also offer young people the opportunity to do an introductory apprenticeship (Schnupperlehre) so that they have the opportunity to obtain a realistic picture of the everyday working life in a company (Singer et al., 2013; Nägele & Neuenschwander, 2016). This is meant to give young people the opportunity to experience both the technical work content and their direct working environment with co-workers before they start their apprenticeship. This is essential to give young people the opportunity to form a comprehensive and realistic idea of their potential apprenticeship place (Singer et al., 2013; Nägele & Neuenschwander, 2016). To our knowledge, however, there are no studies on the effectiveness of various on-boarding practices both in the context of the process of choosing a profession and of starting an apprenticeship.

3 Methodology

The firm "login" provides VET training for apprentices that work in the public transportation sector. It cooperates with 50 partner-enterprises of the sector, for which they organize their VET training. A comprehensive case study (Yin, 2014; Yin & Davis, 2007) within various Swiss public transportation enterprises that train apprentices in an innovative manner has been conducted during 2018 and 2019. Participants represent the main stakeholders in workplace training: Apprentices, workplace trainers, personnel that directly works with apprentices such as coaches, as well as persons representing different levels of VET management.

The main data source were 60 semi-structured interviews with persons representing all groups of people involved in workplace training. Furthermore 18 site visits at different working (and learning) venues were conducted. Data collection was completed by document analysis of VET-related documents of the enterprises. Participants for the interviews and locations for site visits were selected by the team of researchers together with a VET manager at each enterprise. The cooperation in the selection of interview partners lead to a flexible continuing enlargement of the sampling in a function of theoretical sampling leading to data saturation, respectively to

a profound understanding of the cases. The interviews followed a general interview guideline aimed at finding out about daily work, regular tasks, successes and difficulties, the organization of VET programs, support by workplace trainers, as well as attitudes, values and beliefs regarding the workplace training.

Data were analysed by a content analysis (Kuckartz 2016). Two coders coded the entire material, supported by the software MAXQDA. The material was structured according to individual cases and categories representing different research topics (Kuckartz, 2016). In an iterative process, the narratives were coded according to emerging themes and regularly discussed by the research team to ensure the reliability and validity of the data. In this way, a comprehensive and detailed system of categories was derived. The analysis of the coded segments lead, among others, to a display of on-boarding practices and how they are experienced by apprentices and perceived by coaches and management.

4 Findings: On-boarding in the Swiss public transportation sector

Recruitment and on-boarding receive increasing attention in human resources and training departments at enterprises. The examples from login indicate how communication, resources and training are viewed and practiced.

4.1 Communication

In order to ensure that the expectations of the apprentices are matching reality, communication about the content of the apprenticeship and job opportunities afterwards, just as much as further qualification options, need to be clearly communicated. This helps to prevent that young people sign several apprenticeship contracts, but only start one apprenticeship or drop out of the apprenticeship, because their expectations are not met. It is further important to communicate about possibilities for employment within the public transportation sector and the general expectations of enterprises that apprentices would remain in the company as regular employees after graduating from their apprenticeship.

At first, however, enterprises need to reach out to pupils and show that an apprenticeship is an attractive option. The use of social media becomes increasingly important in this phase.

Young people can apply via 'WhatsApp'; they can photograph their CV and send it. We check, whom we have in the pool of applicants and call candidates. And when someone feels he or she has an interest in informatics and sends us a video instead of a standard application, this is also possible. We need to be open and pick people up where they stand, how they tick. (Management)

The generation Z is regarded as a generation that communicates and responds much more to being approached by social media, expects to have flexible and creative possibilities to express themselves and communicate with others. They prefer individualized and pragmatic solutions over formalism and strictness. Companies have realized that the most suitable apprentices may be found more easily, if the flexibility towards other forms of communication is increased.

4.2 Resources

Also, in terms of advertising apprenticeships, strategies have been adjusted to communicate better with pupils. This requires a wider portfolio of measures to reach out, which can be more cost intensive.

We have adapted our recruitment to today's needs among young people and communicate over various channels. In the past, it was sufficient to place a poster

somewhere and afterwards we waited for the applications to float in. The challenge today is to use social media platforms, videos or whatever. We have today widened our portfolio of measures and do much more to advertise our apprenticeships than 5-10 years ago. (head of training department)

Not just the ways in which pupils are approached is decisive for their application, but also the incentives offered throughout an apprenticeship.

I think it is important that the apprenticeship is a 'cool' one, also with advantages, such as the gratis abonnement for our public transport system. However, this is also offered in other enterprises and industries. Very good guidance and trust are key, that one knows that somebody is there for them, if problems arise. That one feels recognized and appreciated and can work independently. The trial of an apprenticeship ('Schnupperlehre') is very popular, because pupils come to us and try out typical work situations. They are impressed that they were allowed to work for two hours at the counter or the workbench. This is very popular. (head of training department)

While soft factors can be communicated, experiencing them would be key. Also, the imagination how work looks like in various jobs is enhanced when tasks can already be performed. With a short trial of an apprenticeship for one to five days ("Schnupperlehre"), pupils can have a first glance or collect prior experiences and impressions of the daily work of an apprentice. This helps them in their decision making about an apprenticeship, but also provides the enterprise with an impression about the young person.

4.3 Training

Young people are increasingly interested in further qualification options and often enterprises are supportive. There are a number of possibilities that apprentices can make use of, especially, if they are performing well. Among them are internal training programs, language courses, rotations into enterprises or departments, where one wishes to gain work experience, or the support with resources for individuals, groups or teams. It also goes beyond the apprenticeship with training options provided for those, who are willing to remain with the enterprise.

The best apprentices are those, who want to acquire the vocational baccalaureate as their first goal after the apprenticeship, either in part-time or full-time. It depends what the enterprise is offering them and I think, it became more flexible over the years. Those, who have acquired the vocational baccalaureate want to study and it is difficult to predict, whom we want to keep afterwards, to know who wants to stay at the company for a longer time. Therefore, we do not want too many of those, who change to somewhere else, outside of the public transportation system. (head of training department)

5 Conclusion

Although, the large majority of young people in Switzerland still chooses an apprenticeship after compulsory schooling, their interest in developing themselves further via graduating from an institution of higher VET, a university of applied science or a university has increased. More applicants for apprenticeships at Login are asking how the enterprises are supporting their further development. The communication channels used at all stages of the on-boarding process have increased and include various forms of more creative expressions, such as videos, and require more flexibility of enterprises to engage in new forms of exchange. The advantage is

that individuals are given a chance to be taken into consideration, because they found their individual way to express and introduce themselves – an opportunity that may help to find the best matches in about 35 different apprenticeships offered at login.

Reaching out to pupils via a variety of social media, letting them experience what it means to be an apprentice, offering meaningful further qualifications and the incentive to take somewhat individualized routes through an apprenticeship in the interest of their personal competence development, while at the same time appearing authentic and trustful, helps to be successful with ones on-boarding measures. While on-boarding has become more complex today, it also provides more chances to find good matches between personal expectations and capacities and available apprenticeships and jobs.

References

- Barabasch, A., Keller, A., & Caldart, D. (2020, accepted). “How I have grown over these years seems to be extreme to me.” Socialization of the next generation in an innovative learning culture. In P. Gonon, P. Eigenmann, & M. Weil (Eds.), *Opening and extending VET*.
- Becker, K., & Bish, A. (2019, in press). A framework for understanding the role of unlearning in onboarding. *Human Resource Management Review*. <https://doi.org/10.1016/j.hrmr.2019.100730>
- Eccles, J. S., Midgley, C., Wigfield, A., Miller Buchanan, C., Reuman, D., Flanagan, C., & Mac Iver, D. (1993). Development during adolescence. The impact of stag-environment fit on young adolescents’ experiences in schools and in families. *American Psychologist*, 48(2), 90–101.
- Feij, J. A. (1998). Work socialization of young people. In P. J. D. Drenth & C. J. de Wolff (Eds.), *Handbook of work and organizational psychology* (2nd ed., Vol. 3: Personnel Psychology, pp. 207–256). Psychology Press Ltd.
- Fondas, N., & Wiersema, M. (1997). Changing of the guard: The influence of CEO socialization on strategic change. *Journal of Management Studies*, 34, 561–584.
- Frese, M. (1983). Der Einfluss der Arbeit auf die Persönlichkeit: Zum Konzept des Handlungsstils in der beruflichen Sozialisation. *Zeitschrift für Sozialisationsforschung und Erziehungssoziologie*, 3, 11–28.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331–362.
- Ganser, C., & Hinz, T. (2007). Überforderung und abweichendes Verhalten in beruflichen Schulen. In H. Kahlert & J. Mansel (Eds.), *Bildung und Berufsorientierung. Der Einfluss von Schule und informellen Kontexten auf die berufliche Identitätsentwicklung* (pp. 37–58). Juventa.
- Klein, H. J., & Heuser, A. (2008). The learning of socialization content: A framework for researching orientating practices. *Research in Personnel and Human Resources Management*, 27, 278–336.
- Klein, H. J., & Polin, B. (2012). Are organizations on board with best practices onboarding? In C. R. Wanberg (Ed.), *The Oxford handbook of organizational socialization*. Oxford University Press.
- Klein, H. J., Polin, B., & Sutton, K. L. (2015). Specific onboarding practice for the socialization of new employees. *International Journal of Selection and Assessment*, 23(3), 263–284.
- Kriesi, I., Neumann, J. Schweri, J., Griga, D., Kuhn, A., Schmid, E., & Baumeler, C. (2016). *Bleiben? Gehen? Neu beginnen? Häufigkeit, Ursachen und Folgen von Lehrvertragsauflösungen*. Trendbericht 1 des Schweizerischen Observatoriums für die Berufsbildung. Eidgenössisches Hochschulinstitut für Berufsbildung EHB.
- Kuckartz, U. (2016). *Qualitative Inhaltsanalyse - Methoden, Praxis, Computerunterstützung*. Beltz Juventa.
- Lempert, W. (2006). Berufliche Sozialisation und berufliches Lernen. In R. Arnold, & A. Lipsmeier (Eds.), *Handbuch der Berufsbildung* (pp. 413–420). VS Verlag für Sozialwissenschaften.
- Morrison E. W. (2002) Newcomers’ relationships: The role of social network ties during socialization. *The Academy of Management Journal*, 45(6), 1149–1160.
- Nägele, C., & Neuenschwander, M. P. (2014). Adjustment processes and fit perceptions as predictors of organizational commitment and occupational commitment of young workers. *Journal of Vocational Behavior*, 85(3), 385–393.

- Nägele, C., & Neuenschwander, M. P. (2016). Apprentice-trainer relationship and work group integration in the first months of an apprenticeship. *Empirical Research in Vocational Education and Training*, 8(4). <https://doi.org/10.1186/s40461-016-0030-3>
- Perrot, S., Bauer, T. N., Abonneau, D., Campoy, E., Erdogan, B., & Liden, R. C. (2014). Organizational socialization tactics and newcomer adjustment: The moderating role of perceived organizational support. *Group and Organization Management*, 39(3), 247–273.
- Saks, A. M., & Gruman, J. A. (2018). Socialization resources theory and newcomers' work engagement: A new pathway to newcomer socialization. *Career Development International*, 23(1), 12–32.
- Schörger, J., Rausch, A., & Neubauer, J. (2013). Onboarding von Auszubildenden – Welche Massnahmen erleichtern den Ausbildungsbeginn? *BWP*, 2, 42–45.
- SHRM (Society for Human Resource Management) (2011). *Employee benefits: Examining employee benefits amidst uncertainty*. Research Report.
- Singer, A., Gerber, M., & Neuenschwander, M. P. (2013). Individuelle und soziale Bedingungen der beruflichen Sozialisation im Lehrbetrieb. In M. P. Neuenschwander (Ed.), *Selektion in Schule und Arbeitsmarkt*. Rüegger.
- Solinger, O. N., van Olffen, W., Roe, R. A., & Hofmans, J. (2013). On becoming (un)committed: A taxonomy and test of newcomer onboarding scenarios. *Organization Science*, 24(6), 1640–1661. <https://doi.org/10.1287/orsc.1120.0818>
- Watzka, K. (1993). Einführung neuer Mitarbeiter ins Unternehmen. Soziale Unterstützung und hilfreiches Verhalten durch Arbeitskollegen. *Führung + Organisation*, 62(4), 255–263.
- Yin, R. K. (2014). *Case study research, design and methods*. SAGE publications.
- Yin, R. K., & Davis, D. (2007). Adding new dimensions to case study evaluations: The case of evaluating comprehensive reforms. In G. Julnes & D. J. Rog (Eds.), *Informing federal politics for evaluation methodology*. San Francisco: Jossey-Bass.

Biographical notes

Dr **Antje Barabasch** is a Professor head of the research axe «Teaching and Learning in Vocational Education and Training» and the research field «Learning Cultures and Didactics» at the Swiss Federal Institute for Vocational Education and Training (SFIVET). Her research is concerned with innovation in apprenticeships at Swiss enterprises, creativity support in VET, art-based research, comparative education and the integration of refugees into the labour market.

Christine Hämmerli, M. Sc. in Educational Science, is a research associate in the research area «Integration in VPET and the labour market» and in the research area «Experience and lifelong learning» at the Swiss Federal Institute for Vocational Education and Training (SFIVET). In this research area, her research focuses on the accreditation of educational achievements, adult education and educational governance. She is also involved in research on innovation in apprenticeship at Swiss companies, creativity support and social integration in VET.

Handelmann, A. (2020). Pathways to apprenticeships in Germany and New Zealand. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET) (pp. 126–133).
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Pathways to Apprenticeships in Germany and New Zealand

Handelmann, Antje

Department of Vocational Orientation in Inclusive Contexts, Institute for Special Needs Education, Leibniz University Hannover, antje.handelmann@ifs.uni-hannover.de

Abstract

In this article, the final results of an empirical dissertation that reconstructed school-to-work transitions in Germany and New Zealand from young people's perspectives are presented. The aims were twofold: first, to reconstruct how young people experienced the transition from school to work. The second aim was to analyse whether institutional structures and social values influenced these processes and, if so, how the experiences of young people in Germany and New Zealand compared. The findings show that for both the Germans and the New Zealanders, the school-to-work transition was experienced with pressures and societal demands. The biographical process is often intertwined with the aim of finding a career or vocational pathway that suits a person. This aim can lead to a permanent search for an occupation with the ambition of finding the right pathway.

Keywords

school-to-work-transition; apprenticeship; biographical research; Germany; New Zealand

1 Introduction: De-standardised transitions from school to work

The transition from school to work is one of the major developmental tasks in young people's lives. In past decades, youth transitions have become considerably prolonged and de-standardised (Walther, 2006). The term *de-structuralisation* (Böhnisch et al., 2009) describes social change processes that lead to high demands on young people. The youth stage can no longer be experienced collectively but has to be dealt with individually. For young people, these social changes put high demands on their biographical self-management. They must make individual decisions, a process in which their subjectivities become relevant for social integration (Walther, 2006).

One pathway to employment is vocational training. In Germany, the transition from youth to adult status has traditionally been highly formalised and standardised. The school system is selective and prepares students either for university or for a standardised vocational education and training system. Pathways from school to work are pre-structured (Walther, 2011). Traditionally, vocational education and training is the educational sector that most secondary school leavers choose. More than 60% of all school leavers aim to directly start vocational training in the dual system, which combines in-company and school-based training (Beicht & Walden, 2019). From October 2018 to September 2019, 525,081 new training contracts were signed (Bundesministerium für Bildung und Forschung, 2020).

The difference to many other countries with a training system is that in Germany the dual system is structured according to standardised occupation-oriented curricula. In this sense, the joint theoretical and practical training have a special status, the vocational training phase. Two life course phases that remain separated from each other for a longer time in other systems are linked with each other (Sackmann & Rasztar, 1998). For vocational training, the occupation can be regarded as the guiding concept (Arnold et al., 2016).

This article is based on a doctoral research project in which the transition processes of young people who terminated their apprenticeship early were reconstructed (Handelmann, 2020). The empirical study reconstructed how young people coped with the transition from school to work and the biographical relevance of their apprenticeship and analysed the impact of institutional structures and social values. This research interest developed from a research project on non-completion of apprenticeships in the hospitality sector in Northern Germany (Bartmann et al., 2014a, 2014b).

The results of the project on non-completed apprenticeships showed that withdrawal from apprenticeship is regarded as failure from a societal perspective, since the social norm of coping with the transition from school to work cannot be fulfilled. Withdrawal is considered primarily from a risk perspective, since it contradicts the ideal of a linear transition and career process. Subjects who do not complete an apprenticeship need to process this phase in their lives biographically (Bartmann et al., 2014). Therefore, biographies of young people who have withdrawn from an apprenticeship provide access to the biographical relevance of an apprenticeship.

2 Heuristic analysis of the processes of searching for an occupation and the biographical relevance of an apprenticeship

Following the research project on non-completion of apprenticeships, the aims of the dissertation were first to reconstruct the orientations that were important in the transition process and analyse their development in the life course and the apprenticeship's biographical meaning and second to examine the relevance of social conditions by comparing two countries. In this way, the relation between the degree of institutionalisation and the biographical relevance of an apprenticeship could be analysed, since transitions from education to work are regulated differently in societies (Walther, 2013). They are regarded as internationally comparable since they are organised to a large extent by the nation state as part of the institutionalised life course (Walther, 2010). Differences in the logic of regulating transitions can affect the transition process and be reflected in young people's biographies (Walther, 2013).

New Zealand was chosen as the second country to provide a contrast with Germany. The selection of the country and the heuristics are explained in the following section.

2.1 A biographical perspective on school-to-work transitions

Against the background of de-structuralised processes, a subject-oriented research approach was chosen. Stauber, Pohl and Walther (2007) point out that the dynamics of biographical transitions can no longer be analysed from the perspective of institutionalised life courses but should be analysed from the subject's perspective. In line with a subject-oriented perspective intended to capture the complexity of the transition process, the process of finding an occupation is seen as a biographical process that is just as complex and connected with contradictory social demands. The concept of transition (Welzer, 1993) offers a corresponding concept that enables a less goal-oriented perspective by focusing on the process.

2.2 Widening the biographical perspective: A second country comparison

The model of transition regimes (Walther, 2010, 2013) was used as a heuristic model to select a second country. The model refers to different national regulations for transitions in life. Four regime types are distinguished: the universalistic regime in Nordic countries, the sub-protective regime in Mediterranean countries, the liberal regime in Anglo-Saxon countries such as New Zealand and the employment-centred regime in continental European countries such as Germany. The concept “provides a perspective that goes beyond institutional structures and includes ideological concepts and cultural values that inform both transition policies and young people’s orientations and coping strategies” (Walther, 2006).

The project focused on Germany and New Zealand to provide maximum contrast: In employment-centred transition regimes, failed transitions are considered a lack of education or socialisation in subjects’ lives (Walther, 2013). In Germany, young people failing to enter vocational education are called ‘untrainable’ (Walther, 2006). Youth is constructed as a phase in which the search for a standardised occupational position is socially expected (Walther, 2010,). This can also be seen in the occupational principle mentioned above, which is constitutive for vocational training in Germany and structures the pathway to an occupation.

In contrast, liberal transition regimes focus on individual rights and responsibilities, and failed transitions are regarded as subjects’ non-willingness to work (Walther, 2013). Youth is regarded as a phase in which achieving economic independence is the primary goal. The pathway to employment in New Zealand is based on the concept of employability (Walther 2010), which focuses on market-oriented requirements (Kraus, 2006).

In 2017, 62.942 young people left school in New Zealand. Of these, 61.2% enrolled in tertiary education at all levels during the first year after school (Education Counts, n.d.). In 2018, 13.525 new apprenticeship contracts were signed (Education Counts, n.d.).

Apparent transition regime-related differences can be reflected in the biographical relevance of an apprenticeship.

3 Methodology and methods: Biography and the approach to the intersection of subject and society

The aim of the doctoral study was to reconstruct school-to-work transitions from young people’s perspectives. The methodological framework consisted of the concept of biography, which offers an approach to the intersection of subject and society (e.g. Dausien, 2004). With its roots in the Chicago School’s sociological tradition, the biographical method analyses social problems from the individual’s perspective (Siebert & Szczepanik, 2015). The term *biography* is meant as a social construct that comprises social reality and the subject’s experiential world. Biography develops in interaction with others and enables a subject to construct and experience continuity and a meaningful interpretation of their own life. The educational biographical approach focuses on individual strategies to cope with structural requirements and analyses subjective concepts of the self and the world (Marotzki, 2005).

Biographical approaches aim not merely to describe the individual’s perspective but also to focus on how the individual narrates their perspective on social reality and their involvement with and action within this reality to reconstruct it in biographical processes. The researcher is not only interested in what stories people tell but also in how they tell their stories.

In Germany¹ and New Zealand, 21 biographical narrative interviews with young people who have withdrawn from an apprenticeship in the dual system were conducted. In line with the project on non-completion the project focused in New Zealand on apprenticeships in the hospitality sector (e.g. cookery). However, I widened the sample and conducted two interviews

¹ Many thanks to Prof. Dr Sylke Bartmann and Prof. Dr Astrid Hübner for their kind offer to work with the interviews from the research project in my dissertation.

with young people who had terminated their hairdressing apprenticeships. Most important for the sample construction was that the interview partners had experiences within the dual system, i.e. with in-company and school-based-training.

The transition processes were reconstructed using Fritz Schütze's narrative analysis method (Schütze, 1983). By contrasting the experiences of young people in Germany and New Zealand, it was possible to analyse the influence of social conditions on biographical pathways. I did not aim to compare the biographical processes and orientations of young people in Germany with those in New Zealand. Instead, I focused on transitional structures and discourses and how they were reflected in young people's narratives.

During the analysis process, the dimensions relevant for the comparison became obvious, as follows: concept of the professional world, professional self-concept, approach to the search, biographical relevance of the apprenticeship and coping with the withdrawal from the apprenticeship. The case reconstructions were compared on the basis of the dimensions. Finally, the results were condensed in a typology, which includes and expresses the orientations and coping modes.

4 Findings: The search for an occupation — a typology of orientations

Based on the case reconstructions and comparisons, four orientation types that enable young people to cope with the transition from school to work and are relevant in the search process for an occupation were analysed, as follows:

- Type 1: Institutional-oriented
- Type 2: Recognition-oriented
- Type 3: Self-actualisation-oriented
- Type 4: Conformity-oriented

In the following section, the four search types are presented, the comparison dimensions are clarified, and illustrative examples from the data are included.

4.1 Type 1: Institutional-oriented

The institutional-oriented type experiences the transition from school to work as a societal requirement that needs to be dealt with after school. This type sees themselves as an insecure person who does not know which pathway to choose. They need to find an occupation that suits them and enables them to integrate socially. It is important for this type to know what to expect from the future to feel certain, and societal norms orient them. The apprenticeship content (i.e. the occupation or the professional field) is less relevant than the certainty.

The need for predictability leads to a transition phase with several steps that reflect the logic of the search approach: ideas for career pathways arise from suggestions by significant others. In this context, family references offer orientation. Internships, jobs and significant others' successful employment pathways show feasible ways to employment, and ideas can be validated. For the institutional-oriented type, the relevance of the apprenticeship consists of realising their own pathway in accordance with the norm. After withdrawal, the pressure to find the right way increases.

The following excerpt from the case study 'Eduard Müller'² illustrates the process that leads to the decision to take an apprenticeship. Eduard is an institutional-oriented search type who orients himself towards societal norms. He reviews a decision several times to feel confident about it:

² Names have been changed for reasons of anonymity.

Something that could also be worth mentioning is how I got the idea to want to become a fully trained hotel clerk. My sister works as a receptionist . . . and my parents just thought at some point, ‘Listen, Eduard, how about you do that too?’ Maybe after that I thought to myself, ‘Well, yeah, that wouldn’t actually be such a bad idea. That would be something new’. It is something exciting. I went on to undertake about four different traineeships in different hotels [He elaborates on his traineeship experiences], and I enjoyed all the traineeships. Well, there was nothing to be said against it. I couldn’t say, ‘Yeah, I don’t like the work of a hotel clerk’. The fact that my sister had finished her training just added to me saying to myself, ‘Yes, okay, that is what you want to do now’.

4.2 Type 2: Recognition-oriented

The recognition-oriented type is similar to the first type, but the norm orientation is less relevant for the search process. This type also experiences the transition from school to work as a societal demand and copes with the demand by prolonging the decision-making process. The search for an occupation is primarily associated with striving for recognition.

This type sees themselves as a novice, i.e. as a person who has never known what they want to do professionally. With this self-concept, significant others are left to decide on their vocational path. Their expectations are used as a compass. By orienting themselves towards their significant others, a decision for an occupation can be postponed. However, at the same time, this type receives recognition by following significant others’ ideas. Accordingly, the biographical meaning of the apprenticeship is to gain recognition. The institutionalised forms of transitions are not relevant. After withdrawal, this type’s own interests and ideas become more relevant for the search.

The case study ‘Neil Günther’ exemplifies how a recognition-oriented search type can get the idea to start an apprenticeship. The interview excerpt illustrates how the decision-making process is initiated by other people and agreed to by the subject to gain recognition, although their own motivation is low:

I sat next to them [his colleagues] at dinner, and, I don’t know, they asked me. So they said, ‘You don’t want to live your whole life without an apprenticeship’ and then ‘What do you like to do?’ Then I said, ‘Well then’, I said, because I often made waffles, always made waffles or helped to prepare the salad buffet or something like that, and then I was asked if I would like to do an internship [...] and then I said yes, so because I like to cook in my free time I said ‘Yes, we can do it’.

4.3 Type 3: Self-actualisation-oriented

The self-actualisation-oriented type identifies with the occupation, and the pathway is predetermined by high identification with an occupation. Persons who belong to this type see themselves as experts, and the professional world is seen as one in which an expert can experience belonging and gain further expertise.

This type actively follows the steps into an occupation and orientates themselves towards their own interests and competencies aimed at developing a career. The apprenticeship is relevant for the decision not only in terms of content but also as an institution. However, the idea of professionalisation and certification is also important for this type. After withdrawal, the search process becomes more pragmatic and the financial aspects more important.

For Blair Benseman, a self-actualisation-oriented search type, the occupation was always clear and so self-evident that one can hardly speak of a search:

I've always, I guess back when I was eleven or twelve . . . or after the movie, the, um, kids' movie *Ratatouille* . . . yeah, so ever since that movie . . . I was like, 'Wow, I wanna be a chef'.

4.4 Type 4: Conformity-oriented

The conformity-oriented type has an optimistic perspective on the professional world and sees themselves as a person with a wide range of interests. However, this type is also strongly involved in relations with others and their ideas. This tension makes it difficult to follow their own ideas when they differ from other persons' suggestions as well as societal norms. In this case, the transition is crisis-laden: social demands are not fulfilled after leaving school. The search is characterised by an optimistic and flexible approach, which is diversely oriented. Nevertheless, the search for an alternative career path to social expectations remains difficult and crisis-laden. In the process, the ability to act increasingly dwindles as the socially expected institutional basis is missing. The case 'Sarah Webb' offers insight into the process of a person who is a conformity-oriented type:

When I left school, I tried university because I thought that's what everyone does . . . and my mum was like, 'Well, yeah, go to university, that's, you know, you need a degree. It's important to have a degree'. So I went to university and I did social studies, I did arts, I did [laughing] Spanish and I did music [laughing], and that's kind of a good example like the range of things I'm interested in, and I have like a million interests, and I wanna do everything, and I wanna do them all well, and I wanna do them all now, but that means that I end up just doing nothing [laughing].

4.5 Summary of findings

The biographical research approach and the corresponding analysis of concepts of the professional self and the professional world offer reconstruction of different approaches to the search for an occupation. Case reconstruction shows how approaches to the search for an occupation can differ. Depending on their self-concept and their concept of the professional world, subjects experience either more or fewer possibilities to shape their own biographical pathway. Accordingly, they cope with the transition either actively or passively: search types who see the professional world as a space where they can include their own professional ideas and who have their own ideas and wishes for their career differ from search types who experience the professional world in a restrictive way and who need certainty more than flexibility to cope with the school-to-work transition.

Although four search types were identified in the German and the New Zealand data, some similarities and differences reflected in the interviews can be discussed against the backdrop of the different transition regimes. For both the young Germans and the New Zealanders, family and significant others were important social resources for support in the transition phase, and the institutionalised forms of education offered orientation. Differences could be identified regarding the specific institutions: apprenticeships could be described as a specific transition pattern in the German sample, which is less relevant for New Zealanders.

Work-related experiences are important for transition: while young people in the German sample referred to internships during school that enabled them to orient themselves in the process of finding an occupation, young people in the New Zealand sample referred to their experiences in part-time jobs that became important for their pathway.

Economic aspects regarding the financing of apprenticeships and their lives were exclusively brought up in the New Zealand sample, as was travelling. As an institution, it becomes relevant for the transition from school to work.

How the young people experienced the relationship between apprentice and supervisor is another difference. An asymmetry in the relationship was experienced by the Germans, leading to challenging situations as apprentices. However, this asymmetry was regarded as a legitimate dynamic of the apprenticeship. The case reconstructions showed that some New Zealanders started their apprenticeship without knowing what to expect from the training. Irritations arose from the hierarchy experienced between apprentice and supervisor and the concept of apprenticeship itself (e.g. the duration and content of the apprenticeship).

However, for both the Germans and the New Zealanders, the school-to-work transition was experienced with pressures and societal demands. The case reconstructions showed that transition is a complex phase in young people's lives and not a decision that can be made easily for a specific pathway. Young people aim to belong to society, and vocational pathways and occupations are regarded as an important aspect of becoming a member of society. The case reconstructions showed that the biographical process was often intertwined with the aim of finding a career or a vocational pathway that suits the person. This aim can lead to processes that can be described as a permanent search for an occupation: young people remain in a persistent search process with the ambition of finding the right pathway.

5 Conclusion: Searching, not finding

Social changes continue to have an enormous impact on young people's lives. Concepts like de-structuralisation refer to the processes of individualisation, diversification and difference. These processes lead to new risks, since young people can no longer rely on traditional structures and predictable pathways.

Against the backdrop of modern societies' structures and a context of de-standardised transitions to work, young people are increasingly responsible for navigating their own way into working life. After compulsory education, they are expected to enter employment or further education. Vocational training, such as an apprenticeship, is one possible choice. However, no matter what path young people choose, it is not only an autonomous and free choice but also a cultural and societal expectation. In vocational education and training research it is not possible to focus on a normal biography. Instead, individual life courses need to be the focus. Since social changes lead to different life courses, it is necessary to understand the subject's perspective. As shown above, by using the biographical method, it is possible to access the reality of young women and men's lives. The analysis does not only include the question of whether social reality is experienced individually, because the impact of social norms has to be taken into account as well. If we do not focus on society, social problems are seen as individual problems.

In summary, with reference to the typology and the reconstructed biographical search processes, it can be stated that the searching—and not the finding—of an occupation can be characteristic of the pathway to employment, a path in which self-involved ideas and visions for a future career still emerge. The transition is often not an actively planned and goal-oriented process in terms of a decision for a specific occupation. Instead, the process often remains open and is characterised by the search for an occupation. In transition research, a focus on searching (instead of finding) allows consideration of the openness of the process as well as its loops.

References

- Arnold, R., Gonon, P., & Müller, H.-J. (2016). *Einführung in die Berufspädagogik*. Budrich.
- Bartmann, S., Handelsmann, A., & Hübner, A. (2014a). Relevanz der Biographieforschung für die sozialpädagogische Forschung am Beispiel eines Projektes zum Thema Berufsfindung und Ausbildungsabbruch. In B. Birgmeier & E. Mührel (Eds.), *Perspektiven sozialpädagogischer Forschung. Methodologien - Arbeitsfeldbezüge - Forschungspraxen* (pp. 331–345). Springer VS.

- Bartmann, S., Handelsmann, A., Hübner, A., & Janßen, E. (2014b). *Wenn die Berufsfindung und -ausbildung Brüche aufweist. Ein Forschungsbericht*. Schriftenreihe der Hochschule Emden/Leer.
- Beicht, U., & Walden, G. (2019). Der Einfluss von Migrationshintergrund, sozialer Herkunft und Geschlecht auf den Übergang nicht studienberechtigter Schulabgänger/-innen in berufliche Ausbildung. *Wissenschaftliche Diskussionspapiere*, 198. Budrich.
- Bundesministerium für Bildung und Forschung (2020). *Berufsbildungsbericht 2020*, Bundesministerium für Bildung und Forschung.
- Dausien, B. (2004). Biografieforschung: Theoretische Perspektiven und methodologische Konzepte für eine re-konstruktive Geschlechterforschung. In R. Becker & B. Kortendiek (Eds.), *Handbuch Frauen- und Geschlechterforschung. Theorie, Methoden, Empirie* (pp. 314–325). Springer VS. https://doi.org/10.1007/978-3-322-99461-5_39
- Education Counts. (n.d.a). *School leaver destinations*. <https://www.educationcounts.govt.nz/statistics/indicators/main/education-and-learning-outcomes/1907>
- Education Counts. (n.d.b). *Participation*. <https://www.educationcounts.govt.nz/statistics/tertiary-education/participation>
- Handelsmann, A. (2020). *Die Suche nach einem Beruf. Wege in Ausbildung im Spannungsfeld gesellschaftlicher Erwartungen und biografischer Orientierungen*. Beltz Juventa.
- Kraus, K. (2006). *Vom Beruf zur Employability? Zur Theorie einer Pädagogik des Erwerbs*. Springer VS.
- Marotzki, W. (2005). Qualitative Biographieforschung. In U. Flick, E. von Kardorff & I. Steinke (Eds.), *Qualitative Forschung: Ein Handbuch* (pp. 175–186). Rowohlt.
- Sackmann, R., & Rasztar, M. (1998). Das Konzept "Beruf" im lebenslaufsoziologischen Ansatz. In D. Blaschke, W. Dressel, G. Engelbrecht, & W. R. Heinz, Walter (Eds.), *Was prägt Berufsbiographien? Lebenslaufdynamik und Institutionenpolitik* (pp. 25–53). Wbv Media.
- Schütze, F. (1983). Biographieforschung und narratives Interview. *Neue Praxis*, 13(3), 283–293.
- Siebert, S., & Szczepanik, R. (2015). The triple bind of narration: Fritz Schuetze's biographical interview in prison research and beyond. *Sociology*, 50(2), 1–16.
- Stauber, B., Pohl, A., & Walther, A. (2007). Ein neuer Blick auf Übergänge junger Frauen und Männer. In B. Stauber, A. Pohl, & A. Walther (Eds.), *Subjektorientierte Übergangsforschung. Rekonstruktion und Unterstützung biografischer Übergänge junger Erwachsener* (pp. 7–18). Beltz Juventa.
- Walther, A. (2013). International vergleichende Übergangsforschung. In W. Schröer, B. Stauber, A. Walther, L. Böhnisch, & K. Lenz (Eds.), *Handbuch Übergänge* (pp. 1091–1114). Beltz Juventa.
- Walther, A. (2011). *Regimes der Unterstützung im Lebenslauf: Ein Beitrag zum internationalen Vergleich in der Sozialpädagogik*. Budrich.
- Walther, A. (2010). „Übergangsregimes“ als Modell disziplinübergreifender vergleichender Jugendforschung“. In C. Riegel, A. Scherr, & B. Stauber (Eds.), *Transdisziplinäre Jugendforschung. Grundlagen und Forschungskonzepte* (pp. 305–326). Springer VS.
- Walther, A. (2006). Regimes of youth transitions. Choice, flexibility and security in young people's experiences across different European contexts. *Young. Nordic Journal of Youth Research*, 14(2), 119–139.

Biographical notes

Dr **Antje Handelsmann** holds a post-doctoral position at the Department of Vocational Orientation in Inclusive Contexts, Institute for Special Needs Education, Leibniz University Hannover. Her research focuses on school-to-work transitions and vocational orientation. She has a special interest in reconstructive research methods, such as biographical approaches.

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Integrating VET School Teachers in Validation of Prior Learning of Unskilled Workers

Harberts, Vivian

University of Bremen, Institute Technology and Education (ITB), harberts@uni-bremen.de

Klein, Iris

University of Bremen, Institute Technology and Education (ITB), iklein@uni-bremen.de

Abstract

Validation of prior learning (VPL) becomes more and more relevant as educational pathways are diverse and often don't involve formal degrees which are still of importance on the German job market. The project "Competence assessment of unskilled workers at VET schools as preparation for an external examination (KofeBS)" was initiated 2017 in the Federal State of Bremen in order to help unskilled workers getting a formal degree. Hence a competence assessment, which can be integrated into the regular daily operations of a VET school was developed and tested in the project. After a funding period of three years it can be stated, that the developed procedure fulfils its purpose in this application scenario and leads to the desired results: to measure the level of competences of unskilled workers by assessment to identify gaps that still need to be closed before taking the final exams.

Keywords

competence assessment, prior learning, vet schools, teacher education, unemployed

1 Introduction

Due to a high amount of unemployed unskilled workers, the Federal State of Bremen decided to find a way to validate their knowledge and skills in order to support this group by getting a formal degree. Qualifying this group of people for the labour market has various advantages for the different players, including (Autorengruppe Bildungsberichterstattung, 2018; Matthes & Severing, 2017):

- Unskilled workers are often unemployed or marginally employed and rarely perform demanding jobs. Appropriate formal further training increases their chance of a permanent employment.
- The professional integration of unskilled workers relieves the social funds, since the recipients become contributors.
- The shortage of skilled workers in Germany can be countered by further training measures and therefore economy can be supported.
- The acquisition of a formal degree can improve the integration of people with a migration background.

Alternatives to acquire a formal qualification apart from the recognised apprenticeships are the so-called "retraining" and the "external examination". Retraining is a shortened education programme for adults and it usually takes about two years. It is based on the "Third Book of the Social Security Code" (Social Code - Book III - Employment Promotion) and the Vocational Training Act" (BBiG) and qualifies - with a final examination - for a new profession. In the case of the external examination, qualified persons can directly take part in the final examination of the respective reference profession. The external examination as an instrument for formal qualification without having to accept long training periods is therefore becoming increasingly attractive for many actors. Admission to final examination without the long training period receives, who has worked at least one and a half times of the regular VET-training as an unskilled worker in the profession in which an examination is desired. Due to the fact that a lot of workers already have many experiences on the job and are aiming to get a formal degree in a short period of time, KofeBS only focusses on the external examinations.

At the beginning of the project the arising questions were: who would be best to carry out these competence assessments and which process and instruments should be implemented to get suitable results. Our research showed, that VET schools have the necessary expertise for this task, as they are familiar with the content of the training of a respective apprenticeship and VET teachers have pedagogical skills to deal with participants. Therefore in 2017 the project KofeBS which integrates five VET schools in Validation of Prior Learning (VPL) as a trial has been approved by the Senator of Economy, Labour and Europe and is funded by the ESF. The development of the competence assessment, its evaluation and the scientific monitoring of the process is executed by the Institute Technology and Education (ITB) of the University of Bremen. Implementation and testing at the VET schools is made possible through compensation hours for VET teachers involved, which are provided by the Senator for Children and Education in Bremen. Assessments are currently carried out in eight recognized training occupations (sectors: logistics, commercial, food technology and personal care). There is also a close, partnership-based cooperation with the external advice centre for post-qualification (NQE)¹, whose customers are participating in KofeBS. The leading research questions have been:

1. How can informal and non-formal learning be recorded accurately with respect to passing the final exams in order to be acknowledged as a trained worker?
2. Which process structure elements lead to a goal-oriented procedure?
3. Which competency assessment tools are suitable for the very heterogeneous and often out of-school target group?
4. How can competence assessments for external persons be integrated into regular VET-school operations?
5. How can the VET school teachers be optimally prepared for the competence assessments of unskilled workers?

In this paper we would like to focus on the first and fourth research question. The first question was the starting point in the first project half and will be described in the following chapter. As an ESF funding is limited and there is a high interest of all actors to sustainably implement the assessment after the funding period the fourth question was predominating in the second project half and therefore will be presented in chapter three.

¹ <https://www.nqe-bremen.de>

2 Theoretical framework

In order to develop a suitable assessment procedure various factors had to be considered. First, it was important that all actors involved have the same understanding of the term "competence", since the use of the term has increased significantly in vocational education and training and it is used synonymously with terms such as skills, abilities, knowledge, qualifications and also performance, which are not the same. Furthermore, the prevailing conditions at the VET schools and the target group of unskilled workers had to be taken into account. Since other projects with a similar target group have already achieved good results with competence assessment procedures and, in addition, neighbouring European countries have more experience with VPL, it was important to examine these experiences in advance to be able to use them as a guide. In the following subchapters these factors will be briefly described, and the developed competence assessment procedure used in KofeBS presented.

2.1 Definition of the term "Competence"

The KofeBS competence model, on which all participating partners agreed, takes up the definitions of the vocational action competence of the Standing Conference of Ministers of Education and Cultural Affairs for the Länder in the Federal Republic of Germany (KMK)² and the German Qualifications Framework (DQR)³ and unifies them however, by dividing the vocational action competence into the two dimensions "professional competences" and "transversal competences". Self-competence, personal competence and social competence from the KMK and DQR competence models fall under the category "transversal competences". Methodological skills, learning skills and communicative skills are part of both dimensions (Figure 1).

Figure 1

Competence understanding of KofeBS-project



2.3 Prevailing conditions

As mentioned before two things had to be considered for the development of the competence assessment: the diverse target group and circumstances at the VET-schools. The group of "unskilled workers" are people without completed vocational training - they are also referred to as "not formally qualified (nfQ)" (Bundesinstitut für Berufsbildung, 2017, p. 327). In general,

² "The willingness and ability of the individual to behave properly in professional, social and private situations as well as individually and socially responsible." (Kultusministerkonferenz, 2007)

³ "The ability and willingness of the individual to use knowledge and skills as well as personal, social and methodological skills and to behave in a well-thought-out and individually and socially responsible manner." (Bund-Länder Koordinierungsstelle für den Deutschen Qualifikationsrahmen für lebenslanges Lernen, 2013).

experience shows that the group of unskilled workers is extremely heterogeneous. It can range from people who have dropped out of their studies or training, to job changers who have been working outside of their field for a long time, to people who have no school-leaving qualifications or who have a migration background. Due to the heterogeneity, the age of unskilled workers also varies widely. Therefore, it must be possible to adjust instruments and procedure to a certain extent to the individuals. Regarding the circumstances at VET schools the implementation of competence assessments is subject to organizational framework, time framework as well as personnel resources like e.g. room occupancy, school holidays or schedules. These restrictions have an impact on all competence assessment steps: they have to be adapted to the schedule of a teacher and due to this the duration of a competency assessment process may be extended.

3 Synopsis of competence assessment procedures in Europe

In Germany and Europe, there are already a variety of tools for determining competence, often they are used in recognition procedures for informal learning. In countries such as Denmark, Switzerland, Norway, Finland, the Netherlands or France, the measures are partly nationally established and are based on a legal basis.

For our synopsis, six measures were taken into account: the Competence Check (Howe & Knutzen, 2015), Komet NRW (Stegemann et al., 2015), Prototyping Transfer (Westdeutscher Handwerkskammertag, 2013), Valikom (Deutscher Handwerkskammertag & Deutscher Industrie- und Handelskammertag, 2018), Anerkendelse af Realkompetencer from Denmark (Ministry of Education Denmark, 2008) and validation of educational achievements from Switzerland (Kanton Zürich Bildungsdirektion bzw. Oerlikon). They were selected because they are also subject to similar framework conditions and objectives and therefore seemed to add value for the KofeBS project. The basic selection conditions for all measures were freely accessible documentation. Criteria for examining the measures had been set up, as they seemed to be important factors for the transferability to the procedure of KofeBS. The criteria selected for the synopsis have been:

- Target: lists what exactly should be determined by the competence assessment. In addition, it is examined whether the measure has a summative or formative function.
- Target group: influences the development of a competence assessment procedure significantly.
- Curricular framework: for the external examinations, existing knowledge and deficits of an individual must be determined, the analysed measures should be connectable to the respective national formal system of training or it should be used to pursue a similar aim.
- Understanding of “competence”: is often defined differently, therefore the understanding of it in the respective measure should be considered in order to compare to what extent it is congruent with the understanding of competence at KofeBS.
- Procedure: the process of determining competences is analysed and instruments used in the assessment are described.
- Administrative framework: includes the location, duration and cost of the competence assessment.
- Quality control: check whether quality assurance takes place in the competence assessment (procedural rules, uniform standards and whether the validation actors have specialist expertise.)

4 Choice of assessment procedure and instruments

The synopsis revealed that with regard to the procedural steps, it can be said that steps such as "advice", "documentation", "evaluation/assessment" and finally the issuing of a report/certificate are recurring elements in all measures. This can be seen as an indicator that these steps have proven themselves in practice. This assumption is supported by the European Centre for the Development of Vocational Training (European Centre for the Development of Vocational Training, 2015):

To clarify the basic features of validation, the recommendation identifies four distinct phases: identification; documentation; assessment; and certification... These phases are mixed and balanced in different ways, reflecting the particular purpose of each validation arrangement. (European Centre for the Development of Vocational Training, 2015, p. 16)

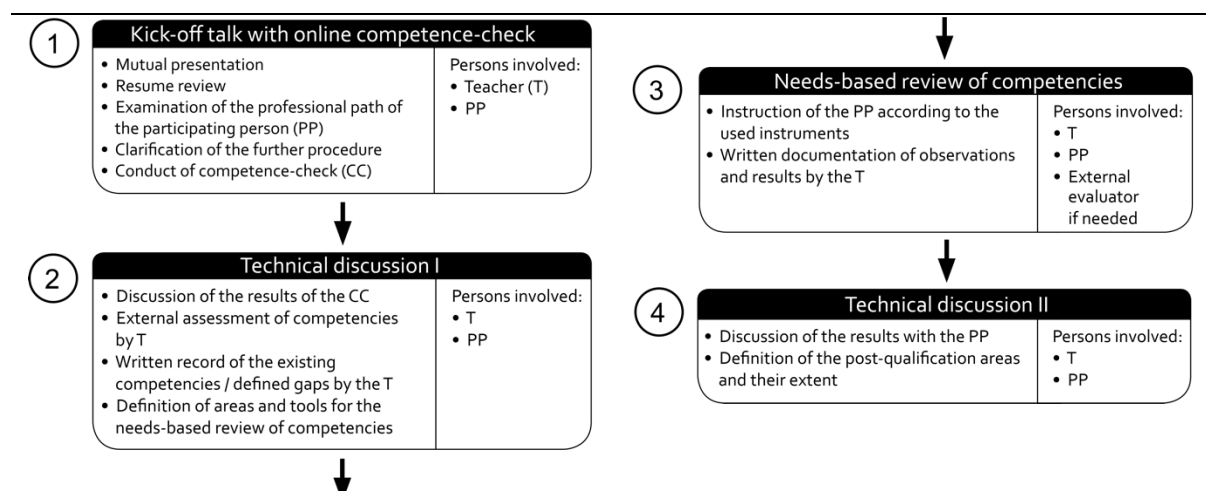
Regarding the instruments, it can be stated that especially self-assessment and external assessment, trial work and technical discussion are recurring elements and therefore good practice elements can be assumed. Taking into account the results of the synopsis as well as the heterogeneous target group and the framework conditions at the VET schools, the following consequences were drawn for the competence assessment and its instruments within KofeBS:

- Use an iterative process to determine competence
- Divide the procedure into the phases of identification, assessment and evaluation.
- Create the greatest possible flexibility in terms of time and place by using digital media to carry out the competence assessment (here: competence-check⁴).
- Take time restrictions of the participants and the teachers into account.
- Use self-assessment as an instrument at the start of balancing.
- Use technical discussions to assess existing skills.
- Capture existing knowledge using complex learning tasks.
- Capture practical skills through the use of work process-oriented tasks.
- Use the general curriculum and the requirements of the final examinations of the respective profession as the basis for determining the competence.
- Enable participant-specific selection of instruments from a set of developed instruments.
- Consider the fears and desires of the participant.
- Avoid the impression of an exam situation.
- Use uniform templates to document the procedure and quality assurance.

Based on these considerations a procedure with five steps was designed. It was tested within the first project year. After evaluation (by questionnaire for participants and teachers and group discussion within the project group of teachers and ITB), it was transformed to a procedure with four steps in order to reduce the length of the assessment procedure for the participants (Figure 2).

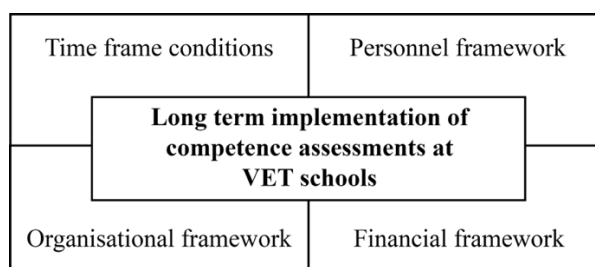
Both participants as well as teachers evaluate the procedure and its instruments as very feasible and expedient for their needs. After the development process, the project is now in the phase to find out, how our developed competence assessment can be implemented without further ESF support. The analysis is described in the next chapter.

⁴ <https://kompetenz-werkstatt.net/tools/kompetenz-check>

Figure 2*Flowchart of the procedure of KofeBS*

5 Permanent integration of competence assessment into regular VET-school operations

Apart from further optimisation since 2019 recently our research focusses on examining the conditions under which KofeBS can be implemented sustainably. For this reason, the framework conditions at the participating schools were analysed in order to develop different scenarios. Of course, the circumstances on site differ, but all schools have certain starting conditions in common, which affect the implementation of competence assessment (Figure 3).

Figure 3*Factors influencing competence assessments at VET schools*

6 Research method

Expert interviews with involved teachers, principals and other project related persons were conducted to take a closer look at these factors. The theoretical point of reference is the concept of Meuser and Nagel (Meuser & Nagel, 2002): "Expert*inneninterview – vielfach erprobt, wenig bedacht" (Expertinterview – tried and tested many times, little considered). Since research practice often deviates from the concept of Meuser and Nagel, which is partly due to the specific requirements of the application areas (Ullrich, 2006), slight modifications were made for analysis and evaluation. The exploratory character was of great importance in this context in order to open up new knowledge (Ullrich, 2006). Furthermore, there is an exploratory effect because the interviewees can refer to other, potentially important interlocutors in the interview. This included, for example, the reference to principals or other central persons such as workshop managers who represent different functions and interests with regard to the topic. In this case, the interview as an instrument was particularly suitable for gaining knowledge, since access to the field was guaranteed. The interview partners were known for their collaboration in the

project. Expert knowledge played an important role in realistically discussing which framework conditions have to be practically fulfilled in order to be able to achieve the goal of establishing competence assessment at VET schools. The teachers surveyed tested the competence assessment under scientific supervision at their school and therefore act as experts on this topic, since they have so-called operational knowledge (Meuser & Nagel, 2002). As a result, the analysis of the interviews provides feasibility scenarios that show how competence assessments can be carried out at VET schools. The process of the analysis was both interpretive (hermeneutical) and systematic (Mayring, 1991). The presentation of scenarios is based on "Types formation" (Strauss & Corbin, 1990)

6.1 Procedure

It generally applied to the interviews that the information recorded in the process is undistorted, authentic and comprehensible. All interviews were therefore digitally recorded on a data carrier. The name of the interviewed school was written down, statistical information on the interviewed people were omitted. The survey carried out used a previously created interview guide. The guide was constantly changed and supplemented based on the interviews. Therefore, the interview itself was of exploratory nature. The guide began with an open entry question. This way, considerations and ideas regarding the implementation of competence assessment at the respective school can be discussed by the respondent. The following questions were based on personnel, time and organizational framework conditions as well as questions regarding financing models. The order was not fixed and resulted from the interview process. This was intended to prevent the risk of a pure query, which often leads to the confirmation or revision of presumptions and adds little or no new knowledge.

The analysis and evaluation were carried out according to Meuser and Nagel in 6 steps: transcription, paraphrase, coding, thematic comparison, sociological generalization, theoretical conceptualization. If necessary, these steps were modified in order to be able to design feasibility scenarios after the analysis and evaluation.

7 Results

The results of the analysis allowed the formation of 7 categories that are key factors on the feasibility of competency assessments at VET schools:

1. Personnel framework: In addition to the relevance of sufficient human resources, the willingness and motivation of both the organizers and the teachers who carry out the competence assessment is essential.
2. Time frame: Both the duration and the time of day of a competence assessment must do justice to both parties.
3. Organizational framework: Competence determinations require an organization of premises such as workshops and taking into account the timetable of the teacher involved.
4. Financial framework: Reliable financing is required for the sustainable implementation of a competence assessment.
5. Responsibility: Without clear and transparent responsibilities, including designated coordinating bodies, there is a risk of a spiral of delegations.
6. Participants: Since the target group is very heterogeneous (e.g. age, shift work) and their living situation (e.g. mothers), this must be taken into account.
7. Obstacles: Through the interviews, new factors emerged, which could be an obstacle to the implementation of competence assessments. Likewise, predicted concerns were not confirmed in advance.

Certain code words were assigned to each category, which have been addressed with varying frequency in the interviews. This way, the categories are weighted to show which conditions are particularly important for the respondents (Table 1). It is also striking that almost all factors can be seen in relation to each other.

The analysis showed that the two predominating main categories for the consolidation of competence assessments are responsibility and financing. It highly depends on who is in charge of the organisation of competence assessment e.g. without the consent of the Senatorial Authority there are not many options for VET schools to conduct assessments autonomously which was in favour of some persons involved. In addition to the responsibility with 54 responses, the guarantee of funding was mentioned almost as often with 51 responses. The responsibility and the type of funding are closely related and partly mutually dependent.

The personnel, time and organizational framework can be interpreted as dependent variables of the two main categories. For example, the motivation of the teachers (personnel framework) to participate in competence assessments increases or decreases depending on the funding. If there is no willingness to accept an additional task, then it becomes difficult to establish a new area of responsibility at a school. The "motivation" factor therefore appears in both the "Personnel" and "Obstacles" category. Presumably, since all the vocational schools surveyed have been project partners at KofeBS since 2017, the motivation among the VET school teachers wasn't seen as problematic, although it was mentioned more often than average. The frequent mention of the code word "Motivation" shows that all respondents see it as an influencing factor - but not as an obstacle.

Table 1
Weighting of the categories mentioned

Category	Codes	Frequency of codes
Responsibility	Personnel planning (1), Room planning (1), Security (4), Lesson planning (1), Remuneration (3), Revenue (1), Certification (5), Autonomy (5), Hours of relief/relief (10), Reimbursement (2), Payment (4), Pots (5), Senatorial Authority (6), School management (6), gGmbH ⁵ (2)	55
Financing	Intake (5), Compensation Hours (5), Remuneration/Payment (9), Refund (2), Pots (4), Money (7), Material Costs (5), E9 (2), Autonomy (5), Certification (5)	51
Personnel	Motivation (8), Willingness (4), Personnel Planning (1), Lesson planning (3), Failures (1), Temporary Staff (Teachers, Student Assistants, Legal Trainees) (2), Teachers (5), E9 (2)	43
Time	Appointments (teacher, participant) (6), Duration/ length (9), Evaluation (2), Vacation (8), Afternoon (11), Room organisation (1), Absences/Illness (2)	39
Organisation	Room (30), Specialist Room (3), Access (4), Insurance (1), Occupancy (6), Timetable (6), Briefing (1), Workshop (6), Room Planning (1), Equipment (2), WiFi (2), quiet workspaces (2)	34
Obstacles	Alarm (2), Main job (4), Secondary employment (2), insurance (1), lack of teachers (2), motivation (8), tax return (3)	22
Participants	Mothers (0), Unemployed (1), Working people (4), Shift workers/Shift system (2), Companies (4), Employment agency (4)	15

⁵ gGmbH: non-profit private limited company

7.1 Scenarios

Based on the results of the condition analysis, the following feasibility scenarios can be shown, which entail further conditions (Table 2).

Table 2

Feasibility scenarios of competence assessments at VET schools

Scenario	Conditions
(1) Funding to the school association	Recipient: school association Conducting competence assessments through secondary employment activities of teachers Appointments outside of school hours Short conduction period is possible Competence assessments are in the interest of the school association and may in future cannot be guaranteed
(2) Magisterial (Senator for Children and Education) funding through compensation hours	Responsibility: Senator for Children and Education Competency assessments can be carried out during and outside of regular school operations, regulated by the Teaching Time Allocation Act Hours reported as part of a teacher's regular working hours (no overtime) High level of organization in terms of human and time resources Longer period of time for competence assessments expected Any costs incurred are borne by the senatorial authority
(3) Funding to the Senator for Children and Education	Recipient: Senator for Children and Education Competence assessments can be carried out during and outside of regular school operations, regulated by the Teaching Time Distribution Act Hours reported as part of a teacher's regular working hours or as overtime Medium level of organization through the possibility of additional work Shorter periods and greater flexibility in determining skills Ordering of funds for funding by the Senatorial Authority and transfer of the remuneration to the teaching staff in the form of relief hours or as remunerated extra work
(4) Funding to the VET school	Recipients: VET schools Necessary: increased autonomy of all VET schools e.g. Possibility of generating resources through e.g. Foundation of a gGmbH Depending on the degree of autonomy: competence assessments can be carried out during and outside of regular school operations, regulated by the Teaching Time Division Act and as a secondary activity High level of organization through in-school planning and conduction of competence assessments Shorter periods and greater flexibility of competence assessments

In the first scenario, the school association would address the issue of “competence assessments” at the VET school. A risk factor in this scenario is that the school association decides

whether competence assessments are carried out and not the VET school itself. Thus, assessments in this scenario are subject to a certain arbitrariness, e.g. in the event of a change of chair, it could be decided that the school association refuses assessments.

Scenario two describes how the competence assessments are currently carried out within the framework of KofeBS. The disadvantage of this scenario is that the flexibility of the teachers is very limited due to their schedule and therefore it leads to problems in finding appointments with the participants, which may mean that the assessment duration can extend over a long period of time.

The third scenario shows a possibility in which the Senator for Children and Education acts as an intermediate point for funding from donors. The Senatorial Authority issues an offer to conduct a competence assessment on behalf of the respective school. It will be reimbursed in the form of relief hours or as payment to the teacher. The option of additional work increases the degree of temporal flexibility of the teacher and competency assessments can be made more compact in this way.

In the fourth scenario, the Senatorial Authority entrusts the VET schools with more independence in the legal and financial area. Due to the increased autonomy, schools are able to find, e.g. a gGmbH and therefore it is possible to generate income and to independently carry out competence assessments. This way, an assessment duration can be significantly shortened.

8 Conclusion

As shown in this paper, it was possible to develop and implement a test procedure for determining the competences of unskilled workers at the VET schools. Both, the participants and the teachers rated the procedure and its instruments as practicable and expedient. The condition analysis revealed that there are also various scenarios as to how these competence assessments in the state of Bremen can be conducted in the future without ESF support. VET schools are very interested in including this new task in their daily operations. Which scenario is chosen, however, is under control of the Senator for Children and Education. If it is of interest to effectively implement and cultivate assessments at VET schools in Bremen in the long term - which would be a consistent solution against the background of expertise of the VET schools and with regard to the number of unskilled workers in Bremen - it is recommended to strive for a solution that is as flexible as possible. This way it is easier to shorten the duration of an assessment and therefore the school will also be able to accept more competence assessments. Research showed, time is a crucial factor for successful outcomes, as the unskilled workers want to participate in the external examinations within a short time.

References

- Autorengruppe Bildungsberichterstattung (2018). *Bildung in Deutschland 2018: Ein indikatorengestützter Bericht mit einer Analyse zu Bildung und Migration*. wbv.
- Bundesinstitut für Berufsbildung (2017). *BIBB Datenreport. Informationen und Analysen zur Entwicklung der beruflichen Bildung*. https://www.bibb.de/dokumente/pdf/bibb_datenreport_2017.pdf.
- Bund-Länder Koordinierungsstelle für den Deutschen Qualifikationsrahmen für lebenslanges Lernen (2013). *Handbuch zum Deutschen Qualifikationsrahmen: Struktur-Zuordnung-Verfahren-Zuständigkeiten*. www.dqr.de.
- Deutscher Handwerkskammertag, Deutscher Industrie- und Handelskammertag (2018). *Valikom-Abschlussbericht*. <https://www.validierungsverfahren.de>
- European Centre for the Development of Vocational Training. (2015). *Europäische Leitlinien für die Validierung nicht formalen und informellen Lernens*. Publications Office. <https://doi.org/10.2801/669676>
- Howe, F., & Knutzen, S. (2015). *Feststellen von Kompetenzen: „Kompetenz-Check“*. Dr.-Ing. Paul Christiani GmbH & Co. KG, Technisches Institut für Aus- und Weiterbildung.

- International Labor Organization. (n.d.). *Social Code - Book III - Employment promotion*. https://www.ilo.org/dyn/natlex/natlex4.detail?p_isn=46596&p_lang=en
- Kanton Zürich Bildungsdirektion Mittelschul- und Berufsbildungsamt (2020). *Handbuch Validierungsverfahren Teil 1* (Version 1.8). https://ajb.zh.ch/internet/bildungsdirektion/ajb/de/leistungen-fuer-fachpersonen-institutionen-behoerden/berufs-studien-laufbahnberatung/formulare_merkblaetter/merkblaetter/berufswechsel_berufsabschluss_erwachsene/_jcr_content/contentPar/download-list_0/downloaditems/handbuch_validierung_1.spooler.download.1496231544635.pdf/handbuch_validierungsverfahren_teil1_v1_5.pdf
- Sekretariat der Kultusministerkonferenz (2008). *Handreichungen für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe*. https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2007/2007_09_01-Handreich-Pl-Berufsschule.pdf.
- Matthes, B., & Severing, E. (2017). *Berufsbildung für Geringqualifizierte: Barrieren und Erträge*. W. Bertelsmann Verlag.
- Mayring, P. (1991). Qualitative Inhaltsanalyse. In U. Flick, E. von Kardoff, H. Keupp, L. von Rosenstiel, & S. Wolff, S. (Eds.), *Handbuch qualitative Forschung: Grundlagen, Konzepte, Methoden und Anwendungen* (pp. 209–213). Beltz Psychologie Verl. Union. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-37278>
- Meuser, M., & Nagel, U. (2002) ExpertInneninterviews - vielfach erprobt, wenig bedacht. In A. Bogner, B. Littig, & W. Menz (Eds.), *Das Experteninterview* (pp. 71–93). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-322-93270-9_3
- Ministry of Education Denmark (2008). *The development and state of the art of adult learning and education (ALE): National report of Denmark*. http://asemlllhub.org/fileadmin/www.asem.au.dk/national_strategies/Denmark.pdf.
- Stegemann, C., Eerde, K. v., & Piening, D. (2015). KOMET Nordrhein-Westfalen – Erste Erfahrungen in einem kaufmännischen Berufsfeld. In M. Fischer (Ed.), *Kompetenzdiagnostik in der beruflichen Bildung: Methoden zum Erfassen und Entwickeln beruflicher Kompetenz: COMET auf dem Prüfstand* (pp. 127–137). LIT-Verlag.
- Strauss, A. L., & Corbin, J. M. (1991). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage Publications.
- Ullrich, P. (2006). Das explorative ExpertInneninterview: Modifikationen und konkrete Umsetzung der Auswertung von ExpertInneninterviews nach Meuser/Nagel. In T. Engartner, D. Kuring, & T. Teubl (Eds.), *Die Transformation des Politischen: Analysen, Deutungen und Perspektiven; siebentes und achtes DoktorandInnenseminar der Rosa-Luxemburg-Stiftung* (pp 100–109). Dietz.
- Westdeutscher Handwerkskammertag (2013). *Die Qualifikationsanalyse - das Verfahren zur Analyse und Feststellung von Berufsqualifikationen im Rahmen des Anerkennungsverfahrens: Ergebnisse aus dem Projekt Prototyping - Zusammenfassende Darstellung*. https://www.ihk-muenchen.de/ihk/documents/Berufliche-Bildung/Anerkennung-ausl%C3%A4ndischer-Berufsabschl%C3%BCsse/prototyping_zusammenfassung_2013_endfassung-2.pdf

Biographical notes

Vivian Harberts, MA. Educational Sciences, research associate at the Institute Technology and Education (ITB) at the University of Bremen, Germany. Her research focusses on validation of prior learning, work-based learning as well as the use of digital media in vocational education.

Iris Klein, MA is a research associate at the Institute Technology and Education (ITB) at the University of Bremen (ITB), Germany. Her research focusses on work-oriented educational processes, mostly EU projects addressing competence development and vocational education and training.

Huang, J. (2020). Analysis of factors affecting the attractiveness of vocational education and training in Germany. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 145–151). <https://doi.org/10.5281/zenodo.4005818>

Analysis of Factors Affecting the Attractiveness of Vocational Education and Training in Germany

Huang, Junjun

University of Tübingen, Institute of Education, junjun.huang@student.uni-tuebingen.de

Abstract

The German vocational education and training system is well known as the dual system, while in the past around 20 years the attractiveness of VET has decreased. Students prefer to choose academic education than vocational education after compulsory secondary education, which is a normal situation in most countries. Data collected from German official documents in the past 20 years and the target is the number of students from all initial vocational education schools. The linear analysis method is used in this paper and it is trying to find some related factors, which influenced the attractiveness of VET most in Germany.

Keywords

vocational education and training; attractiveness; related factors; linear regression analysis

1 Introduction

The German vocational education system is famous for its dual system. It is a cooperation between small and medium-sized enterprises and public vocational schools in Germany. Apprentices who signed dual contracts usually need to study in vocational schools to obtain theoretical knowledge and to work in a company to practice operation each week (Deißinger, 2015). This kind of education system is also supported by law. The 1969 Vocational Training Act (revised in 2005) is an important act to guarantee training for young Germans, provide apprenticeships with state-recognized vocational training, and after the training is completed, issue a certificate by the competent authority (the Chamber of Commerce and Industry or the Handicraft Association) (Sondermann, 2005). Because of this dual system, the youth unemployment rate in Germany is relatively low and the skills level of employees is relatively high. In Europe, even the world, the awareness of high-quality vocational education and training is becoming more and more important.

In the past almost 20 years, the economy was booming and then it has suffered a recession due to the global financial crisis (Rudd, 2009). The labour market has begun to reduce, and youth has suffered influence from it that the rate of the youth unemployment rate has increased obviously (Junankar, 2015). In addition, demographic changes have also brought new pressure on German society, which ageing problem was serious (Börsch-Supan, 2003). The number of youth employment was less than the number of retired employees, which has caused an imbalance between supply and demand of the labour market in Germany. At the same time, immigration was another social issue in Germany. Because of the problems of the lack of youth employment and the lower skills level of immigration, increasing the attractiveness of

vocational education has also become very important (Schmidt-Catran, 2016). It is also worth to discuss the gender problem on the attractiveness of VET in Germany. Although the participation of female in the labour market has always increased stably in the past decades, the difference between the participation of man and women in the labour market exists still (Koopmans, 2016).

2 Literature review

The students' college choice is also used as the basic research model in this section. There are three main components in this model: economic approaches, some factors such as labour market, political policies and so on have an influence on students choice probably; sociological approaches, for example, population and unemployment rate especially youth have an influence to some extent; combines and enhances these two approaches, parents suggestions, the reputation of institutions, the participation of teachers and so on also have an influence on youth decisions (Chapman, 1981). For the German situation, there are several reasons why it is suitable. The first reason is that the ideas about the market or customer-oriented have gradually spread in the German education market and the first idea about education marketing also comes from the North America area. As German universities have obtained more and more autonomy in recent years, the competition between different universities is getting more and more fierce (Obermeit, 2012). The marketing about applicators, in another word, how to attract more and more high-quality students is becoming more and more important.

There are many factors, which have affected young teenagers' decisions about pursuing higher education, obtaining vocational educations or choosing their careers. It is a complex interactive process and youth may be influenced by some point such as parents' suggestions, schools' reputations, their own life experience, government funding and so on. However, there are not too many researches related to the factors which could influence the students' choices on vocational education and training in Germany and thus the target of this paper is to apply this model into the German education system and to analyse the factors which may affect the students' decisions. The well-established dual system about the initial vocational training describes a learning program that takes place at two places and it seems to increase the attention in the area of HE (higher education). In the 2018/2019 semester, there are 2.87 million new entrants in all universities in Germany, while in vocational schools the number changes into around 1.2 million. In Germany actually, in most countries around the world the higher education always has a higher attractiveness than vocational education. And the number of researches about higher education is far away more than the number about vocational education (Tchibozo, 2009). Thus, learning from the research model about higher education into vocational education is a possible research method.

The research purpose of this paper is to analyse the factors influenced on the attractiveness of vocational education and training and provide data evidence. The research problems of this paper as follows:

- The definition and measurement of the attractiveness about vocational education and training.
- The factors and classification of the attractiveness about vocational education and training.
- The linear regression analysis of all factors influenced the attractiveness of vocational education and training.

In Germany, besides the dual system, there are also full-time vocational schools where provide vocational education and training. The paper will divide participants into 4 parts based on research model, economic factors, sociological factors, combination factors and the special part

in Germany the factors related to training companies. And in every part, they also have more detailed factors inside.

The next step is going to check whether every factor has a correlation with the result, if they have, which kind of and which level they have. All the factors in this paper are collected from public publications related to the German case and the period is from 1997-2016. Most data are collected from public German Statistic Yearbooks. Among them, factor the number of training contacts comes from VET data report Germany, factor training allowances comes from public paper from BIBB (Federal Institute for Vocational Education and Training), youth unemployment rate comes from OECD (Organisation for Economic Co-operation and Development). The research target is about the ISCED 3 level of vocational education in Germany.

3 Methodology: linear regression analysis and result

The main research method is the linear regression analysis, including single factor and multi factors analysis. First, its analysis all single factors whether it has a correlation with the result; Second, based on the factors related to the attractiveness and again to make multi factors analysis. The dependent variable set as the attractiveness of vocational education. And the equation about how to calculate the attractiveness of VET is:

$$Y = A / (B+C)$$

Y equals to the attractiveness of VET, A is the number of students in vocational schools, B is the number of students in university and C is the number of students in the university of applied science. The independent variables set as all values of factors from 1997 to 2016, including 14 indicators and 14 linear equations from Table 1. Every linear equation represents the analysis result whether every indicator has a relationship with the attractiveness of VET.

Table 1

Single factor linear regression analysis result

Indicators	Linear equations
GDP(Gross Domestic Product)	$Y = 0.96 * X + 0.43, R^2 = 0.62$
Employment Female 15-25	$Y = 0.06 * X + 0.21, R^2 = 0.07$
Employment Male 15-25	$Y = 0.20 * X + 0.18, R^2 = 0.54$
Finance on per student in vocational schools	$Y = -0.81 * X + 0.39, R^2 = 0.92$
Youth Unemployment Rate in Germany	$Y = 0.03 * X + 0.05, R^2 = 0.25$
Foreign Students	$Y = 0.36 * X + 0.30, R^2 = 0.25$
Population 15-25	$Y = 0.15 * X + 0.19, R^2 = 0.49$
Graduates in vocational schools	$Y = -0.02 * X + 0.22, R^2 < 0.01$
Full-time teachers in vocational schools	$Y = 0.07 * X + 0.21, R^2 = 0.39$
Part-time teachers in vocational schools	$Y = 0.62 * X + 0.36, R^2 = 0.55$
The number of vocational schools	$Y = 0.08 * X + 0.20, R^2 = 0.06$
The number of students in continuing VET	$Y = 0.13 * X + 0.19, R^2 = 0.04$
Completed contracts	$Y = 0.33 * X + 0.15, R^2 = 0.83$
Training allowances	$Y = -0.77 * X + 0.39, R^2 = 0.93$

Firstly, the economic situation has a positive influence on the attractiveness of VET in Germany. There is no doubt that the development of education is inseparable from economic support. A good economic situation is conducive to the development of the labour market, and it

will bring about a good employment situation, which is conducive to social stability. And a good employment environment requires a lot of skilled talents, as the supply side for skilled workers the attractiveness of vocational education should also be increased.

Secondly, the demographic changes especially the youth population also has a positive relationship with the attractiveness of VET. Because of ageing problems in Germany, it has brought the lack of labour in the labour market. Every year the number of new entrants are less than the number of retired workers, at the same time the low new birth rate is another issue. Increasing the age-appropriate population is necessary and among them, in the labour market, male employment has higher attractiveness. The main reason might be the structure of the employed market, some man-dominated majors like the manufacturing, industries and commercial have the most proportion. What's more, the youth unemployment rate is another positive factor. Higher youth unemployment rate might represent fewer job positions in the labour market or there is a mismatch between the skilled workers and the positions. No matter which kind of situations, individuals should attend more vocational education and training to improve or adjust their skills.

Thirdly, different types of teachers in vocational schools have different influence. The number of full-time teachers has a positive affection, to add the number of students in vocational schools needs the guarantee of a sufficient number of full-time teachers. It is one of the basic requirements to keep vocational schools functioning normally. While part-time teachers have the opposite function, more part-time teachers might reduce the number of students in schools. Students need normal study and practice time in vocational schools and part-time teachers may not afford it. As part-time teachers are one of the performances of German social welfare, their existence is a must. However, the proportion between full-time and part-time teachers in vocational schools should be considered well.

Fourthly, as it was discussed before the economic situation was very important to the development of vocational education. Here are three factors about it, they are the finance on every student in the dual system, in the vocational schools and finance on every disabled person who attends the vocational education and training. And those three factors have a quite similar negative influence on the attractiveness of VET. Combination with the situation that in the past 20 years the financial allocation for vocational education has hardly changed, if individuals obtain more funding it means the number of people chooses vocational education has decreased. In modern society, developing vocational education could not divide from economic supporting thus the government should invest more appropriation on VET in the future.

It could be seen from the Table 2 that there are 11 factors be analysed in total and among them, the factor finance in the dual system per person is excluded because it has multicollinearity problems with factor training allowances. Thus 10 indicators have been regression analysed in this research model and the result is that 5 factors have correlations with the dependent variable. Among them, there are 4 positive factors and 1 negative factor.

The most positive factor is the number of employed male labours ages 15-25 in the labour market. Limited by the composition of the labour market in Germany, male skilled talents have a higher demand and more male choose vocational education and training could also encourage and be a model for the younger generation.

Table 2
Attractiveness - multiple factors linear regression result

	Unstandardized Coefficients		Standardized Coefficients		t	sig.
	B	Std. Error	Beta			
(Constant)	-.18	.26			-.71	.49
GDP	-.07	.12	-.08		-.60	.56
Employment Female 15-25	-1.69	.73	-.39		-2.32	.05
Employment Male 15-25	2.17	.77	.60		2.82	.02
Youth Unemployment Rate	.24	.10	.20		2.44	.04
Population 15-25	1.2	.52	.26		2.36	.04
Foreign Students	.14	.01	.10		1.48	.17
Full-time Teachers	-1.08	.66	-.13		-1.62	.14
Part-time Teachers	-.18	.26	-.15		-.70	.50
Completed Contracts	1.02	.35	.37		2.95	.02
Training Allowances	.01	.33	.01		.039	.97

Legend. a. Dependent variable: Attractiveness

The only negative factor is the number of employed female labours ages from 15-25. The majors setting in the dual system has not an obvious advantage to attract female students. With the upgrading of economic and industries, the potential of the female workforce has gradually been exploited recently and maybe this situation change to some extent in the future.

The second positive factor is completed contracts in the dual system. As we know, the dual system provides theoretical and practical studies for individuals and at first, the apprentices should sign a contract with the company and when they pass the final assessment, they finish their training. Thus, completed contracts could represent the graduation rate in the dual system and if it is higher more students will choose VET.

The third positive factor is population 15-25. Demographic changes have many aspects of affection on the VET. Ageing problems bring the lack of labours thus more youth skilled talents are needed to make up it. The increasing age-appropriate population could also be added from the migrant population, while whether it will bring new social problems or not is worth considering in the future.

The fourth positive factor is the youth unemployment rate. Many researchers believe that one reason contributes to a lower youth unemployment rate in Germany is the dual system. It has cultivated a lot of skilled talents that meet the needs of the labour market, and the main origin is that one vocational education place is the real workplace. It can be said that vocational education and youth unemployment rate are mutually reinforcing relationship.

4 Conclusion

To sum up, this chapter describes some basic information about the related factors on the attractiveness of vocational education and training in Germany. The theoretical research model is the same one with the previous chapter the students' college choice model and according to the literature review picking up the related factors. The main research method is the OLS regression analysis and it is divided into two steps single factor and multiply factors analysis. After analysis which factor is the most influenced has been stated and the following content will display more detailed results.

In the German research model, most factors have a positive influence and only one factor has a negative factor. And the labour market has the closest connection with vocational education according to the data analysis. No matter the youth employment-population or the

unemployment population they both have a positive function to attract more new entrants in the vocational education system. Many corporations have real cooperation with vocational schools, they educate and train talents together. In this way, the supply and demand sides of skilled talents work together thus the match skills could be trained very well. If the unemployment rate is higher, the vocational education should be developed more and more because under the dual system trained could help students find a better and more suitable job position.

The gender problem is also an interesting result under this analysis. In Germany, youth male labour force has a higher attractiveness than female and one possible explanation is about major point. And about this point, it has an opposite result with the Chinese situation, in the next chapter will describe more information. In a country with developed manufacturing, the male has more opportunities to study and work in the manufacturing industry and even they could attract more male to study and work in the coming days. With the development of the tertiary industry, more female might have more changes and admires to study in it and accept the VET.

It is known that the German companies have high participation in the dual system, which is treated as one key factor for the success of vocational education (Deißinger, 2001). And most apprentices before they choose VET, the cost of education time also need to be considered. Whether it is an education type which easy or difficult to obtain the final certification? In the dual system, apprentices have to pass the theoretical and practical assessments both, more completed contracts mean more apprentices could graduate thus encourage more students to study in the vocational education system is possible.

There are also some curious results in the previous section, there is no obvious relationship between the indicators about teachers, funding support and the attractiveness of VET in Germany under the multiply factors regression analysis. Even though here they seem to have no cor-relationship, we still could not ignore the affections from them. The development of VET in anywhere could not be developed without the construction of teaching staff especially the full-time teachers and the financial support.

After the whole analysis, there is a distinct result to see the related factors influence the attractiveness of VET in Germany. However, limited by the collected data there are some other possible indicators which are not mentioned in this chapter like some culturally related factors. In the coming chapter, it will give some statement. What's more, there are still some possible factors, for example, the average salary for graduates from the dual system or the problems of self-esteem of vocational school students. Incomplete factors have become one of the shortcomings of the thesis.

References

- Börsch-Supan, A. (2003). Labor market effects of population aging. *Labour*, 17, 5-44.
- Chankseiani, M., James Relly, S., & Laczik, A. (2016). Overcoming vocational prejudice: How can skills competitions improve the attractiveness of vocational education and training in the UK? *British Educational Research Journal*, 42(4), 582-599.
- Chapman, D. W. (1981). A model of student college choice. *The Journal of Higher Education*, 52(5), 490-505.
- Deißinger, T. (2001). Vocational training in small firms in Germany: The contribution of the craft sector. *Education+ Training*, 43(8/9), 426-436.
- Deißinger, T. (2015). The German dual vocational education and training system as 'good practice'?. *Local Economy*, 30(5), 557-567.
- Ertl, H. (2014). *A world of difference? Research on higher and Vocational Education in Germany and England*. Utz, Herbert.
- Hanssen, T. E. S., & Mathisen, T. A. (2018). Exploring the attractiveness of a Norwegian rural higher education institution using importance-performance analysis. *Scandinavian Journal of Educational Research*, 62(1), 68-87.

- Hoelscher, M., Hayward, G., Ertl, H., & Dunbar-Goddet, H. (2008). The transition from vocational education and training to higher education: A successful pathway? *Research Papers in Education*, 23(2), 139–151.
- Junankar, P. R. (2015). The impact of the global financial crisis on youth unemployment. *The Economic and Labour Relations Review*, 26(2), 191–217.
- Koopmans, R. (2016). Does assimilation work? Sociocultural determinants of labour market participation of European muslims. *Journal of Ethnic and Migration Studies*, 42(2), 197–216.
- Obermeit, K. (2012). Students' choice of universities in Germany: Structure, factors and information sources used. *Journal of Marketing for Higher Education*, 22(2), 206–230.
- Rudd, K. (2009). The global financial crisis. *Monthly, The*, (Feb 2009), 20. <https://www.themonthly.com.au/issue/2009/february/1319602475/kevin-rudd/global-financial-crisis#mtr>
- Schmidt-Catran, A. W., & Spies, D. C. (2016). Immigration and welfare support in Germany. *American Sociological Review*, 81(2), 242–261.
- Sondermann, T. (2005). The German Vocational Training reform act of 2005. What is new, what is different. *Berufsbildung in Wissenschaft und Praxis*, 34(2), 18–21.
- Tchibozo, G. (2009). *Improving the attractiveness of the initial vocational education and training: some observation on the EU experience*. Lifelong learning revisited: What next. An international conference, Stirling, Scotland.
- Winch, C. (2013). The attractiveness of TVET. *Revisiting global trends in TVET: Reflections on theory and practice*, 86–122.

Biographical notes

Junjun Huang is a PhD candidate at the University of Tübingen, Germany. Her research interests focus on the vocational education and training and this paper is one result from her PhD thesis.

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Personal Goals of Vocational Teachers in Sweden and Finland and Their View of Their Country-Specific VET System

Kaiser, Franz

University of Rostock, Institute for Vocational Education (ibp), franz.kaiser@uni-rostock.de

Struck, Philipp

University of Rostock, Institute for Vocational Education (ibp), philipp.struck@uni-rostock.de

Frind, Hannah

University of Rostock, Institute for Vocational Education (ibp), hannah.frind@uni-rostock.de

Abstract

Both the Swedish and Finnish VET systems are school-based systems grounded on an educational system that formulates an integrative claim. No one should be disadvantaged because of a social background and an academic affiliation is guaranteed following a vocational school decision. In the current study from 2019, the personal goals and motivations of VET teachers to become teachers in both countries are considered and compared. In addition, Finnish and Swedish teachers were asked about the strengths and weaknesses of their VET systems and the objectives of vocational education. The cultural backgrounds of the countries that influence the education system as well as the economic structure and the history are described and considered in the analyses. It seems finally that the Finns are more critical with their VET system, while the Swedes are more satisfied overall, or at least they give fewer answers to the urgent need to improve key aspects of their VET system. In a further discussion, the aspects of the personal status and mentality, the cultural-historical roots and the educational policy discourses will be considered.

Keywords

vocational teacher; Finland; Sweden; VET System, strengths, weaknesses

1 Introduction and Background

Vocational education in Finland and Sweden has many similarities, likewise the cultural values of a Nordic welfare state action, the school-based system and VET teachers with large experiences in working life. A common political aim is that no one should be disadvantaged on the basis of neither social/economical background nor geographical location. This is an important part of the welfare state education policy of the Nordic countries, also to the VET system (Helms Jørgensen et al., 2018). Work based learning and apprenticeship are dominant themes in the educational discourse in both countries (Kaiser & Lindberg, 2019). One strategy to realize a strong linkage to the (real) work life in Finland and Sweden is to hire experienced workers as VET teachers for the VET schools by offering them a short-term study besides working (Isacsson et al., 2018). The Finnish VET system has its roots in the 19th and 20th century in

strong branch specific pathways into the teacher profession working at branch specific VET schools from which the universities of applied sciences then also developed (Heikinen, 2003) In Sweden we can reconstruct similar traditions especially in the forest industry (Karlsson et al., 2016)

As a theoretical background, the critical-emancipative vocational education and training theory (Kaiser, 2016; 2019) is used in the study. From this perspective, the reflection of the VET teachers on their own career is of interest and their attitude to the current regime of their vocational training system. Information for the survey was obtained from existing descriptions of the educational pathways of vocational school teachers (Nissilä, 2006; Isacsson et al., 2018; Virolainen & Stenström, 2014) and from discussions with VET school principals and political stakeholders conducted in the two countries.

The research interest is centered on the personal motives of VET teachers and their view on their own VET system. Where do they see the strengths and the weaknesses; and what should be improved (in the short term)? The comparison of the two countries and their VET systems can also provide interesting conclusions for other European countries and their VET systems. Overall, the two Scandinavian countries are often mentioned positively for their inclusive and effective education systems.

Between 2012 and 2016, Finland undertook a comprehensive curricular reform to improve basic education's quality and equity. Four values underlie the new curricula: uniqueness of each student and right to a good education; humanity, equality, democracy and general knowledge and ability; cultural diversity as richness; and necessity of a sustainable way of living. (UNESCO, 2020, p. 117)

2 VET in Sweden and Finland

The Nordic states invest more money in their educational system (in general) than other countries in continental Europe do. The specific aims of vocational education are individual self-steering, success at the labour market, competence for further development (learning), inclusion and civil engagement. VET in Sweden and Finland show similar developments in recent years, but also some differences. In Sweden, VET is integrated in a comprehensive upper-secondary education, which includes almost all adults between 16 and 19 years old. A reform in the early 1990s meant that vocational educational programs were stronger integrated with-in a decentralized, competitive and goal-oriented organization. Finally, vocational and academic programs in the upper secondary school called gymnasium should give eligibility to higher education and education should be flexible and prepare for broad sections of the labour market. In Finland, also most of the VET programs offered in upper secondary schools. Contrary to Sweden, they are mostly located in separated school buildings with branch specific programs (Kaiser & Lindberg, 2019). The participation in the VET programs is even higher (40%) than in Sweden (20%) (Stenström & Virolainen, 2017). The idea of the educational reform of the 1990s in Finland offered students more freedom in choosing courses and set up a stronger connection between VET programs and higher education with a parallel establishing of universities of applied sciences. Finally, to get a stronger relation to the labor market at the beginning of the 2000s, the on-the-job-learning periods in initial school-based VET were derived from the curriculum, so that VET teachers and workplace instructors had to work closer together. A flexible apprenticeship model with competence-based assessments had a long tradition for young adults to offer them further career choices and to reach the demands of companies. Since the new reform of 2018, more and more individualized training plans, self-assessment and work-based as well as self-learning phases are offered. Students can try education in an apprenticeship model and return in the school-based VET as well as the possibility to change from school-based VET into paid work without finishing the qualification (Kaiser & Lindberg, 2019).

To become a VET teacher, there are major differences in the educational/academic pathways. In Finland, a minimum Bachelor degree in the teaching subject is needed to enter the VET teacher study programme, while in Sweden the pathway is more split: To enter the study programme only some years of experience in work after finishing a VET programme at school is obligatory followed by two years of studying at a university with 90 ECTS is the situation in Sweden. While one year of studying at a University of Applied Sciences with 60 ECTS is the situation in Finland. In both countries, the degree of the VET teachers programme at the universities is neither a bachelor nor a master, it is only a certification. Overall, in Finland it is a more personalised and competence-oriented approach in strong linkage to the work at schools during the study programme. The subsequent tasks in schools after finishing the programme are similar in both Scandinavian countries because of the school-based, practical oriented approach of teaching in the VET schools. Teacher-teamwork and networks to the regional economic life to get companies for the work-based learning are also central in their concept (Kaiser & Lindberg, 2019).

3 Methods

The survey was conducted in connection with a research stay of the first author (F.K.) in Finland and Sweden. Discussions with vocational school teachers, school administrators and political decision-makers resulted in questions that were transferred to an online survey in both countries, which was conducted at the beginning of 2019.

The analysis of the data is based on qualitative content analysis and identifies types of vocational school teachers and their approaches as well as their motivations. 41 of the 65 participants were working as a teacher in Finland and 24 in Sweden (Average age: 48; 61% female; the two biggest VET-fields are “Health and care (welfare)” (16%) and “Industrial technology” (15%). Based on an initial evaluation by Kaiser and Lindberg (2019), further aspects were focused here, such as the personal goals for the own career decision to become a VET teacher were collected with open questions (Köpsén, 2014). In a second step of the analyses, the openly collected answers were coded and summarized. Finally, the categories between the two groups of teachers were compared. Using the same methodological approach, we assessed the strengths and weaknesses of the country-specific VET system. Central questions of the research interest are the following:

- (1) Why did you choose to become a vocational teacher? What had been your personal goals?
- (2) What are the 1-3 most important fields to be improved in the training of vocational teachers?
- (3) What are the strengths of the current VET system in your country? (4) What are the weaknesses of the current VET system in your country? (5) What do you think should be changed?

The respondents' text answers were first screened and then classified in self-developed categories in a multi-stage (inductive) process. The categories developed on the material facilitate further evaluation steps, e.g. for sample comparisons. First, the reader is introduced to the individual categories of the questions here, each with an example sentence (partly shortened, linguistically slightly adapted and orthography corrected).

The generated answers to the question(s) *“Why did you choose to become a vocational teacher? What had been your personal goals?”* were assigned to eight categories: (1) “Not planned or by coincidence” (Sample sentence: *“The birth ward in my hometown was shut down, so I had to get another job.”*), (2) “Interest and wish to teach people” (*“My goals was to teach the vocational subjects I have gotten very skilled at from working many years.”*), (3) “Working conditions and job profile as a teacher” (*“work in daytime, good salary and no physical work like in industry”*), (4) “Wish to fulfil students aspirations and support of learning processes” (*“Wanted to help young people, be part of their learning processes”*), (5) “Recommendation or recruited” (*“I was headhunted by the principal at the school”*), (6) “Share passion and knowledge for a profession/subject” (*“Love the work in hospital and would love to teach, use*

all my prior work experience”), (7) “Personal development” (“*I wanted to move on and have another view*”) and (8) “Good educated people for the working world” (“*I had a lot of experience and wanted to educate good staff to the restaurants/kitchen industry*”). It turns out that, overall, the most frequent answers fall into categories that include an interest or passion for teaching and knowledge transfer. In addition, answers that suggest a randomness (of the change of profession) or dissatisfaction with the previous job are also included.

From the answers to the question “*What are the 1-3 most important fields to be improved in the training of vocational teachers?*” we made also eight categories: (1) “More practical and/or teaching experience” (“*Increase of practical experiences*”), (2) “Ability to transform vocational knowledge to teaching content and reverse” (“*Ability to transform vocational knowledge to teaching content*”), (3) “Quality, methods, content of teaching” (“*Skills to assess and evaluate student's learning processes*”), (4) “Continuing teacher training and innovation” (“*Remember that the teachers own skills in the content and the development in vocational skills have to continue also when you start being a teacher. Field work out in the region and staying up to date with what's happening on 'real workplaces'.*”), (5) “Better communication and teamwork with colleagues and companies” (“*communication skills to cooperate with colleagues*”), (6) “Ability to emphasize and to focus on pupils” (“*improve helping students with learning disabilities and the ability to understand students*”), (7) “Knowledge and/or expertise” (“*More practical/technical knowledge*”) and (8) “Other” (“*Grading, school system*”). The distribution of answers painted a relatively clear picture. The field considered to be most important covers the issues of quality, methodology and content of teaching. In addition, but much less frequently, practical experience, the transfer of vocational knowledge, innovations and the student focus are mentioned.

Out of the question “*What are the strengths of the current VET system in your country?*” we develop six categories from the answers, (1) “Flexible and well-structured education- and learning systems” (“*The institutes that run this education are well organized and ambitious, flexible high level education system*”), (2) “Appreciation and working conditions for teachers” (“*high salary of teacher, appreciation for teachers*”), (3) “Good study conditions, study content and accessibility” (“*Possible to study beside work, you can study when you are older*”), (4) “Cooperation with regional companies” (“*good co-up with businesses in the region*”), (5) “High educated teachers” (“*You must have Vocational expertise and pedagogical learning if you want to teach*”) and (6) “Responding to students” (“*Every student receives targeted support*”). In addition to the well-structured education system, the study conditions and highly qualified teachers are seen as particular strengths.

To the question “*What are the weaknesses of the current VET system in your country?*” we invented also six categories: (1) “Not enough attention and time for the students” (“*Learning disabilities were ignored*”), (2) “Education or further education of teachers” (“*Some doesn't have practical experience*”), (3) “Too much autonomy and bureaucracy for teacher” (“*teacher is too autonomy and the system how they are hired*”), (4) “Given standards (content), status vet and educational system” (“*easy to cheat the system*”; “*digital methods instead of basic skills*” or “*the financial system is not supporting*”) and (5) “Time and resources in schools and study” (“*Not enough basic skills, no money, no classrooms*”). Common weaknesses of their own VET system are considered to be a lack of attention and time, the current standard and limited resources in school and university.

Moreover, out of the answers to the question “*What do you think should be changed?*” we develop four different categories: (1) “More resources and financial support” (“*Don't save on resources for education*”), (2) “Better working conditions and further education” (“*The businesses are changing very quickly*” or “*Salary system. Best teacher should get best salary.*”), (3) “Laws, structure or changes to education system” (“*School system should organized again to near old system*”) and (4) “Changes to curriculum/content and transfer of values” (“*perhaps*”).

the plan of the program, the subjects should be better combined”). Particular need for change and development is seen for the current working conditions and in changes to the curriculum.

The results for these five questions are subsequently processed and compared or broken down between the countries Finland and Sweden. The open collected answers were partly assigned to several categories. If they covered different aspects, the answers of some respondents were assigned to several categories (double answers are possible).

4 Results

The question *“What are the most important characteristics of a good vocational teacher?”* received 76 named answers (49 Finland, 27 Sweden). Most are collected to the categories (2) *“Interest and wish to teach people”* (10 Finland, 8 Sweden), (1) *“Not planned or by coincidence”* (14 Finland, 1 Sweden) and (6) *“Share passion and knowledge for a profession/subject”* (5 Finland, 5 Sweden). Furthermore, category (3) *“Working conditions and job profile as a teacher”* (6 Finland, 2 Sweden) and (5) *“Recommendation or recruited”* (1 Finland, 3 Sweden) also showed interesting differences between the countries under investigation. These findings show that teachers in both countries are interested in teaching and feel a calling in their work. At the same time, the results also highlight differences between the two Scandinavian countries: While in Finland, significantly, more teachers have taken up their profession unplanned and by chance and because of working conditions, this is much less relevant in Sweden. Rather, it appears that suitable teachers are recruited in Sweden and recommended to take up the corresponding career. At the same time, the result is also surprising in view of the fact that access to study programmes and employment in Finland is much more difficult than in Sweden, because the demand from applicants is much higher.

Totally 51 named answers (32 Finland, 19 Sweden) were collected by the question *“What are the 1-3 most important fields to be improved in the training of vocational teachers?”* The main answer is to category (3) *“Quality, methods, content of teaching”* (8 Finland, 9 Sweden). Some difference between the two comparison groups were found in the categories (1) *“More practical and/or teaching experience”* (5 Finland, 1 Sweden), (2) *“Ability to transform vocational knowledge to teaching content and reverse”* (4 Finland, 2 Sweden), (4) *“Continuing teacher training and innovation”* (4 Finland, 2 Sweden) and (6) *“Ability to emphasize and to focus on pupils”* (5 Finland, 2 Sweden). From this, it can be cautiously concluded that practical experience, the application of vocational knowledge and understanding of the (individual) student are considered important for Finnish teachers. At the same time, it should be noted that overall, there are more Finnish answers, so that in relation to this, teaching methods are considered to be particularly important for Swedish teachers.

Through asking the question *“What are the strengths of the current VET system in your country?”* we received in total 36 named reactions (27 Finland, 9 Sweden). The categories (1) *“Flexible and well-structured education- and learning systems”* (10 Finland, 0 Sweden), (2) *“Appreciation and working conditions for teachers”* (2 Finland, 0 Sweden), (3) *“Good study conditions, study content and accessibility”* (5 Finland, 2 Sweden) and (5) *“High educated teachers”* (6 Finland, 2 Sweden) are mainly used and answered to by the Finns, while Swedish teachers see the strength in their VET system in category (4) *“Cooperation with regional companies”* (1 Finland, 3 Sweden).

Also, the answers to the question *“What are the weaknesses of the current VET system in your country?”* (total named responses: 38; 27 Finland, 11 Sweden) are showing differences between to two Scandinavian countries in almost all the categories: (1) *“Not enough attention and time for the students”* (6 Finland, 3 Sweden), (2) *“Education or further education of teachers”* (3 Finland, 0 Sweden), (3) *“Too much autonomy and bureaucracy for teacher”* (1 Finland, 2 Sweden), (4) *“Given standards (content), status vet and educational system”* (8 Finland, 4 Sweden) and (5) *“Time and resources in schools and study”* (9 Finland, 2 Sweden). Finnish

respondents see the weaknesses in the decline of resources in school and in the study, in too little financial support and in reforms and laws of the government as a bad influence on the educational system. In contrast, Swedish teachers see weaknesses in the fact that there is not enough time for the students and their personal goals, the low status of VET in their country and in the high autonomy of teachers and the bureaucracy that teachers have to cope with. Overall, Finnish teachers are much more critical of their VET system than Swedish teachers are. Finns more and more often (more clearly) name the corresponding weaknesses. However, this could also possibly have its reasons in the current reform in Finland, which means significant financial losses for the schools and whose effects cannot yet be foreseen, which could also mean a decline in the high reputation of vocational education and training.

Finally, the question “*What do you think should be changed?*” was asked and could collected 34 named answers (26 Finland, 8 Sweden). Furthermore, in this question, the Finns were again clearer and (more often) critical in their answers. A closer look to some examples can proof this impression: (1) “More resources and financial support” (6 Finland, 1 Sweden), (2) “Better working conditions and further education” (9 Finland, 2 Sweden), (3) “Laws, structure or changes to education system” (6 Finland, 0 Sweden) and (4) “Changes to curriculum/content and transfer of values” (5 Finland, 5 Sweden). Especially in the first three aspects, Finns more often see an important need for change than their Swedish colleagues do; Finns demand (more often) better financial support, better working conditions and an improved structure for their education system. This finding fit very well to the above-mentioned thesis, that they fear a risky situation for their national and international high ranked integrated system caused by the current reform (Rintala & Nokelainen, 2019).

5 Conclusion and discussion

The fact that actors in a social field of action wish for or even demand better financial support and technical equipment in the area of improvement cannot come as a surprise. On the contrary, as expected, it is especially the Finns saw the greatest need for improvement in more resources and financial support. This is also an effect resulting from the major reform of Finnish vocational education and training in 2018, which expects a high degree of flexibility in the design of educational pathways and the associated funding from schools (MEC, 2017).

Related to the strengths of the respective VET system, the Finish teachers see especially the quality and structure of the education system, like the flexible and good-structured education- and learning systems, the highly educated teachers and in the existence and transfer of practical skills. While the Swedish respondents focus on cooperation with the regional economy. Probably it also reflects the increasing importance of workplace learning in Sweden combined with the hope to get a solution to reduce youth unemployment with that approach.

Finally, the small sample size in the present study should again be pointed out. Participation in the survey was voluntary and based on the subjective assessment of the respondents, so that further research activities are desirable. Because of the small sample it is very difficult to get some hints on the influence of branches and work specific background on the values and attitudes of the teachers, which is very reasonable (Lempert, 2002). Overall, the results show an interesting insight into the teachers' views of their own VET system, which should be taken into account for future theoretical and practical discourse.

References

- Heikkinen, A. (2003). Transforming VET policies and professionalism: View from Finland. In W. Nijhof, A. Heikkinen, & L. Nieuwenhuis (Eds.), *Shaping flexibility in vocational education and training: Institutional, curricular and professional conditions* (pp 202–225). Kluwer.
- Helms Jørgen, C., Olsen, O. J., & Persson Thunqvist, D. (2018). *Vocational education in the Nordic countries. Learning from diversity*. Routledge.

- Isacsson, A., Amhag, L., & Stigmar, M. (2018). The content, challenges and values that form Nordic Vocational Teacher Education. *Ammattikasvatukusen aikakauskirja*, 20(2), 38–50.
- Kaiser, F. (2016). Berufliche Bildung und Emanzipation. Heydorns Impulse für eine kritische Berufsbildungstheorie sowie Stolpersteine aus eigener berufspädagogischer Sicht. In F. Ragutt & F. Kaiser (Eds.), *Menschlichkeit der Bildung. Heydorns Bildungsphilosophie im Spannungsfeld von Subjekt, Arbeit und Beruf* (pp. 181–197). Ferdinand Schöningh.
- Kaiser, F. (2019). Studierende zur kritischen Gestaltung der beruflichen Bildung ermutigen. Zur zentralen Aufgabe berufspädagogischer Lehramtsstudiengänge in einer demokratischen Gesellschaft. In C. Kalisch & F. Kaiser (Eds.), *Bildung beruflicher Lehrkräfte. Wege in die pädagogische Königsklasse* (pp. 35–47). wbv.
- Kaiser, F., & Lindberg, V. (2019). Vocational teachers in the Swedish and Finnish vocational education systems. In F. Marhuenda & M. J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp. 301–307). <http://doi.org/10.5281/zenodo.2641712>.
- Karlsson, T., Lundh Nilsson, F., & Nilsson, A. (2016). Modern apprenticeship and teknikcollege: historical roots of two current features of swedish Vocational Education. In E. Berner & P. Gonon (Eds.), *History of Vocational Education and Training in Europe: Cases, Concepts and Challenges* (pp. 367–384). Peter Lang.
- Köpsén, S. (2014). How vocational teachers describe their vocational teacher identity. *Journal of Vocational Education & Training*, 66(2), 194–211, <http://doi:10.1080/13636820.2014.894554>.
- Lempert, W. (2002). *Berufliche Sozialisation oder was Berufe aus Menschen machen*. Schneider.
- MEC – Ministry of Education and Culture Finland (2017). *Reform of vocational upper secondary education*. <http://minedu.fi/en/reform-of-vocational-upper-secondary-education>.
- Nissilä, S.-P. (2006). *Dynamic dialogue in learning and teaching - towards transformation in vocational teacher education*. University press. <http://urn.fi/urn:isbn:951-44-6738-8>.
- Rintala, H., & Nokelainen, P. (2019). Vocational Education and learners' experienced workplace curriculum. *Vocations and Learning* 13, 113–130. <https://doi.org/10.1007/s12186-019-09229-w>.
- Stenström, M.-L., & Virolainen, M. (2017). Towards the enhancement of school-based VET in Finland. In E. Berner & P. Gonon (Eds.), *History of Vocational Education and Training in Europe: Cases, concepts and challenges* (pp. 327–348). Peter Lang.
- UNESCO (2020). *Global education monitoring report. Inclusion and education: All means all*. UNESCO.
- Virolainen, M., & Stenström, M.-L. (2014). Finnish vocational education and training in comparison: Strengths and weaknesses. *International Journal for Research in Vocational Education and Training*, 81–106. <http://doi:10.13152/IJRVET.1.2.1>.

Biographical notes

Dr **Franz Kaiser** is professor and founding director at the Institute for Vocational Education, University of Rostock in Germany. His lectures and research focus on vocational curricula and training regulations development, group dynamics, VET teachers, international research in VET, time concepts and the critical theory of 'Bildung' in VET.

Dr **Philipp Struck** is a research assistant at the Institute of Vocational Education at the University of Rostock, Germany. His research interests focus on school-to-work transition, special education and social education within the field of vocational education and further vocational education.

Hannah Frind is a student research assistant at the Institute of Vocational Education at the University of Rostock, Germany. She is studying agricultural economics and English for her Master's degree in teaching at vocational schools.

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Identifying and Comparing Fields of Competences of VET Teachers and Trainers in Lithuania, Italy and Germany

Klein, Iris

ITB University of Bremen, Germany, iklein@uni-bremen.de

Saniter, Andreas

ITB University of Bremen, Germany, asaniter@uni-bremen.de

Tütlys, Vidmantas

Vytauto Didžiojo Universitetas, Kaunas, vidmantas.tutlys@vdu.lt

Abstract

There are different practices and experiences of VET teachers and trainers training in the EU. Diverging trends concerning the training and competence development of VET teachers and trainers in *Germany, Italy and Lithuania*, lead to ERASMUS+Project “TEACH-VET”. This paper points out the findings of our comparative analysis between the above indicated countries regarding training and competence development of VET teachers and trainers. It presents to what extend regulatory frameworks, public bodies and other stakeholders take a leading role in that matter: outlining the main similarities and differences between the countries, identifying tasks and competences needed, leading to a competence profile, which was foundation for the development of an online tool in four languages (German, English, Lithuanian and Italian) where VET teachers / trainers can assess their teaching competences.

Keywords

teaching competence; vet teachers and trainers; competence profiles; fields of competence

1 Introduction

Current changes in vocational education and training, such as responding to the technological and organizational development (the advent of the 4th industrial revolution), internationalization and integration of VET in lifelong learning processes create the need for an adequate development of teaching competence of VET teachers and trainers. As VET teachers and trainers training in the EU countries is differently organized and elaborated, it creates the space for effective policy learning in this field. Furthermore, comparability of the teaching competence of VET teachers and trainers is important from the point of view of internationalization of initial VET and international mobility of VET students and teachers in implementing ECTS measures in teacher education.

Against this background we performed a comparative study on the training of VET teachers (and trainers) in Germany, Italy and Lithuania, examining regulatory framework, occupational profiles and identifying teaching competences needed on the job. This research was part of Erasmus+ project TEACH-VET, aiming at developing an online instrument for self-

assessment, monitoring, guidance and comparability of the teaching competence of VET teachers and trainers, as there is still a lack of modern practical instruments to do so. Our main research questions have been:

1. To what extent and how the issues of VET teachers and trainers training and competence development are regulated by the national laws and legal acts?
2. What are the responsibilities of the state institutions and agencies, social partners and stakeholders like VET providers in the design of VET teachers and trainers training curricula, organization of training, assessment of acquired competences and qualifications of the VET teachers and trainers?
3. What are the main similarities and differences in the countries indicated above? And what are typical tasks of VET teachers and trainers? What competences are required for the job?

During ECER 2019 we presented already our topic, approaches and research questions in a draft version. Now we are very happy that our hypotheses / preliminary results from last year have been confirmed, modified or rejected and that we can present the results of our comparative study and the finished online tool.

2 Theoretical background

Competences of VET teachers and trainers and their development increasingly attract the attention of researchers and policy makers as highly important factors of the quality, accessibility of VET and its acceptance in society. One of the current trends is still the competence-based approach. Day (2017) reminded us that in addition to benefits, such as criteria for teaching quality assurance via a minimal / threshold standards for teacher education, competence-based approaches in teacher training also brings significant drawbacks, such as favouring of atomistic and reductionist learning outcomes, and difficulties in ensuring acquisition of holistic capabilities required by increasingly complex tasks of the teaching profession.

Wuttke and Seifried (2017) noted that competence-based teacher education approaches are heavily influenced by behaviourism and characterised by over-specification and fragmentation of learning. In order to overcome this drawback, current approaches of modelling of teaching competence draw on a more holistic teacher competence model which consists of professional knowledge and beliefs, motivation and self-regulation (Wuttke & Seifried, 2017). The study of Tacconi and Gomez (2013) on the factors of success of the Salesian VET centres in Italy revealed that professional expertise and competence of those VET teachers who really made an impact on successful training and further employment/career of their students were strongly integrated and linked with a wide range of personal skills and values.

Taking this into consideration, to master the task of identifying and comparing teaching competence needed for VET our project applied rather established VET-research methods.

3 Approach and methodology

To answer the questions which main competent bodies regulate the training competence of VET teachers and trainers in *Lithuania*, *Germany*, and *Italy*, to analyse national standards and compare occupational profiles for identifying tasks and competences of VET teachers and trainers, several steps were taken.

The first step was mainly based on desk-research: to collect and to analyse information about framework guidelines, occupational standards, the involvement of public bodies, stakeholders and other relevant parties regarding the training of VET teachers and trainers (and hereby their acquisition of competences) in the mentioned countries for the national reports on VET teacher and trainer qualification pathways. The main focus hereby lay on features of the

legal and institutional framework for VET teachers' and trainers' training and competence development. Literature, existing research data and statistics on the teaching competence of VET teachers and trainers in Germany, Lithuania and Italy were collected. Afterwards research papers, reports, statistical data providing relevant information about the assessment and development of the teaching competence of VET teachers and trainers were analysed. Analysing these documents was of importance in order to draw a picture of the actual occupational / competence profile of VET teachers and trainers in each country. Also any available information about national occupational standards or profiles was analysed like legal acts that stipulate qualifications and competences of VET teachers and trainers, descriptors of qualifications from executed occupational standards; for example "Standards for teacher training in the educational science" a resolution by the German KMK (standing conference of the ministers of education and cultural affairs). The content analysis of these official documents that stipulate the occupations or qualifications of VET teachers and trainers provided the basic reference information for each country to describe a national profile of VET teachers and trainers mentioned in the national reports.

After comparative content analysis of the policy documents and legal acts, research methods included also qualitative, such as interviews with experts from the field and focus groups of VET teachers and trainers. The population of informants per country were 5 (initial) VET teachers and 5 trainers from different sectors and 2-5 experts from VET teacher training institutions to gather important information about performed tasks and competences learned and / or needed. The Interviews were executed with respect to regulations and previous research. In Italy and Lithuania, additional data was gathered by surveys. To develop the occupation profiles for each country the guideline for the Interviews contained following topics, see Figure 1.

Figure 1

Interview topics

Interview topic 1	Status and position of the VET teacher or trainer
Interview topic 2	Overview of the contents of VET teachers work processes by discerning key changes of work contents and context: Daily planning and organization of curriculum and lessons, development of learning contents, organisation of the teaching and learning process, VET didactics, formative assessment of learning
Interview topic 3	Competence requirements
Interview topic 4	Competence development and recognition

We focussed on real-life situations and competences needed from the point of view of VET teachers and trainers themselves. Which tasks are executed and which competences are needed for these tasks? In addition to that, the focus groups were asked: in what respects skills of and the requirements for VET teachers do differ from those of general education teachers. By interviewing insiders like VET teachers, trainers, and experts we got updated first-hand information about the occupational profile and competences needed for the profession as a VET teacher or trainer.

Those two first steps allowed creating 3 occupational profiles for the EU countries Germany, Lithuania and Italy which were later on compared to create a common competence framework. Our comparative research method was led by the traditional descriptive approach – considering that differences of teaching are rather small and cultural values are similar in these three EU countries. The competence framework is defined by 11 "fields of competence" for each group (VET teachers and trainers). On basis of our expert hearings and group discussions, we extracted 10 crucial statements for each field. These are the basis of the developed electronic on-line tool for self-assessment, monitoring, guidance and comparability of teaching

competences of VET teachers and trainers. It was further developed via design-based research with 3 iterations (one in each country). Partners agreed that self-estimation of the competences within the fields should be via rating (Likert-scale) these statements. At <https://teachvet.eu/self-assessment/> it is now possible to self-estimate the professional and pedagogical competences of VET teachers and trainers.

4 Results

Remembering our research question introduced in Chapter 1, our comparison of **institutional roles** of all main competent bodies for VET teacher and trainer education delivered a clear picture: In Lithuania training is regulated by national laws; in Germany the (few) regulations on VET trainer education are as well regulated by a national law, but the exhaustive regulations for VET teachers and all regulations in Italy are governed by regional bodies.

Besides the obvious differences in size and number of inhabitants of the three countries, a root cause of this distribution of responsibilities can be found in a historic comparison. Development of state institutions and statehood in Lithuania in the last century was strongly precluded by the losses of independence causing significant disruptions and derailments – whilst Italy and Germany emerged from former separate entities.

National standards for qualifications of VET teachers and trainers differ largely between the three investigated countries: The state of Italy sets no standards; German national authorities set minimum standards that can be modified or raised by the regions and Lithuania sets norm standards – to be applied by all regions and training institutions. These findings correlate strongly with the conclusions mentioned before on the role of regions compared to national authorities; Centralisation leads to unified standards – and vice versa.

The **standard educational programmes** for VET teachers differ largely in the three countries. For example, in Lithuania and Italy most VET-teachers studied only the subject (e.g. engineering) and had no or only few pedagogical courses, whereas in Germany a master's degree referring to both, subject and pedagogy, is mandatory. Furthermore, the responsibilities regarding VET (government-controlled, legal state or region) as well as the existence of resolutions defining the training/ acquisition of competence, vary. Taking a closer look at the different ways of training, it becomes clear that the different training systems in the 3 countries also lead to different EQF-levels and therefore paygrade. In Germany VET teachers undergo the same training as public school teachers, within a time span of 5 years. With completion of the Master of Education acquiring the first state examination and by finishing preparatory service (practical phase), which concludes with the Second State Examination EQF level is 7. Only after this lengthy qualification pathway is the teaching qualification as a teacher in public VET schools acquired. VET trainers on the other hand, according to the Vocational Training Act (section 3 §28ff.) must provide vocational skills, knowledge and competences (vocational action competence) that are needed for the performance of an occupational activity in a changing work environment and do this as part of an organised training course. They must also grant the acquisition of the necessary vocational experience with is minimum EQF level 4. Most German trainers hold a handicraft or industrial foreman qualification on EQF level 6.

In Lithuania since August 2019 the national occupational standard of the education sector and libraries is approved, which includes descriptors of qualifications of the VET teacher declaring EQF levels 5 and 6, for trainers EQF level 5. These descriptors serve as a basis for the development of unified curricula for the training of VET teachers and trainers.

In Italy however, there is no national regulation and standardization of the qualifications of VET teachers, nor nationally recognized register of trainers or formal recruitment procedures.

Summarising the findings on **VET teacher and trainer training systems** and practice the results are: Minor differences between federal states / providers in Germany, huge differences in Italy and Lithuania. More enlightening is a comparison of findings on training systems and

institutional settings because it reveals a high consistency for Italy: Governance on regional level and no national standards correspond to a manifoldness of VET teacher and trainer education sub-systems.

The German approach can be considered somehow consistent, as well: the share of responsibilities, the corporatist beliefs and the minimum qualification standards led to non-identical, but similar education of VET teachers and trainers as well as of practice of VET in all regions; especially when regarding long time-spans.

Situation in Lithuania is strongly differing from these consistent and stable descriptions from the two countries mentioned before: Although governance is central and norm standards had been set; an absence of institutionalized provision of training of VET teachers and trainers in Lithuania was reported – a contradictory finding that depicts the need of serious improvements. One of such future improvements is introduction of the new bachelor study program "Vocational Pedagogy" by Vytautas Magnus University. This study program will provide bachelor degree in education science and qualification of vocational teacher after 3 years of studies and is planned to be launched in 2020-2021.

Regarding trainers and work-place mentors or tutors; the situation within the three countries is rather similar: Although German trainers need a short qualification (trainer aptitude, approx. 2 weeks) most of the colleagues who support Work-Based-Learning (WBL) are unskilled for VET.

Comparing the **competence profiles** on bases of interviews it can be noticed, that VET teacher competence profiles from Germany and, to some extent, from Italy are more focused on the different didactical and methodological competences in the field of curriculum design – and on improving teaching lessons and practical trainings. In Lithuania, however, the focus rather is in the field of management and organisation of the education and training processes. This difference at least partially can be explained by the influence of recent methodological approaches in the field of VET curriculum design.

Notwithstanding these differences, there have been identified **11 transnational common fields of competence** for VET teachers and VET trainers, each. The headings of the following tables briefly describe these fields. They are partly identical for VET-teachers and trainers – but listed separately with respect to further exploitation in self-estimation online-tool. Entries below these bold headings of competence fields *do not claim* to describe these holistic fields as an operationalisation or as a checklist; they are just highlighting some activities within these fields to facilitate development of statements for self-estimation within online-tool. As mentioned in Chapter 3 the statements are based on expert hearings and group discussions contouring the core work processes and competences of VET teachers and trainers. They are assigned to the corresponding fields of VET-teachers as shown below¹, see Table 1.

Table 1

Core work processes of VET teachers

1 Planning of Vocational Educational and Training
comparing self-made learning material with the material produced by colleagues
planning and designing lessons, considering that each student performs differently
selecting contents and methods, forms of teaching and communication with reference to curricula and, if necessary, individual development plans
testing the prepared learning and training materials and methods in order to evaluate their suitability with learning requirements and learning needs of the students

¹ For full list of fields of competence and assigned statements and fields of competence of VET-trainers visit www.teachvet.eu

considering social and cultural diversity while designing the educational content for different groups of learners

training skills that are required in economy considering general technological and social trends (Industry 4.0, demographic changes, social status of students, etc.)

designing and re-designing teaching and learning processes taking findings of research about the acquisition of knowledge and skills into account

preparing long-term, short-term and thematic training plans

collecting and evaluating information about work processes and their changes of the respective apprenticeship

I estimate that my planning competences are sufficient to fulfil my tasks²

2 Implementation of vocational training and learning in VET-schools

being responsible for workplace safety

considering individual needs and possibilities of students

...

3 Implementation of vocational training and learning in enterprises³

searching social partners and mentors for practical training and establishing contacts of co-operation

coordinating practical training in real workplaces

...

4 Diversity: Teaching students with special needs⁴

adjusting the learning environment (infrastructure – working and learning areas, equipment, etc.) referring to the specific conditions and needs of learners and by following instructions and recommendations of specialists

preparing and adjusting learning and training materials for students with special needs* (with visual, audition, movement impairments and disabilities, behaviour and understanding impairments, etc.)

...

5 Assessment and monitoring of student's learning outcomes

foreseeing assessment tasks in long-term and short-term training plans

executing formative assessment of acquired knowledge, practical and key skills

...

6 Advising students and parents on issues of vocational education, employment and career

searching information for counselling on descriptors and profiles of qualifications and occupations

supporting students in finding appropriate VET programmes

...

² The 10th statement always does not represent a task but is of importance for the online tool regarding the self-estimation.

³ In Germany the processing of these tasks would be assigned to the VET trainers. In Lithuania, these tasks can also belong to the core activities of VET teachers.

⁴ The expression “students with special needs” refers to all students with problems that give them a disadvantage compared to their peers (students with difficulties of learning deriving from physical, mental or due to the social / family context of belonging).

7 Project work and involvement in the development of VET provision

collecting information about local, national and international events related to professional activity
 preparing students for national and international skills competitions

...

8 Professional development

reflecting executed training activities (strengths, weaknesses and potential for improvement)
 by using feedback from students and other data
 foreseeing the directions of development and advancement of technological, pedagogic-didactic, and key competences

...

9 Managing students' conflicts and emotions

fostering communication and recognition of emotions
 usage of classroom-management techniques

...

10 Digital competences development

using cloud services and platforms with students (e.g. google office) in order to foster learning process
 knowing various media that can be used for education and being able to apply them

...

11 Co-operation with VET schools, chambers, international partners

cooperating with social partners regularly on issues related to the provision of work-based learning and apprenticeship (curriculum design, organisation and provision of training)
 cooperating with social partners in monitoring and assurance of quality of provided vocational education and training

...

These outcomes served as basis for the design of the online tools for self-assessment and competence development (IO2 of project TEACH-VET). On basis of this comparative analysis of teaching competences of VET teachers and trainers in the partner countries, an on-line instrument for assessment and development of teaching competence for VET teachers and trainers was created (see www.teachvet.eu). VET teachers and trainers from Germany, Lithuania, Italy or everyone who wants can visit the page with information⁵ about the project and the partners, the comparative study offering a comprehensive insight into status, strength, opportunities and development needs of educational systems for VET-teachers and trainers in the participating countries Lithuania, Germany and Italy and the potentials for mutual learning, transnational (for Lithuania, Germany, and Italy) common fields of competence for VET teachers resp. VET trainers that sketches skills needed for a modern, work-process oriented VET education. In addition to that, the developed tool on basis of the studies from the TEACH-VET project there is the option to self-assess one's own competences in any of the analysed 10 fields via the 11 statements. The self-estimation is free and it is possible rather to take the assessment for only one field or for all. The result is a printable pdf version of the current status and can be

⁵ Information is available in English, German, Lithuanian and Italian via choosing your language on the website.

updated any time. Moreover, a section was built to provide concrete information on possible courses (online and offline recommendations in mother tongue German, Lithuanian, Italian) in order to improve the competences in any competence field. The recommendations given vary from traditional seminars at a university to the online offers like interactive courses via Moodle.

5 Conclusions

Regarding instruments and mechanisms related to the standardisation of competences and qualifications of VET teachers and trainers, there can be outlined the absence of coherent and systemic standardisation in Lithuania and Italy. The introduction of a national occupational standard of the education sector, which includes qualifications of VET teachers and trainers, should help to solve this problem in Lithuania.

Despite of different orientation of the analysed competence profiles of VET teachers and trainers towards didactical and cultural competences (bigger attention to these competences in Germany and Italy, less attention in Lithuania), the comparison of these profiles permitted to develop common fields of competence as basis for self-estimation and development of pedagogical and professional competences.

Teach-VET project did not only disclose teaching and training competences and strengths respective weaknesses of VET-teacher and trainer educational systems in Lithuania, Germany and Italy, partners expect additionally, that using and exploitation of the developed online tool for assessment of teaching competences of VET teachers and trainers will significantly improve self-estimation of beneficiaries. And, as a consequence, effectiveness of provided services of training and competence development support for VET teachers and trainers should develop – as well as project partners hope that policy makers and stakeholders improve their governance – and treat the relevance of effectiveness of competence development of VET teachers and trainers seriously.

References

- Bundesministerium für Justiz und Verbraucherschutz. (n.d.). *Ausbildereignungsverordnung (Ordinance on trainers aptitude)*. http://www.gesetze-im-internet.de/ausbeignv_2009/index.html
- Bundesministerium für Justiz und Verbraucherschutz. (n.d.). *Berufsbildungsgesetz (Vocational training act)*. https://www.gesetze-im-internet.de/bbig_2005/
- Day, C. (2017). Competence-based education and teacher professional development. In M. Mulder (Ed.), *Competence-based vocational and professional education. Technical and vocational education and training: Issues, concerns and prospects* (Vol. 23) (pp. 165–182). Springer International Publishing.
- Sekretariat der Kultusministerkonferenz. (n.d.). *Standards für die Lehrerbildung: Bildungswissenschaften. (Standards for teacher training in the educational science)* https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2004/2004_12_16-Standards-Lehrerbildung-Bildungswissenschaften.pdf
- Tacconi, G., & Gomez, G. M. (2013). *Success stories. Quando è la formazione professionale a fare la differenza. (Success stories. When the vocational education and training makes difference)*. Sede Nazionale del CNOS-FAP. <https://www.cnos-fap.it/sites/default/files/pubblicazioni/Success%20Stories.PDF>
- TEACH-VET (n.d.). Promoting lifelong learning of VET educators. <https://teachvet.eu>
- Wuttke, E., & Seifried, J. (2017). Modeling and measurement of teacher competence: Old wine in new skins? In M. Mulder (Ed.), *Competence-based vocational and professional education. Technical and vocational education and training: Issues, concerns and prospects* (Vol. 23, pp. 883–902). Springer International Publishing

Biographical notes

Iris Klein, MA in philosophy and cultural science, is a junior researcher at the Institute of Technology and Education (ITB) at the University of Bremen (ITB), Germany. Her research focusses on work-oriented educational processes, mostly EU projects addressing competence development and vocational education and training.

Dr **Vidmantas Tūtlys** is a professor at Vytautas-Magnus-University (Vytauto Didžiojo Universitetas), Kaunas, Lithuania. His research interests include initial VET policy research, development of the national systems of qualifications, relationships between VET and the world of work.

Dr **Andreas Saniter** has a Diploma in physics, PhD in didactics of physics, broad experience in research and education; i.e., technical education; evaluation and conceptual structuring of vocational training programs; coordination of national and transnational projects. At ITB since 2004. Head of various European (Leonardo) projects, like AEROVET (2009-2012), DEVAP-PRENT (2010-2012) or ERASMUS+projects like METALS (2015-2018) or ICSAS (2017-2020). His research focus is policy learning.

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Internationalisation Strategies of German VET Providers. What is Important for Business Models in New Markets?

Kühn, Ida Kristina

University of Bremen, Institute Technology and Education (ITB), kristina.kuehn@uni-bremen.de

Peters, Susanne

University of Bremen, Institute Technology and Education (ITB), speters@uni-bremen.de

Holle, Larissa

University of Bremen, Institute Technology and Education (ITB), lholle@uni-bremen.de

Abstract

The German Federal Ministry of Education and Research (BMBF) funds projects of commercial and non-profit Vocational Education and Training (VET) providers in order to transfer VET services by developing business models in an international context. For a former funding line, research has identified factors that support the transfer of VET services. Our contribution analyses the relevance of those factors for a current BMBF-funding line and is empirically based on an online survey among currently funded projects. Our main finding is that formerly identified success factors are still relevant in the context of the new funding line. Furthermore, our results underscore the outstanding importance of communication and customer integration in the context of internationalisation.

Keywords

internationalisation strategy; business model development; transfer of VET

1 Introduction

The dual principle within initial and further VET is considered a success factor for economic and social developments in Germany, but also at the international level (Hilbig, 2019a). In order to make this principle more viable internationally, the BMBF has created funding lines directed at the transfer of dual vocational training to different target countries. In the current funding line “Internationalisation of Vocational Education and Training (IBB)”, projects develop business models to transfer VET-services to target countries and each project attempts to adapt its service to the specific context of the targeted country.

Although the question concerning the transferability of training systems is currently of great relevance (Wiemann et al., 2019), a direct transfer of the German vocational training system appears difficult (Wolf, 2017). The same applies to the transferability of individual services in

this context (Posselt et al., 2019), which makes a market-specific adaptation of different elements to be transferred even more important (Wiemann et al., 2019).

Following Hilbig (2019b), one option to transform national towards international business models is project-driven. Like any other organisation, the internationalisation of a service provider requires the consideration of internationalisation activities in the business model (Hilbig, 2019a). In addition to the planning of internationalisation activities, internationalisation requires a major capital and management effort in the home and target countries (Kutschker & Schmidt, 2011; Hilbig, 2019b). This seems rather difficult to implement against the background of a state funding line considering the limitations of project organisations (cf. ISO 21500). With regard to internationalisation, the chosen strategy for market entry is of particular importance (Hilbig, 2019b). In researching the previous funding line “Export of Vocational Education and Training (BEX)” (duration 2010-2017), the Fraunhofer Center for Central and Eastern Europe (MOEZ) identified drivers for, and obstacles to, the export of vocational education and training, based on interviews with the actors of the funded BEX projects (Fraunhofer MOEZ, 2012). Among those factors were drivers such as high appreciation of “Quality made in Germany” or political support in Germany and abroad. Examples for obstacles are missing acceptance of VET in the project country or communication barriers at the target market. Our study aims to answer the following research questions: (1) Are the drivers and obstacles towards the international transfer of VET as identified in the MOEZ-study valid for the IBB context as well? (2) If yes, to what extent do the actors of the actual funding line IBB perceive the factors identified by the MOEZ fostering or hindering?

2 Theoretical frame

The findings of the MOEZ study relate to the BEX funding line that aimed to deliver transferable business models for the context of different target countries. The successor funding line IBB also supports the transfer of VET services, based on the development of business models and with a focus on building up educational cooperation agreements. Therefore, the identified drivers and obstacles identified by the MOEZ should also be relevant in this context. Drivers are described as:

- a high appreciation of “quality made in Germany” in each project’s target country (D1) and worldwide presence and appreciation of German industry and products (D2) as important market forces;
- modularisation of VET services (D3), practical demonstration of (initial) education content (D4) and the certification of educational achievements (D5) allow for the adaption of educational services in new markets and create customer proximity;
- political marketing at higher level (D6), flanking of political actors (D7) and cross-sectoral cooperation and uniformity (D8) are considered important factors for dissemination and, therefore, for the sustainability of the educational service;
- the linking of technology and education in export activities (D9), the collaborative approach within the projects (D10), solid partners in the project country (D11) and the involvement of major German firms (D12) were identified as relevant factors for fostering internal structure and strategic direction of the projects (MOEZ, 2012).

The obstacles mostly relate to industry forces and key trends (see Porter, 2013) and refer to:

- the missing acceptance of (initial) vocational education in the project country (O1), the incompatibility at a systemic level (O2) and communication barriers as well as cultural differences (O3) which in sum are general competition disadvantages (MOEZ, 2012);

- a lack of technical infrastructure in the project country (O4), limited scope to pricing due to local purchasing power (O5) and a relatively high distance to the target market (O6) stand as economic barriers;
- finally, legal insecurities and political barriers emanate from state dominance and bureaucracy in the education sector of project country (O7), legal uncertainties in the sustainable provision of the service (O8) and customs and visa regulations and their influences on the project (O9) (MOEZ, 2012).

Overall, those drivers and obstacles capture the environment of a developed business model to transfer services in vocational education and training. Considering that a business model needs to reflect the chosen strategic orientation to be effective in terms of implementation (Hilbig, 2019a) and for achieving sustainability, this study refers to both Osterwalder and Pigneur (2013) as well as Porter (2013). Although the MOEZ-study has already identified several relevant factors, our work aims to provide further empirical evidence for existing factors and to identify if there are more factors, related to the current funding line.

3 Method and sample

The first aim of this study is to empirically validate the MOEZ drivers and obstacles towards internationalisation within the current funding line (IBB). In a first step, we built a questionnaire by operationalising the MOEZ findings into 58 items¹. The online survey addressed commercial and non-profit German VET service providers and developers that are financed within the IBB funding line. To gather more information about the involved enterprises, the questionnaire respected company-related information additionally (e.g. share of education services in total company turnover, addressed target groups in Germany and project country or addressed education sectors in Germany and project country). We initially sent out 37 requests and received 31 completed questionnaires (n=31), which is a small sample to give general conclusions about the drivers and obstacles towards internationalisation. Yet, considering the high response rate (84%), the sample qualifies to give a detailed insight about drivers and obstacles towards internationalisation for projects within the IBB funding line. In general, one member per company answered and in the majority of the cases, there were two completed questionnaires for each project.

The IBB-funded projects consist of at least two involved partners, representing vocational training providers, commercial enterprises or associations. In addition, each project has a so-called study partner who can hold different functions in the process. In this study, the participating commercial enterprises are the focus of interest. The participating commercial actors mainly represent small and medium enterprises (SMEs) that offer services in the initial and further VET.

Before we started the data analysis, we conducted some tests to match application requirements for the data analysis. As expected, a normal distribution (Chi^2) was not given due to the rather small sample size. Within the next step, the internal consistency of the scales was determined while keeping the limitations of a small sample in mind (cf. Bortz & Lienert, 2008). To check if the questionnaire has sufficient internal consistency, we tested the value of Cronbach's α in order to find out, whether the dimensions reflect the MOEZ-factors. The minimal value can vary between 0.5 and 0.95, according to author and research approach (Müller, 2007). Due to the small sample size, the threshold for internal consistency is set at $\alpha \geq 0.6$ (Malhotra, 1999).

¹ The major part of the items was designed as statements to be evaluated by the participants (scale level "1=totally disagree" to "6=totally agree"; available was also option "7=I cannot evaluate this item). Some items required the selection of an option (e.g. yes/no). Open questions after each section allowed the specification of evaluation results.

This value was reached for five out of the eleven items that portray drivers, while four of them (D5 and D13*) reach insufficient results. On the one hand, this was an expected result due to the mentioned limitation. On the other hand, it could also mean that factors would actually have to be included or excluded. Thus, before the dimensions were accepted or rejected, a factor analysis was carried out in the cases with unsatisfactory Cronbach's α . Since the underlying items are based on the results of an empirical study, the aim of the survey was not to exclude information, but rather to identify gaps that require further development through research.

The drivers D2, D7, D9, D12 and D14* "Integration of customers in the transfer process" are extracted single items scales. The internal consistencies for the items that portray obstacles show acceptable or sufficient values (O2, O5, O6, O7 and O9). The threshold for internal consistency was missed for O1, O3 and O8. In two cases (O5 and O8) a factor analyses resulted in the splitting of O5 into O5.1 "price-setting power is limited", O5.2 "Importance of profitability" and O5.3 "Adoption of product to market appears difficult". Moreover, O8 was split into O8.1 "Legal uncertainties in the sustainable provision of the service" and O8.2 "Legal uncertainties causing planning uncertainties" (single item scale). With this new set-up, we began our data analysis.

4 Analysis and results

To analyse whether or not the drivers and obstacles towards internationalisation observed by MOEZ can also be detected in our sample, we first present a descriptive analysis of the relevant items. Second, we describe the differences between companies with and without an available internationalisation strategy at project start. Third, we use the Kruskal-Wallis-test to compare the means of these two groups related to all confirmed drivers and obstacles variables in order to analyse the different perceptions of VET service providers. Finally, an explorative analysis of the factors shows correlations between the drivers and obstacles via a correlation-matrix, which yields insights into important research desiderata.

4.1 Relevant drivers: appreciation of vet and customer orientation

At first, we discuss the average outcomes of the survey regarding the drivers. The results suggest that the factors of the MOEZ-study apply to the current funding line to a certain extent. This congruence is especially clear for the area of market forces. The participants agree to a large extent with a high appreciation of "quality made in Germany" in the project country (D1, mean=5,36) and the perceived worldwide presence and appreciation of German industry and products (D2, mean=5,17) within our sample. The relevance to adapt educational services into new markets and creation of customer proximity is confirmed for the case of the need to modularise VET services (D3, mean= 5,17), like for a project on further education in mechatronics in Serbia, and can be also confirmed for the aspect to practically demonstrate (initial) education content (D4, mean=4,91). The relevance of the certification of educational achievements (D5, mean=3,81) appears to be somewhat less important to the former findings: Only single projects follow the approach to certify VET education services, for instance a geothermal energy project in Spain. A few projects receive political support (e.g. a green-tech VET project in Greece) but the majority does not or rather not (D6, mean =3,00; D7= 2,55; D8= 3,71). This result says nothing about the relevance of political support. It can only give information about a received or not received support. The linking of technology and education in export activities showed pronounced consent of the participants regarding the item "export of education" (D9, mean=5,62). They rather declined the other options "export of technology" and "export of complementary offer". Finally, the involvement of major German firms (D12, mean=3,43), as in one project in the automotive sector in Mexico, seems not to be given in most of the cases. The collaborative approach within the projects could not be validated as a scale. Two single item scales represent possible sub-dimensions that should be further developed. Overall, 32,3% of

the participants did not have any existing networks at the beginning of the project (D10) and 3,2% reported a local office at the project start (D11).

Additional to the MOEZ-results, two new drivers were identified, namely the “design of relationships in the project country” (D13, mean=5,77) and the “integration of customers in the transfer process” (D14, mean=5,34). The results suggest that the respondents consider corresponding activities to be very important, pointing to a high relevance for the internationalisation process. A possible explanation can be found in Saebi et al. (2017), who state that companies geared to market development are also more likely to adapt their business models than those geared to defending an existing market position (Saebi et al., 2017). The question of what the market actually demands has yet to be answered for these projects.

4.2 Relevant obstacles: connectivity and profitability

Saebi et al. (2017) show that business models are most likely to be adapted to the given challenges rather than to opportunities. Taking a look at the obstacles in the context of IBB, we can say that the acceptance of VET in the project country (O1, mean=4,37) as well as the (estimated) incompatibility of transfer product and target environment (O2, mean=4,10) are important factors for our respondents and, therefore, appear to be important for internationalisation activities. Another central factor is the lack of technical infrastructure (O4, mean= 5,56). For most of the expected obstacles, the results of the online survey suggest that they are potentially important for the transfer of VET, but have rather low relevance in our sample. Finally, the newly identified factor “importance of profitability”, which is valued by the participants as relevant (O5.2, mean=4,80; “rather agree” up to “agree”). This aspect will be revived in the discussion.

Summing up the results relating to obstacles we can say that the participants evaluate most of the MOEZ-factors as not too important obstacles with the exception of the factors connectivity and profitability.

4.3 Explorative analysis of the drivers and obstacles

Internationalisation strategies need actions to be implemented (Hilbig, 2019b). Those actions are based on assumptions about drivers and obstacles and, thus, meet them in a planned manner. With an existing internationalisation strategy, supporting factors are integrated and challenges are counteracted. It is imaginable that those projects, that had an internationalisation strategy from the start, face drivers and obstacles in a different way compared to those companies or VET providers without. A comparison between the cases “internationalisation strategy available (1)” and “internationalisation strategy not available (2)” provides starting points to analyse different initial conditions and resulting strategic actions during the transfer process. Overall, 26 participants answered the related item. Half of them (n=13) state to have an internationalisation strategy, while others have none or are currently developing it. Due to the small sample, a non-parametric mean value comparison for independent groups (Kruskall-Wallis-test) was conducted for the most important drivers and obstacles as reported by the participants: drivers 1,2,3,4,13,14 and obstacles 1,2,4,5.2.

There were no significant differences identified, resulting in H0: “There is no difference between the groups 1,2 related to the factor_{D,O}” being accepted. A descriptive statistic of this item shows, that half of the participants (N=26) reported an existing internationalisation strategy. The other half, however, is rather drivers: seven report an internationalisation strategy under development, two did not answer. Only four report not having an internationalisation strategy.

An additional exploratory analysis of the factors, however, yielded some interesting insights that might lead to further research. Desiderata are presented in the discussion. Table 1 and 2 show selected results.

A strong correlation at a level of $p=.001^{**}$ can be noted for the appreciation of quality “made in Germany” and the presence of German industry in the project countries. Another strong correlation, here, links quality and the practical demonstration of VET content.

Within our sample, a moderate negative correlation ($p\leq 0.005^{*}$) between German companies abroad (as e.g. cooperation partners or customers) and the flanking by political actors is given. Opposed to this finding, there is a strong relation between political marketing and the perceived cross-departmental coordination of supportive associations or actors. The mean value itself suggests that those who do not use political marketing also do not notice a crossover coordination of relevant institutions in the funding context (German and international). If education cooperation agreements were targeted at a national level, this aspect would have to be deepened.

Table 1

Correlation matrix of the internationalisation drivers

	D2 Presence of German industry	D4 Practical content demonstration	D7 Flanking by political actors	D8 Cross-depart. coordination	D12 German companies abroad	D12 Associations of project country
D1 Quality appreciation	.789**	.542**			.425*	
D3 Modularisation			.400*			
D6 Political marketing				.734**		.406*
D12 German companies abroad			-.419*			
D13 Companies of project country				-.482*		

Legend. *correlation significant at level .05 (2-tailed); **correlation significant at level .01 (2-tailed)

There was no relation found between customer integration and the design of relationships e.g. with modularisation or network items. This was, however, an expected result due to the important role of customer integration in business model development (Fährnich & Optiz, 2003).

Regarding the obstacles, a certain number of strong correlations were observed. Most of them related to communication and market aspects (cf. Table 2). Many respondents cited challenges with communication (O3) as well as distance to the target market (O6) and sustainable implementation (O8.1). Respecting the mean values, we can state that those actors, who rather do not experience communication problems, do not see such in terms of distance and implementation possibilities. A focus on this indicates that the enterprises actively avoid it to become a problem – meaning a target market-oriented planning in advance and, therefore, possibly indicating a developed internationalisation strategy.

Table 2 shows a medium negative correlation ($p\leq 0.005^{*}$) between the lack of acceptance of VET (O1) and a limited pricing power (O5). Respecting the mean values, this can be read as the more the acceptance of VET in the project country is lacking the less the price-setting power is limited. This could indicate that the higher the lack of acceptance of VET appears the less pricing opportunities are perceived at the target market.

Table 2
Correlation matrix of the internationalisation obstacles

	O5 Pricing power limited	O6 Distance to target market	O8 Sustainable provision of the service	O82 Project planning	O9 Customs and visa regulations
O1 Lack of acceptance of VET	-.377*				
O3 Communication difficulties	.396*	.721**	.573**		.438**
O4 Lack of technical infrastructure				.559*	
O7 State dominance in education sector			.704**		.530**
O8.1 Legal uncertainties in the sustainable provision of the service					.511*

Legend. **correlation (p) significant at level .05 (2-tailed); *correlation (p) significant at level .01 (2-tailed)

5 Discussion

The research questions can be answered as follows: (1) the drivers and obstacles for the development of international VET services as identified by the MOEZ for the BEX funding line are valid for the IBB context as well. However, there are some reservations. A larger sample that goes beyond the funding context and includes all kinds of VET providers might reach a better internal consistency and, through that, a better empirical foundation.

Concerning research question (2) we found that especially the hindering factors are less important for the IBB-projects than highlighted by the MOEZ results. For most of the expected obstacles, the results of the online survey suggest that they are potentially important for the transfer of VET but have rather low relevance in our sample. Here, two explanations are feasible: First, the research context of the funding line IBB is a successor of the funding line BEX. Thus, project actors might have learned from the former context and potential obstacles could have been taken into account when planning a new project. Second, it could be that the changed focus of the funding line IBB (transfer of VET through business models and development of educational cooperation) compared to the previous funding directive (export of VET, BEX) has made other factors more important.

Specific findings for this research were that communication and customer integration factors becoming more important than found by former research. This is an important aspect regarding the further development of research instruments.

Moreover, profitability appeared to be an important aspect. It is inherent in the development of business models to be profitable. This aspect might work for market-related business models. However, the education sector contains not only private education offers, but also state-run education. If projects aim to transfer VET services to a public education sector, profitability appears at least questionable as an indicator for a successful implementation of VET services. The evaluation made by the participants of the survey highlights this aspect as a challenge.

Based on the participants' answers concerning the availability of an internationalisation strategy in many cases, it can be conservatively assumed that the participating enterprises were well prepared for the transfer of VET services. The findings also point to transfer activities based on certain conditions, e.g. clear customer segments, often with a German background

(German companies abroad). We found a strong correlation of appreciation of quality “made in Germany” with the presence of German industry in the project countries as well as with practical demonstration of VET content. One explanation might be the proximity of German education transfer, its actors and the companies in the target country, which are often German companies, as the survey data show. Another explanation might be the perceived image of German VET in the project countries. Assumed reputation of VET for example could work as a motor for the transfer activities (cf. Kühn, 2020). The negative correlation of lacking acceptance regarding VET in the project country and a limited pricing power might indicate that even if there is little acceptance of VET in the project country in general, however, this does not influence the pricing opportunities. This could suggest a clear customer segment or agreement and no need to compete with other providers at the market. The export component could be achieved, however, without effecting the VET infrastructure in the project country.

Related to the drivers it can be said, that the conditions to transfer VET are conducive in terms of external presence. The actors are aware of the necessity to adapt VET services to the local or national requirements in the projects’ target country. The negative correlation of German companies abroad and existing political support in Germany as well as in the project country is a notable result at this point. It could indicate that the more a VET service transferring approach targets German industry abroad, the less political support is given. Yet, we do not know, whether political support would be a driving factor or not. If an enterprise has its customers fixed with no or rather no intention to effect public infrastructure, there might be no need to involve political actors. It could also mean that the market entry strategy does not involve political support. This approach would indicate a strategy based on “known” customers and, through that, relativize the reported importance of customer integration. However, this aspect needs further research.

The role of certification is not as high as expected, while it is noteworthy that political support is often perceived weak. Particularly with regard to the continuity of educational services, it must be taken into account that sustainability can originate from a monetarily oriented business model on the one hand, but can also be a non-monetary part of the further development of an educational system or social capital on the other hand. The latter would require the appropriate involvement of political actors. This aspect should be deepened in further research.

6 Limitations

Our study yielded important results, but they also have to be seen in the light of its limitations. A first limitation is the context itself. Since the funding line represents the environment of the study, the possibility of socially desirable statements by the participants cannot be excluded. Secondly, there is only limited generalizability of the findings due to the small sample and the funding context. However, in relation to the aim of limiting the analysis on the IBB funding line as the population, the response rate justifies to give valid statements about the effect of drivers and obstacles within the funding line. Future research with larger samples of VET providers and analysis of VET transfer activities beyond German actors are considered necessary to further solidify the effect of the MOEZ drivers and obstacles towards internationalisation. The validity of those variables in a broader sample could give valuable insights into VET transfer processes generally.

7 Conclusion

Although this study has limitations, it provided insights into the design of VET transfer, the perception of the funding and transfer environment and the intensity with which an internationalisation strategy is pursued. Until now, there are not enough scientific studies on the subject of business models in the VET sector. There is still a high demand in this field due to changing environmental conditions, e.g. technological change. This study has contributed to fill this gap,

albeit within the limited scope of the IBB funding line. Relevant findings for international VET services are the emphasis of communication, cooperation and profitability as highly relevant factors for transfer processes, even though the funding line limits the significance or transferability of the results. At the political level, it can be discussed to what extent (expanded) cross-national political cooperation can respect the time factor. Still, there is a lack of evidence with regard to the success of business models and related promoting factors. Moreover, and maybe even more important, there is almost no evidence concerning those factors that would drive a system improvement. The question, how a VET cooperation could be of added value for the project countries as aimed by the funding line, has not yet been clarified. This research question would lead the market-oriented approach used in this study to a scope with capacity building.

References

- Bundesministerium für Bildung und Forschung. (2016). *Bekanntmachung: Richtlinie zur Förderung der Internationalisierung der Berufsbildung*. Bundesanzeiger vom 27.09.2016 [Announcement: Guideline towards the internationalisation of vocational education and training]. <https://www.bmbf.de/foerderungen/bekanntmachung-1253.html>
- Fraunhofer-Zentrum für Mittel- und Osteuropa. (2012). *Treibende und hemmende Faktoren im Berufsbildungsexport aus Sicht deutscher Anbieter* [Driving and inhibiting factors of vocational and educational training export perceived by German providers]. Fraunhofer MOEZ. <https://docplayer.org/28162853-Treibende-und-hemmende-faktoren-im-berufsbildungsexport-aus-sicht-deutscher-anbieter.html>
- Fährlich, K.-P., & Optiz, M. (2003). Service-Engineering – Entwicklungspfad und Bild einer jungen Disziplin [Service engineering - development path and image of a fledgling discipline]. In H.-J. Bullinger & A.-W. Scheer (Eds.), *Service Engineering. Entwicklung und Gestaltung innovativer Dienstleistungen* (pp. 83 – 116). Springer Verlag.
- Hilbig, R. (2019a). *Internationale Geschäftsmodelle von Berufsbildungsdienstleistern. Geschäftsmodellinnovationen unter Berücksichtigung der Dynamic Capabilities* [International business models of vocational training service providers. Business model innovations taking into account dynamic capabilities]. Springer Gabler.
- Hilbig, R. (2019b). Geschäftsmodellinnovationsprozess – Vom nationalen zum internationalen Geschäftsmodell [Business model innovation process – From a national to an international business model]. In DLR Projektträger (Ed.), *Berufsbildung International. Geschäftsmodellentwicklung* (pp. 28–31). AZ Druck.
- Kutschker, M., & Schmid, S. (2011). *Internationales Management* [International Management] (7th ed.). Oldenbourg Wissenschaftsverlag GmbH.
- Kühn, I. K. (2020). Duale Berufsausbildung – ein attraktives Angebot aus Deutschland? [Dual vocational training - an attractive offer from Germany?]. *berufsbildung*, 74(183), 8–10.
- Osterwalder, A., & Pigneur, Y. (2013). *Business model generation. A handbook for visionaries, game changers, and challengers* (1st ed.). Wiley.
- Porter, M.E. (2013). *Wettbewerbsstrategie – Methoden zur Analyse von Branchen und Konkurrenten* [Competition strategy - methods for the analysis of industries and competitors] (12th ed.). Campus Verlag.
- Posselt, T., Abdelkafi, N., Radić, M., & Preissler, A. (2019). Berufsbildungsexport. Zentrale Bausteine der Geschäftsmodellentwicklung [Export of vocational training. Central building blocks of business model development]. In M. Gessler, M. Fuchs & M. Pilz (Hrsg.), *Konzepte und Wirkungen des Transfers Dualer Berufsausbildung* (pp. 163–196). Springer Fachmedien VS.
- Saebi, T., Lien, L., & Foss, N. J. (2016). What drives business model adaption? The impact of opportunities, threats and strategic orientation. *Long Range Planning*, 50(5), 567–581. <https://doi.org/10.1016/j.lrp.2016.06.006>
- Wiemann, K., Li, J., Wiemann, J., Fuchs, M., & Pilz, M. (2019). „Lost (in) VET“: Zum Stand der Transferforschung in der internationalen Berufsbildungszusammenarbeit aus Sicht verschiedener Wissenschaftsdisziplinen [Lost (in) VET": To the booth transfer research in international vocational training cooperation from the perspective of various academic disciplines]. In M. Gessler, M.

- Fuchs & M. Pilz (Eds.), *Konzepte und Wirkungen des Transfers Dualer Berufsausbildung* (pp. 13–58). Springer Fachmedien VS.
- Wolf, S. (2017). International TVET transfer project - Theoretical-practical experiences of workplace training with the workforce in the Egyptian construction industry. In M. Pilz (Ed.), *Vocational Education and Training in Times of Economic Crisis* (pp. 439–459). Springer International Publishing.

Biographical notes

Dr **Ida Kristina Kühn** is a post-doctoral researcher at the Institute Technology and Education (ITB) at the University of Bremen. Her research interest focuses on transition system between school and work/apprenticeship and dropout, social competence, teaching and learning in adult and vocational education in national and international contexts, vocational service engineering research and design-based research.

Dr **Susanne Peters** is a post-doctoral researcher at the Institute Technology and Education (ITB) at the University of Bremen. She studied Economics at the University of Cologne (M.Sc. Economics). Her research interests focus on educational economics and vocational education and training systems in different countries.

Dr **Larissa Holle** is a post-doctoral researcher at the Institute Technology and Education (ITB) at the University of Bremen. Her research work focus on Comparative Vocational Education and Training with special emphasis on in-company learning and training in Asian countries.

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Working on Positive Age Images in Germany – Adult Education as a Room for Responsibility and Commitment

Kulmus, Claudia

Humboldt-Universität zu Berlin, claudia.kulmus@hu-berlin.de

Abstract

The paper discusses the role of adult education in creating positive age images. It is based on the results of a qualitative research study about subjective ageing experiences and the respective coping strategies of elderly people. Ageing in this paper is problematised in terms of age images and the underlying social structures that actually promote social exclusion of the elderly. On the basis of the empirical findings the paper discusses some initiatives that offer new opportunities to engage and to take responsibility that allow people to remain connected to society even after retirement. Adult Education and research can not only offer participation in courses, but act itself as a kind of employer for the elderly. They can engage as trainers and consultants, doing educational work. By this, Adult Education can contribute to work on positive age images.

Keywords

age images; learning; later life; adult education; citizen science

1 Introduction

Ageing as a research topic is of high significance in European societies, where demographic change leads to an increasing number of elderly people and therefore to specific dynamics of social relations between certain groups (Walsh et al., 2017; Kneale, 2012). Educational science and especially adult education have also been dealing with the topic more intensively for several years. But it is only recently that not only the topics of vocational training and employment has been addressed, but also questions of inclusion, responsibility and social commitment after retirement (Schmidt, 2011; Walsh et al., 2017).

For many years, the discourse about ageing was dominated by a deficit perspective (BMFSFJ, 2010), which was based in negative images of age (e.g. the adolescence-maximums-hypothesis, *ibid.*). In the meantime, however, politics and research have started to emphasize the capacity and the potential of people in later life. It focuses more on the fact they can actively shape their lives and use their potential. However, the very terms "older people", "elderly" or even "young old" imply the attribution of a special status, a special role of this group of people. The discourse therefore still remains in the logic of (economic) productiveness, which leads to a demarcation line for the attribution of a special role. That is why elderly people are particularly addressed as "young old people" in their potentials of participation and social commitment.

Yet, older people are quite resistant to being appropriated for welfare purposes, such as reducing the costs of financial engagement in social areas. It is therefore important to ask openly how older people experience their situation and, on this basis, to find out where they see opportunities for (self-determined) participation and assumption of responsibility. Only on that basis it will be possible to find adequate ways of reconnecting communities. On that basis we can then ask, which role adult education and science can play in offering possibilities of reconnection. The paper therefore concerns the following three research questions:

1. How do older people experience their own situation of ageing?
2. How do they deal with these experiences and which ways of participation do they use?
3. Which role can adult education and science play in reconnecting people in later life and in promoting positive age images?

To discuss these questions, I will firstly recapitulate the connection between age images and the specific structure of modern (German) society that provokes social exclusion of retired people. I will then present a study about subjective ageing experience and coping strategies of elderly people. Finally, I will present some initiatives and opportunities by which adult education can contribute to social inclusion and to realizing new age images.

2 The gap between positive age images and the social structure of meritocracy

The discussion about images mainly refers to individual opinions and attitudes towards old age and towards older people (BMBF, 2010). Secondly, it includes collective and institutional images of old age, developed and reproduced by institutional practices. Thirdly, it addresses the central question of how societies deal with old age and what kind of structures and opportunities they offer to not exclude older people (Kulmus, 2019).

2.1 Age images between deficits and potentials

The discussion about age images has always been strongly polarized (Göckenjan, 2009). Negative and positive images are still being contrasted as opposites, although research results have long since emphasized and empirically proven the complexity of images of age (Schmitt & Kruse, 2005).

The background of negative images of old age lies in what gerontologists call biological age, which is associated with degradation processes at the biological or even cellular level. Ageing in that view is described as the (partly) reduction of physical and even mental abilities. The so-called adolescence-maximus-hypothesis states that human intelligence performance peaks at around age 20 and then irreversibly decreases (Lehr, 2007). But this hypothesis was developed on the basis of various methodologically problematic intelligence tests and has long been considered obsolete. Instead, gerontological research offers a differentiation between fluid intelligence and crystalline intelligence. While fluid intelligence describes the processing speed of the brain and may be declining in older age, it is different with crystallized intelligence. Crystallized intelligence includes general knowledge, know-how, vocabulary, language comprehension, etc., and it serves to cope with practical life (or professional) tasks. Crystallized intelligence may not only be retained in old age but may even increase (Lehr, 2007).

Hence, in contrast to the deficit-oriented perspective, a discourse of active ageing and potentials of later life not only came up but even has become dominant in recent years. It refers to both the empirical reality and the political programmatic of active ageing. While the latter contains a strong idea of productivity, the former is based on empirical knowledge about today's generations of older people: On average, their life expectancy has increased, they have a good health and education level, but in return they retire relatively early and still have a long time to

live. They can actively shape their life and develop and realize their potentials. However, losses that nevertheless go hand in hand with ageing are often ignored in this discourse.

Indeed, images of age are much more complex than the dichotomy deficit vs. potential suggests. Although studies on individual images of age constantly show clear correlations between age images and well-being, mental health or participation in learning activities, gerontologists stress that images of age are much more ambivalent than is usually communicated. Depending on the type of survey and the type of question, a wide variety of stereotypes can be activated in a person (there is a multitude of ideas and attitudes about age). Hence, depending on the situation, people activate different stereotypes and ignore others (Schmitt & Kruse, 2005). The question of age stereotypes thus remains on the level opinions about ageing. But they do not necessarily guide action. This raises the question, why despite the rise of positive age images, we still observe and experience the exclusion and disconnection of older adults, especially after retiring. To do this, we need to look at fundamental structural conditions that frame our lives, opinions and actions.

2.2 Meritocracy as a structural cause for exclusion of elderly people

The societal background to the exclusion of older adults lies in the structure of modern competitive societies. In these, recognition and dignity are based on ideas of performance and achievement mainly in work contexts (Göckenjan, 2009; Denninger et al., 2014). One of the most important authors in Germany dealing with recognition theory is Honneth (2008). He argues that recognition is closely connected with work and, that is a crucial idea of the theory, with gainful employment. That means that work – if it should not be seen as a privately autonomous activity - must be organized and structured in a certain way in order to be worthy of wage and social recognition. Work has to make a contribution to the social division of labor by the social exchange of individual performance. In this way, however, the labor market can no longer be seen only from the functionalist perspective of increasing economic efficiency but must also perform the function of social integration (Honneth, 2008). According to Honneth (2008) with reference to Émile Durkheim, an organic solidarity arises then from the division of labor, because the members of society know that they are related to each other in the mutual recognition of their respective contributions to the common prosperity (Honneth, 2008).

This idea includes some moral standards that are inherent to modern working societies. Firstly, this is a generalized obligation to contribute to the well-being of all through one's own work, and to develop one's own abilities in order to increase general wealth. Secondly, it is an expected return, which is the right to economic independence through a (minimum) wage (Honneth, 2008).

This makes it clear that retirement as the end of that gainful work as a caesura in the life course and the discourse on images of age are closely intertwined: The assumption of a declining performance, which is the core of negative age images, seem to justify the exclusion from labor market. It therefore creates a structural situation of disconnections within societies: There is a boundary created in the life course, which releases older people into a new phase of life and thus ascribes them a special status as “the old ones”, which lacks a basis for participation and recognition (Kulmus, 2018).

On the individual level, this phase of life is characterized by great freedom, but at the same time it runs the risk of depriving individuals of the opportunity to develop their knowledge and skills, their experiences and their potentials. Non-specific activity requirements for older people, such as those that dominated at least the beginnings of aging education (encouragement to be active in geriatric gymnastics and brain jogging, pure leisure activities, etc.) are partly devalued by older people themselves as trivialities without any meaning (Kulmus, 2018), because they cannot see any social relevance in them. Instead, they get the impression of being “parked” in their special status. They are supposed to keep busy and healthy, so as not to be a burden on

the social system, but the social structures do not offer opportunities for real (which means relevant) participation. This is where the study referred to in this paper started. It asks, how older people themselves experience this situation and how they deal with it.

3 Methodology

The study was about subjective ageing experience of elderly people and their coping strategies. A special focus was put on learning and participation in adult education as one strategy. Five group discussions had been conducted with a total of 31 people who were between 58 and 84 years of age. The group discussions lasted between 60 and 105 minutes and were held in courses given in senior citizens' centres in Berlin, Germany, such as Philosophy, Qigong and Taichi, Handcrafts and Painting. These community centres offer the advantage of "real-life groups" (Lamnek, 2005), which, however, – being rather places of encounters instead of education – can only be considered adjunctive to "education", thus allowing for rather open discussions on the experience of the ageing process.

Furthermore, group discussions have the advantage of stimulating elderly people to talk to one another and accordingly create openness for spontaneous topic decisions by the elderly themselves, something interview situations do not allow for (Lamnek, 2005). Hence, some ideas of the method of problem-based interviews (Witzel, 2000) had been adopted: Previous knowledge can be organized and included in the process of data collection as well as it allows an openness for empirical observations (Witzel, 2000). The previous knowledge is then organized as a heuristic-analytical framework for asking adequate questions in the research-interaction. Therefore, the researcher brought some topics into the discussion that were essential regarding the research interests, such as questions around the fields of (end of) employment, of body experiences and of finiteness as criteria of ageing. In contrast to the very common use of group discussions (Bohnsack, 2012) it was not intended to explore group differences, but it was rather the above-mentioned reasons that lead to this method of data collection. Four group discussions were subjected to more in-depth analysis, based on Strauss and Corbin's Grounded Theory Model (Strauss & Corbin, 1996). After showing categories of the subjective ageing experience, strategies of coping with these experiences have been revealed. Finally, the functions of participation in adult education has been worked out.

4 Empirical findings: dealing with ageing experiences as a learning process

4.1 Strategies of dealing with ageing

As a result, the study shows seven different strategies of dealing with ageing, such as, among others, selfcare, counteracting, ease, maintain control about life and death. More detailed, these strategies have been developed in Kulmus (2018), but what is important in the context of this paper, is, that the coping strategies first can be interpreted as learning processes, and that they therefore can be supported by adult education offers. Secondly, in an overarching perspective, this learning is oriented towards maintaining, expanding or even regaining identity and – as a crucial aspect of identity – recognition in the face of age-specific risks. They strive for loving acceptance of their aging self, for personal resonance and to expand their own life possibilities. They also demand opportunities for development in order to preserve one's own feeling of being alive. People demand that they are able to learn and participate up to old age and that they are still able to take responsibility. In this way they maintain their claims to recognition.

At the same time, these coping strategies reflect negative experiences of aging, to which they respond: these are physical or mental limitations, the fear of a painful end of life and the loss of joy and lightness due to growing difficulties in daily activities. It is also the experienced devaluation by others due to loss of ability, the structural exclusion from work contexts and thus also an imminent loss of roles and responsibilities, hence, the fear to become invisible that

makes ageing risky. Last but not least, feelings of being at the mercy of other people or of the health system are being discussed in the empirical setting (Kulmus, 2018), .

The elderly people do not only trivialize their physical limitations but even taboo them, so as not to belong to the typical ("always whining") old people. Through humorous and ironic discussions about ageing they create a distance to it and they seek for possibilities of physical lightness such as senior dances or humorous evening events. But at the same time, they also work on more self-care and self-reflection and they also experience the freedom of this phase of life. This is precisely where the ambivalence of old age becomes apparent, as it is not subjectively assessed either positively or negatively, but rather as a time when both are always present at the same time (Kulmus, 2018).

What is decisive now is, how adult education can support individuals in shaping this new phase of life, in balancing positive and negative experiences and therefore in working on positive but realistic age images that are an expression of inclusion and social cohesion.

4.2 The role of participation in adult education courses

Against this background of dealing with older age, participation in courses or informal group settings, such as those offered by adult education centers or senior citizens' meeting places, become much more important than it might seem at first glance. These institutions offer the opportunity to learn together in a voluntary, but reliable context. The institutional structures are strong: there are fixed and permanent appointments, relatively fixed groups and defined topics, but also the possibility to add new ones – according to the interest of the participants. These structures provide stability and commitment, the occupation with specific topics (philosophy, literature, qigong, but also discussions about daily politics or everyday life) not only allow distraction from age-specific worries, but also ensure staying in contact with “the world” (Kulmus, 2018). They allow participation at least through intellectual occupation even when mobility is reduced. It is thus a means of preventing a retreat into loneliness and eccentricity. In addition, some groups enable a considerable development of professionalism. For example, in the acrylic painting group, participants develop productivity and performance and even manage to exhibit and sell their paintings at public places, which is a source of recognition.

Furthermore, these adult education institutions are also a place of physical encounter where an accepting communication and personal resonance can be experienced instead of exclusion due to physical limitations (e.g. language difficulties after a stroke). And finally, they enable older adults to acquire new knowledge and to further develop their previous opinion, their biographical background, thus also to free themselves from biographical constraints. For this reason, too, participation in such offerings is also a means of identity development and recognition, or, in other words, dignity.

5 Perspectives: the role of adult education in working on positive age images

Based on these results, we can ask how the role of adult education can be thought even further regarding the development of a society, in which the reconnection of communities, commitment and responsibility of elderly people and inclusion become real. What is needed, are activities that actually make participation and dignity possible in accordance with the social value and recognition structures. This presupposes that they make a visible and meaningful contribution to society and thus make it possible for people to position themselves in the social context. Despite all the right to retire into a little more private life, identity and individuality cannot be developed and maintained in isolation, but are always referred to others, to social contexts and to the possibility to be seen and recognized. This is precisely where the social challenges lie and where adult education and even research can make a substantial contribution. There can be identified several fields of activity, where adult education and research can engage and play a crucial role, such as supporting senior trainer and senior counseling work, voluntary work,

citizen science activities and also by including and reconnecting older people through gerontological action research.

Firstly, referring to research, it would be very helpful to include older people more into research, especially into gerontological research. To find out how older people really experience their ageing, physical limitations, social exclusions etc. it is crucial to ask them about it. And because there is still a lot to do when it comes to changing societal age images or even the social structures that lie behind them, it is important to develop new perspectives, new visions of how we want to live together. For this we must include older people themselves in research and development work. Adult education research offers some specific adaptations of action research methods (Reason, 1994) that combine group discussions with creative elements (Bremer, 2001; Grell, 2006) and different actors (e.g. elderly people, adult educators, politicians). This allows not only for developing new visions (e.g. by creating collages about a “good life”), but it also can bring together different perspectives on a topic. This also includes reporting the results of the research back to the actors involved and developing strategies for action on this basis.

Another type of research-related initiatives has been promoted during the last years. There is a growing number of citizen-science-projects, that invite older adults to research not only about ageing, but actually about any topic that is worked on at a university. Such projects exist in a wide range of subject areas, from linguistics, astronomy and biology to history and archival research (Michel-Alder, 2019). No formal scientific degree is required to take part, although older people with university experience are more likely to participate. Usually, this activity is also voluntary and can be carried out at flexible times. The contribution to research can also be significant (ibid.). Any necessary qualifications for the respective research activity are offered by the university in charge of the project. This kind of research activity opens up a specific chance of knowledge about the world and allows participation in diverse social groups (students, scientists etc.). Research is always associated with temporary uncertainty, with discovery, with curiosity and with learning, and at least at citizen science it takes place in a community. It therefore can open up further learning opportunities offered by the university (Faulstich, 2003).

Secondly, knowledge-intensive fields of activity such as adult education itself or counseling offer considerable potential to apply and further develop the “crystallized” intelligence of older people and to reconnect with others. They are mainly organized as voluntary work. In Germany, for example, so-called senior citizens’ offices have been established. They place older people in voluntary work opportunities in their respective region. Older people are also active in the Senior Trainers initiative (<http://www.seniortrainer.org/>). on a voluntary basis in various roles: as project developers and managers, as consultants, as trainers etc. Furthermore, there is a Senior Expert Service (SES) that primarily places retired specialists and executives in advisory and training positions abroad (<https://www.ses-bonn.de/startseite>). Last but not least, there are industry-specific agencies, such as in the automotive industry: experts from the economy can engage as interim managers (<https://www.ase-automotive.com/>) in certain projects or periods of transitions in enterprises. Unlike the above-mentioned initiatives, this activity is organized as a freelance activity, not on a voluntary basis.

All these activities have in common, that they build on the experience of older people and enable them to expand it. In addition, this kind of activity allows people to remain involved in socially relevant contexts and with other people. It allows them not completely to be excluded from the social division of labor. They can therefore contribute their knowledge and skills and find their place in the world. Adult education can support such activities by offering qualification programs for being a trainer, consultant or project manager. In some of these activities, it is obligatory to take a course before starting to work. In this way, the quality of the activity can also be assured, even if it is carried out on a voluntary basis.

In summary, continuing education and training providers are called upon not only to promote participation in Adult Education courses, but also to support older people in maintaining and updating their skills, to prepare them for new activities and to impart the new skills required for this. Adult education can even become an employer – maybe on a voluntary basis – for older adults as trainers and consultants. In addition, adult education institutions can also assist in the development of new fields of activity by providing orientation and support for the search movements that older people may need to undertake. And last but not least, they are required to observe and question the existing images of old age in their own institution, for example how they deal with their own older employees and what kind of age images they transfer in their courses.

The voluntary nature of most activities can, however, also be viewed critically: On the one hand, it fulfils the need of many older people to work flexibly and according to their own measurements, i.e. largely self-determined. At the same time, the remuneration is also a symbol of social esteem (Kulmus, 2016), and for this reason the exclusion problem remains to a certain extent. Older people retain a special role, since voluntary commitment always has a certain nice-to-have character. Hence, it should at least become more important to make such activities really visible to others and to reflect and acknowledge the social value of such activities publicly – that might contribute to a new understanding of what kind of activities should be valuable in our society.

The contribution of adult education to that issue presented in this last chapter is an expression of a new role that adult education can take in realizing positive age images: that society and the elderly themselves have set out to open up such fields of activity and thus create real spaces for participation, recognition and self-development even in old age. The above-mentioned initiatives and fields of activity show that adult education is on the way along this path.

References

- BMFSFJ. (2010). *Altersbilder in der Gesellschaft: Sechster Bericht zur Lage der älteren Generation in der Bundesrepublik Deutschland*. <http://www.bmfsfj.de/RedaktionBMFSFJ/Pressestelle/Pdf-Anlagen/sechster-altenbericht,property=pdf,bereich=bmfsfj,sprache=de,rwb=true.pdf>
- Bohnsack, R. (2012). Gruppendiskussion. In U. Flick, E. von Kardorff & I. Steinke (Eds.), *Qualitative Forschung: Ein Handbuch* (pp. 369–384). Rowohlt.
- Bremer, H. (2001). *Zur Theorie und Empirie der typenbildenden Mentalitätsanalyse*. <https://www.deutsche-digitale-bibliothek.de/binary/IUPV7GCIUZGQEAB2G246OAMOPA5Y26EL/full/1.pdf>
- Denninger, T., van Dyk, S., Lessenich, S., & Richter, A. (2014). *Leben im Ruhestand: Zur Neuverhandlung des Alters in der Aktivgesellschaft*. Transcript.
- Faulstich, P. (2003). Wissenschaftliche Weiterbildung und "Universität des 3. Lebensalters". *Hessische Blätter für Volksbildung*, 3, 245–253.
- Göckenjan, G. (2009). Vom "tätigen Leben" zum "aktiven Alter": Alter und Alterszuschreibungen im historischen Wandel. In S. van Dyk & S. Lessenich (Eds.), *Die jungen Alten: Analysen einer neuen Sozialfigur* (pp. 235–255). Campus Verlag.
- Grell, P. (2006). *Forschende Lernwerkstatt: Eine qualitative Untersuchung zu Lernwiderständen in der Weiterbildung*. Waxmann.
- Honneth, A. (2008). Arbeit und Anerkennung: Versuch einer Neubestimmung. *polar-zeitschrift.de*. 4. http://www.polar-zeitschrift.de/polar_04.php?id=175
- Kneale, D. (2012). *Is social exclusion still important for older people?* <https://discovery.ucl.ac.uk/id/eprint/1491321/>
- Kulmus, C. (2016). Ruhestand als Ende der Erwerbstätigkeit – „Alter“ als Ende von Arbeitsorientierung? *BWP@ Spezial*, 12. http://www.bwpat.de/spezial12/kulmus_bwpat_spezial12.pdf
- Kulmus, C. (2018). *Altern und Lernen: Arbeit, Leib und Endlichkeit als Bedingungen des Lernens im Alter*. wbv.
- Kulmus, C. (2019). Positive Altersbilder. *Education Permanente*. 4, 3–6.
- Lamnek, S. (2005). *Gruppendiskussion: Theorie und Praxis*. Beltz.

- Lehr, U. (2007). *Psychologie des Alterns*. Quelle & Meyer.
<http://www.gbv.de/dms/bs/toc/521371457.pdf>
- Michel-Alder, E. (2019). Wissen schaffen. *Education Permanente*, 4, 24–26.
- Schmidt, B. (2011). Altersbilder und ihre Bedeutung für ältere Arbeitnehmerinnen und Arbeitnehmer. In B. Seyfried (Ed.), *Ältere Beschäftigte: Zu jung, um alt zu sein: Konzepte - Forschungsergebnisse - Instrumente* (pp. 21–32). wbv.
- Schmitt, E., & Kruse, A. (2005). Zur Veränderung des Altersbildes in Deutschland. *Aus Politik und Zeitgeschichte*, 55(49–50), 9–17. <http://www.bpb.de/apuz/28637/zur-veraenderung-des-altersbildes-in-deutschland?p=all>
- Strauss, A., & Corbin, J. (1996). *Grounded Theory: Grundlagen Qualitativer Sozialforschung*. Beltz.
- Walsh, K., Scharf, T., & Keating, N. (2017). Social exclusion of older persons: A scoping re-view and conceptual framework. *European Journal of Ageing*, 14(1), 81–98. <https://doi.org/10.1007/s10433-016-0398-8>
- Witzel, A. (2000). The problem-centered interview. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 22. <http://nbnresolving.de/urn:nbn:de:0114-fqs0001228>

Biographical notes

Dr **Claudia Kulmus** is a postdoc research associate at Humboldt-Universität zu Berlin. Her research fields are Participation in Continuing and Adult Education, Learning Theory, Learning in Later Life, Professionalisation in Continuing and Adult Education.

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On the Dominance of the Apprenticeship-System in Switzerland. Insights into Governance Mechanisms in the Institutionalisation of Upper-Secondary-Education

Leemann, Regula Julia

School of Education, University of Applied Sciences Basel-Muttenz, regula.leemann@fhnw.ch

Esposito, Raffaella Simona

School of Education, University of Applied Sciences Basel-Muttenz, raffaellasimona.esposito@fhnw.ch

Imdorf, Christian

Leibniz Universität Hannover, c.imdorf@ish.uni-hannover.de

Abstract

The aim of this paper is to reconstruct governance mechanisms that are responsible for the fact that, despite international trends towards the academisation of education, in Switzerland the apprenticeship-system has remained dominant in comparison to a more general school-based pathway. To this end, we analyse how, in the process of institutionalisation of upper secondary education from 1970 onwards representatives and advocates of dual VET intervened against the institutionalisation of the Specialised School – a more general education-oriented and school-based education – as a third federally recognised educational pathway. To analyse the governance processes that underlie these educational policy debates, we apply the social mechanisms and logics described by Mahoney (2000) that can explain both reproduction and path-dependent development as well as institutional change and reconstruct them for two situations of central historical importance.

Keywords

apprenticeship; general education; specialised school; governance mechanisms; path dependency

1 Introduction

Upper secondary education in Switzerland is characterised today by three federally recognised educational pathways: VET mostly organised as apprenticeships, baccalaureate school and specialised school (SpS). Despite international trends towards the academisation of education (Harwood, 2010), two third of young people begin a VET programme what is high compared to the situation in other countries (OECD, 2015).

In order to understand this dominance of VET, this paper examines governance processes in the institutionalisation of an upper secondary education system. We reconstruct social

mechanisms of the coordination of action between actors in general education and VET in these political processes beginning in the late 1960s.

VET has been the dominant post-compulsory educational pathway since as early as the end of the 1960s. Around 46% of 19-year-olds at that time completed an apprenticeship, 6% a baccalaureate school and 2% a SpS. However, VET and SpS were not yet integrated into the federal education system. VET fell within the purview of the Federal Department of Economic Affairs. Specialised schools were a very heterogeneous type of schools in larger cities and not yet recognised by the federal government. They took on an important bridging function by providing young women with an extended general education for two to three years to prepare them for PET college courses in the fields of health, social work, and pre-school education.

Triggered by the expansion of the education system and international pressure to clarify and coordinate the various educational pathways (Rosenmund, 2011), there now began a process of implementing a post-compulsory school level, which lasted for the following four decades (Criblez, 2001; Zulauf et al., 2000).

This situation led to a new demand for cooperation between the responsible actors. However, they represented two different systems embedded in different institutional contexts (Harney & Zymek, 1994; Baethge, 2006) — general education, whose organisation was school-based and governed by the cantons, and VET, which was primarily organised as apprenticeships and governed jointly by the Confederation, employers' organisations and the cantons. As a result, the representatives of the two educational pathways pursued different interests and were guided by different values and logics.

This paper focuses on governance processes in the institutionalisation of upper secondary education. The aim is to analyse the *social mechanisms of the coordination of action that are responsible for the fact that, despite international trends towards the academisation of education, in Switzerland the apprenticeship system has remained dominant compared to a more general school-based pathway.*

To this end, we analyse how, in the disputes over the positioning of the various post-compulsory educational pathways, representatives and advocates of dual VET intervened against the institutionalisation of the SpS as a third federally recognised educational pathway and attempted to limit its significance.

To analyse the social mechanisms of the coordination of action that underlie these educational policy debates, we make reference to neo-institutionalism and the path dependency theorem (Edelstein, 2016). Specifically, we apply the social mechanisms and logics described by Mahoney (2000) — utilitarian, functional, power and legitimation, which can explain both reproduction and path-dependent development as well as institutional change — to the analysis of governance processes. With respect to our object of investigation, we analyse the process of institutionalisation of the SpS in order to answer the following questions:

1. Which social mechanisms of the coordination of action explain the persistence of the dominance of the apprenticeship system?
2. What were the driving forces that enabled, despite the resistance of representatives of VET, that ultimately led to the institutionalisation of the SpS?

We will reconstruct, for two situations of central historical importance, the social mechanisms and logics that underlay the coordination and negotiation processes between VET and general education around the institutionalisation of SpS as a third educational pathway.¹ The

¹ All data were collected as part of the research project “The Upper-Secondary Specialised School as an Independent Educational Pathway alongside VET and Baccalaureate School – Processes and Outcomes of Its Positioning and Profile Development”, funded by the Swiss National Science Foundation (SNF-100019_162987) 3/2016–8/2019.

first situation concerns the 1970s, when the implementation of the SpS was initiated by the Swiss Conference of Cantonal Ministers of Education (EDK). The second situation concerns the 1990s and 2000s, when the function of the SpS was again under discussion in the context of major reforms in VET and the higher education system.

In order to reconstruct these social mechanisms, we consulted the literature and analysed documents such as the minutes of meetings and conferences, reports from panels of experts including surveys, models and recommendations, as well as political statements, the results of legislative consultation processes and decrees of the cantonal council. In addition, interviews were conducted with experts who were involved in this process as educational policy observers or functionaries. The data were evaluated according to the theory-driven qualitative content analysis.

2 Insights from the policy debates on the position of VET and specialised schools (SpS)

2.1 Beginning institutionalisation of the SpS in the early 1970s

At the beginning of the 1970s, on the VET side a commission of experts drew up proposals for improvements in apprenticeship training (Expertenkommission, 1972a). The most important measure proposed was to expand school-based general education within apprenticeship training by establishing a vocational upper secondary school, “so that apprenticeship training can be considered a real alternative to attending baccalaureate school” (ibid.) and become more attractive for gifted young people. The vocational upper secondary school was intended to recruit qualified young people for management positions in companies. It explicitly did not pursue the goal of obtaining university entrance qualifications. Nor was its main purpose to provide a pathway to PET or to engineering colleges in particular.

At the same time a commission of experts tasked by the EDK also drew up a proposal for the reform of general education at the upper secondary level along with a first outline of the possible future position and function of the upper secondary SpS (Expertenkommission SpS, 1972b). Contrary to the previous tradition of preparing students for paramedical, social and early-childhood education training programmes, the SpS diploma was now also supposed to qualify students to transfer to PET colleges in the fields of technology, economics and the natural sciences. The EDK set up an SpS commission to look more closely at the future position and profile of the SpS within the overall education system.

The following section reconstructs for 1973-1977 alongside the four social mechanisms the central logics underlying the coordination of action between the actors from general education and VET in the negotiations on the future position of the SpS, which can explain both the persistence and change in the relationship between the two systems.

The perspective of the *power-based mechanism* makes it clear that each group of actors tried to secure the continued existence of its own institution and did everything it could to maintain its power of definition for its own area. On the one hand, the representatives of VET categorically rejected the suggestions for the further development of VET made by actors from general education. On the other hand, the various expert groups and commissions were almost exclusively staffed by representatives of their own institution.

The common thread running through the negotiations of the two groups of actors is the question of the quantitative allocation of young people to the two institutions, as the following quotation illustrates.

The harmonious balance between the three post-compulsory education paths — apprenticeship, SpS and baccalaureate school — is of the utmost importance for the economic and social development of our country. If this balance is disturbed, for example, in favour of the baccalaureate school, there could be a surplus of

university graduates but a shortage of qualified people in the other sectors. In Switzerland, there is currently an increased demand for graduates of PET colleges ... (Expertenkommission SpS, 1972b, p. 40).

The argument that complementarities between the individual educational pathways and various positions in working life could fall out of balance is based on *functional logics*. Various votes advocating for reform through the establishment of SpS to maintain this balance explicitly referred to the potential of the SpS to redress a currently emerging imbalance. The school, it was supposed, would fill a “gap” in the overall institutional structure. It was intended for PET that, while not requiring a baccalaureate, it would require a high level of general education and a minimum starting age of 18.

The SpS commission justified the plan to reposition the SpS as a new pathway to the engineering colleges on the basis of the requirements of permeability and gender equality, which can be attributed to the *legitimising mechanism*. The idea had been that there must also be an educational path subsequent to the SpS open to boys if the SpS was now being introduced for both genders. To support their argument about the dysfunctionality of the SpS, the VET actors criticised that young people were increasingly fleeing the workplace and migrating to the middle schools, with “devastating consequences for the economy” and emphasised VET’s thus far proven track record. Playing a central role in this were the deeply rooted cultural convictions that breathing “workshop air”, i.e. company-based practical experience as opposed to “schoolroom air” was an indispensable prerequisite for the future exercise of a company management function.

The repeatedly voiced objections of “schoolification” and “upward pressure” in the training of young people were based on the fear that “intellectuals are regarded with more interest” than graduates of apprenticeships and that this would lead to their increasing social devaluation. As the following statement by an actor representing VET shows, the issue of the social value of the various educational pathways is closely linked to the social structure of society and to the question of which educational pathway is capable of recruiting which learners, and of how the social elite and the middle class reproduce themselves.

Therefore, the longer it goes on, the less acceptable it is that [the apprenticeship] should have to content itself with being second tier, while on the other hand, one is stubbornly trying to hoist the first [tier] onto the conveyor belt to the university. (VET representative in EDK 1974, p. 3).

The *power-based mechanism* in the coordination of action thus comes full circle. From this perspective, the social elite was interested in protecting the baccalaureate path for its own intergenerational reproduction by keeping it narrow. This is supported by the introduction of the SpS as a means of reducing the number of students that would be opting for the baccalaureate pathway. In the eyes of the representative of VET quoted above, however, this would mean that gifted young people (“first tier”), who previously would have chosen VET, would now prefer the SpS and thus also take this less strenuous path into the academic world. As a result, VET would be left with only the less gifted young people (“second tier”). This fuelled the fear that VET as an institution would in the long run lose its importance, power and influence in society.

Accordingly, the representatives of VET were intent on preventing a competitive relationship between VET and SpS. In particular, they feared that the implementation of the SpS as a preparation for PET colleges could mean the end of the vocational upper secondary school and a waste of the investments made in it. Within this *utilitarian logic*, the VET actors pointed to the five times higher cost of the SpS compared to the existing vocational upper secondary school. The members of the SpS expert commission attempted to counter these concerns and

resistance by means of information, dialogue and persuasive elucidation of the benefits of the SpS.

The next section is devoted to a second historical stage in the implementation of the SpS, in which the school came under fire once again in the context of major VET reform.

2.2 Reform of apprenticeships in the health sector (1990s–2000s)

In 1988, the SpS was officially recognised in Switzerland (EDK 1989) after a process that took nearly two decades and involved ongoing disputes over the status and profile of this third pathway. Only a few years later, a major reform process began at the upper secondary level and in the tertiary system, which lasted until the mid-2010s. Among other things, the new Vocational Training Act of 2002 transferred the professions in health care, which had previously been regulated at the cantonal level, into the regular VET system and introduced a corresponding apprenticeship. It was also at this time that the first universities of applied sciences (UAS) for health care were founded.

During these reform years, it was completely unclear and open what the introduction of this apprenticeship in health care would mean for the traditional training function of the SpS and whether the SpS would also be recognised as a path to the newly created UAS for health. Below we describe the social mechanisms underlying the coordination of action between representatives and advocates of general education and VET by focusing on the occupational field of health care.

With the integration of the health care professions into the Vocational Training Act, VET was able to expand and strengthen its position within the *power-based logic*. With the newly attained power to define the structure and content of health care training, the VET actors were able to revoke basic training principles of the traditional health care training programmes, which were predominantly school-based: The minimum age of entry was reduced to 16 years, and the hitherto central importance of general education was reduced to a level customary for apprenticeships. The justifications that were relevant can be assigned to the perspective of the *legitimation-based reproductive mechanism*. They tie in with the culturally anchored convictions regarding the importance of hands-on professional practice, which is considered the actual “school of life”, in contrast to the school where one learns “only from the textbook”. The apprenticeship is a form of vocational training of whose quality a large part of the population is firmly convinced, and which guides the coordination of action as an unquestioned standard.

With the decision to integrate the health care professions into the uniform framework for all VET courses, the new apprenticeship was embedded in an existing overall institutional structure. Together with the already existing vocational baccalaureate, a coherent educational offering was created that also permitted advancement to the tertiary level. Due to its on-the-job training structure, the new apprenticeship was from the very beginning also considered well integrated with the professional world. In keeping with the *functionalist explanatory context*, the actors in VET were able to strengthen the apprenticeship as a training concept and thus continue on the previous path of development. With regard to the *raison d'être* of the SpS, the actors in VET henceforth took the firm stand that,

we no longer need the SpS, at the latest from now on if we ever really needed it at all. Precisely because we have now rounded out vocational training, we have sorted it out, what is the point of having some SpS in between? ... That at least was the tenor of the reaction on the vocational side. (EDK representative)

From the point of view of the VET representatives, competition between the two educational pathways, which possibly could have led to an erosion of VET's path-dependent position of strength, should be prevented. Important actors in the health care sector, on the other hand,

advocated for maintaining the school-based general education path via the SpS as an alternative to VET. Their justifications were based on *utilitarian motives* regarding the institution's benefit and its *functionality* for the health care professions in view of the demand for skilled workers. The more in-depth general education offered by the SpS, they argued, made it an optimal preparation for tertiary health training. Encouraged by these arguments, the advocates of the SpS pursued the goal of extending the development path of the SpS and consolidating the institution.

As the in-depth analyses in two cantons show, at the beginning of the 2000s there were concerted efforts on the part of the advocates of VET within the cantonal government and parliament to abolish the SpS. However, this *power-based reproduction mechanism*, which would have strengthened the VET path enormously, was prevented by considerable resistance from the teaching staff, the student body and civil society through political instruments such as demonstrations and petitions. It was partly thanks to these actions that the planned abolishment was averted. The forces for the retention of the SpS based their arguments on societal expectations of equality and integration, which fall into the realm of the *legitimising mechanism*.

However, the representatives of VET continued to take action against the SpS in order to prevent a competitive situation. They succeeded in hindering the expansion of the school by greatly reducing the number of classes allowed and by directing it to abstain from drawing too much media attention to their offerings. In return, the government promoted the new apprenticeship, for example by requiring state hospitals to offer apprenticeships (Maurer, 2013). Today, it is the second most frequently chosen apprenticeship in Switzerland (SERI, 2019), and with more than 4000 graduates annually, it awards around four times as many degrees as the SpS in the occupational field of health care.

The dispute concerning the implementation of the SpS came to a head over the question of whether the school should be recognised as a formal path to the UAS. For the continued existence of the SpS, it was essential that it could, in the educational paths that were being established to the higher education system, award a qualification *functionally* equivalent to the vocational baccalaureate. In this key question, too, the SpS representatives based their justifications on the need for skilled workers. Furthermore, they referred to the transnational proliferation of ideas of equality and European compatibility (*legitimising mechanism*) and to the long-standing experience and expertise of the SpS in preparing young people for higher education (*utilitarian mechanism*).

Yet in the eyes of VET actors, experience-based learning in on-the-job practice remained the uncircumventable paradigm that could *legitimise* access to higher education. An apprenticeship coupled with the vocational baccalaureate was the “royal road” to the UAS (Gonon, 2012, p. 136). As a central actor in general education, the EDK has taken up these expectations of the SpS in the direction of practical training and called in its recommendations for the further development of the SpS for “increased integration in VET” (EDK, 1991, p. 1) to be a central educational goal for the SpS. It can be assumed that some concessions and compromises had to be made to the *power-based* demands of VET because the UAS fall within its purview. The 2004 reform of the SpS introduced various occupational fields (including health care) and, with the specialised baccalaureate, an SpS curriculum that involved initial work experience in order to legitimise admission to the UAS in specific occupational fields.

3 Summary

Along the four mechanisms we were able to show that social mechanisms of reproduction led to the fact that VET and especially the apprenticeship system was able to maintain its strong position. At the same time, however, the representatives and advocates of VET have not succeeded in hindering the institutionalisation of a third educational pathway that combines both vocational preparation for PET in the health sector and general education.

In the context of the new demands for coordination of action between the two historically established systems, VET and general education, each group of actors was keen to reproduce its own institution along the lines of the *power-based mechanism*. While they did not want to lose their influence on its design, they also sought to shore up the established ways of reproducing the social classes they represented.

Both groups of actors based their efforts on the *legitimising mechanism*. The consistent leit-motif of the actors in VET was the conviction that practical on-the-job experience is decisive for soundly training future professionals. In these decades, however, new values such as academic education, equality and permeability spread through the international framework. The advocates of the SpS were able to profit from these and demand their implementation on moral grounds.

From a *functionalist perspective*, the representatives of VET referred back to its integration with the world of work. The creation of apprenticeships in areas for which the SpS had traditionally prepared learners, further strengthened the function of apprenticeships at the beginning of the new millennium. The representatives of general education advocated a change in the structure of the post-compulsory school system by pointing out a gap that the SpS would fill. The need to close the gap before the age of 18 and the shortage of skilled workers were important arguments justifying the function of the SpS.

In the 1970s, VET actors saw the investments just made in vocational upper secondary schools at risk if the SpS were implemented and pointed to its higher costs. Within this *utilitarian logic* they wanted to prevent a competitive situation that might have led to a change in the relationship between general education and VET. This plunged the SpS into one crisis after the other. However, it has at the same time given the representatives of the SpS the opportunity to prove its usefulness and demonstrate its potential for training and integration. However, the school had to supplement its training profile with key vocational training components and reduce its costs by limiting the number of classes.

Sources

- EDK Schweizerische Konferenz der kantonalen Erziehungsdirektoren. (1999). *Empfehlungen zur Weiterentwicklung der Diplommittelschulen (DMS)*. EDK.
- EDK Schweizerische Konferenz der kantonalen Erziehungsdirektoren. Kommission für Mittelschulfragen, Studienkommission Diplommittelschulen. (1977a). Diplommittelschulen. Bericht verfasst im Auftrag der EDK. *Informationsbulletin*, 11a. EDK.
- EDK Schweizerische Konferenz der kantonalen Erziehungsdirektoren. (1977b). Thesen betreffend Schulkoordination und Schulreform vom 20./21. Oktober 1977. Printed In Schweizerische Konferenz der kantonalen Erziehungsdirektoren (EDK) (Hrsg.) 1995, *Empfehlungen und Beschlüsse*, 51–52.
- EDK Schweizerische Konferenz der kantonalen Erziehungsdirektoren (1974). Protokoll. *Über die Informationssitzung betreffend Diplommittelschulen vom 18. Februar 1974 im Bundeshaus Bern*.
- Expertenkommission. (1972a). *Schlussbericht über die Arbeiten der Eidgenössischen Expertenkommission für die Verbesserung der Berufslehre* (Autor: Grübel A.). Bern.
- Expertenkommission (1972b). Bericht «Mittelschule von morgen». *Bildungspolitik: Jahrbuch der Schweizerischen Konferenz der Kantonalen Erziehungsdirektoren*, 58. Huber.
- Studienkommission Diplommittelschule. (1975-1976). Sitzungsprotokolle.

References

- Baethge, M. (2006). Das deutsche Bildungs-Schisma: Welche Probleme ein vorindustrielles Bildungssystem in einer nachindustriellen Gesellschaft hat. *SOFI-Mitteilungen*, 34, 13–27.
- Criblez, L. (2001). Bildungsexpansion durch Systemdifferenzierung – am Beispiel der Sekundarstufe II in den 1960er- und 1970er Jahren. *Schweizerische Zeitschrift für Bildungswissenschaften*, 23(1), 95–116.

- Edelstein, B. (2016). Stabilität und Wandel der Schulstruktur aus neoinstitutionalistischer Perspektive. Überlegungen zur Schulpolitik unter Bedingungen der Pfadabhängigkeit. In B. Hermstein, N. Berkemeyer & V. Manitius (Hrsg.), *Institutioneller Wandel im Bildungswesen. Facetten, Analysen und Kritik*, (pp. 47–70). Beltz Juventa.
- Gonon, P. (2012). Entstehung und Dominanz der dualen Berufsausbildung in der Schweiz. In M. M. Bergman, S. Hupka-Brunner, T. Meyer & R. Samuel (Hrsg.), *Bildung – Arbeit – Erwachsenwerden. Ein interdisziplinärer Blick auf die Transition im Jugend- und jungen Erwachsenenalter*, (pp. 221–242). Springer VS.
- Harney, K., & Zymek, B. (1994). Allgemeinbildung und Berufsbildung. Zwei konkurrierende Konzepte der Systembildung in der deutschen Bildungsgeschichte und ihre aktuelle Krise. *Zeitschrift für Pädagogik*, 40(3), 405–422.
- Harwood, J. (2010). Understanding academic drift: On the institutional dynamics of higher technical and professional education. *Minerva*, 48, 413–427.
- Maurer, M. (2013). Berufsbildung und Arbeitsmarkt zwischen Tertiarisierung und Fachkräftemangel. Herausforderungen für das duale Modell. In M. Maurer, & P. Gonon (Hrsg.), *Herausforderungen für die Berufsbildung in der Schweiz. Bestandesaufnahme und Perspektiven* (pp. 15–36). hep Verlag.
- Mahoney, J. (2000). Path dependence in historical sociology. *Theory and Society*, 29(4), 507–548.
- OECD (2015). Focus on vocational education and training (VET) programmes, Education Indicators in Focus, *OECD Publishing*, 33.
- Rosenmund, M. (2011). Bildungsföderalismus in der globalisierten Bildungsinstitution – Das Schulsystem der Schweiz. In K. Kansteiner-Schänzlin (Hrsg.), *Schule im gesellschaftlichen Spannungsfeld* (pp. 33–46). Schneider Verlag.
- SERI State Secretariat for Education, Research and Innovation (2019). *Vocational and Professional Education and Training in Switzerland. Facts and Figures 2019*. SERI.
- Zulauf, M., Gentinetta, P., & Kübler, C. (2000). Die Sekundarstufe II hat Zukunft: Schlussbericht der Projektgruppe Sekundarstufe II. *EDK-Schriftenreihe «Studien + Berichte, 9»*. EDK & BBT.

Biographical notes

Dr Regula Julia Leemann is a full Professor in the field of educational sociology at the School of Education in Muttens-Basel and member of the Centre for Educational Sciences at the University of Basel. Her current main fields of research interests are governance in education, vocational education and training, transformation in educational institutions and organisations, inequality in education, educational transitions, academic careers. She has published in IJR-VET, JVET, EERJ and SJS.

Dr des. Raffaella Simona Esposito is a Postdoc in Educational Sociology at the School of Education in Muttens-Basel. Her current main fields of research interests are vocational education and training, governance of educational transitions, transformation in educational institutions and organisations.

Dr Christian Imdorf is a full Professor of educational sociology at the Leibniz Universität Hannover. His current research interests focus on education systems and gendered school-to-work transitions, vocational pathways to higher education, school-to-work transitions, and the recruitment of young workers who have experienced employment insecurities. He is a member of various advisory boards, such as of the Swiss Observatory of Vocational Education & Training and the Laboratoire de l'Éducation of the Ecole Normale Supérieure de Lyon.

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Putting a Human Face on Good Vocational Education Teaching and Learning

Malloch, Margaret

Victoria University, Australia, marg.malloch@vu.edu.au

Ryan, Cheryl

Deakin University, Australia, c.ryan@deakin.edu.au

Abstract

What does ‘good’ teaching and learning in Vocational Education and Training (VET) look like? Prompted by the negative press and gradual de-professionalisation experienced by VET teachers, we have initiated research into the ‘human face’ of good VET teaching, as experienced in Australia. A small scale case study is being conducted, using focus groups and interviews of VET teachers, and students to garner narratives of their experiences and learning. This workshop is designed to provide an opportunity to learn of and share perceptions on good VET teaching thereby adding a European perspective to the project.

Keywords

good vet teaching and learning; insight; narratives

1 Introduction

The Australian Vocational Education and Training (VET) sector has experienced numerous reforms over its history. As chronicled by Harris (2017), teacher education for VET has been subjected to several changes, with a gradual diminishing of the quality of the qualifications, programs, employment opportunities and professional development

In particular, the introduction of national competency-based training and assessment (CBT) and (CBA) and national training packages which were supported by a focus on compliance and national audit frameworks (Keating, 1995) reinforced the emphasis on outcomes rather than process. CBT is predicated upon the needs of industry with an emphasis on preparing the learner to “do the job.” This impacts how learning, teaching and training is understood, delivered and assessed.

Consequently, debates exist as to pedagogical issues relating to teaching and learning and at the centre of these debates is the VET teacher. Teacher preparation shifted away from university and college courses with work place based practice, to a streamlined trainer qualification. VET teachers are taught their pedagogical and technical skills in the competency-based system in a certificate IV level course (below a bachelor degree in the Australian Qualifications Framework) that may be delivered over two years’ part time, or as has been, a week. This raises concerns that ‘VET teachers are becoming progressively de-skilled because of reduced

requirements for degree – level teacher-training’ (Smith, 2010, p. 62). The project concerns the following three research questions:

- How do we define ‘good’ teaching and learning in VET?
- How may diversity be addressed and catered for?
- What ideas and recommendations do you have for improving/enhancing practice and experience?

2 The context

There has been a shift from a position of professional autonomy and responsibility of teachers to a role described as preparing people ‘to demonstrate the application of knowledge and skills to specialised tasks or functions in known or changing contexts, with responsibility for own functions and outputs, and may have limited responsibility for the quantity and quality of the output of others in a team within limited parameters’ (AQF Council, 2013). This reinforces a lack of recognition of professional preparation, development, and work.

Whilst a variety of models are employed for the preparation of TVET teachers in Europe (Grollman, 2008), with a concern for quality and professionalism, the Australian context features negative press, and diminution of the contribution of VET to Australian society and economy, particularly through scaling down of the preparation of teachers/trainers.

The 2000s saw privatisation and increased competition in the VET sector encouraged and the quality of the sector diminished (Malloch, 2018). Parallel to the deprofessionalisation of VET teachers, their employment shifted from ongoing permanent positions to a casualised, part time, contracted workforce with limited access to professional development; and bounded by administrative reporting and monitoring. Knight et al. (2020) provide a picture of a workforce that has experienced major changes over the past two decades; the public sector organisations, TAFE and University have a majority casualised workforce and the private sector private training providers employ a higher proportion of permanent trainers/assessors, a reversal of the previous employment patterns.

Table 5

Employment status of trainers and assessors by provider type, February 2019

Provider type	Perma- nent	Con- tract/ tempo- rary	Casual/ ses- sional	Total
TAFE	38.7	10.2	51.1	100
University	31.5	25.8	42.7	100
Community education pro- viders	47.0	14.8	38.2	100
Private training providers	47.9	21.2	30.9	100
Enterprise providers	88.0	6.5	5.5	100
School RTOs	93.0	6.2	0.8	100
Exempt	86.9	10.2	2.9	100
Total	53.5	13.9	32.6	100

Note. % does not always add to 100.0 due to rounding of components. **Permanent:** is on-going employment within the organisation, entitled to paid holiday leave, annual leave and sick leave. **Contract/temporary:** is employed for a specified pre-set term usually short-term. **Casual/sessional:** employees are employed and paid on an hourly or sessional basis and are not entitled

to paid holiday or annual leave. Knight et al. (2020) Understanding the Australian vocational education and training workforce.

Such shifts in workforce participation, to more short term, part-time, insecure employment, mean a lack of opportunity and time for professional development, reflection and organisational community. Within this landscape of limited qualifications, insecure employment, status, career and professional development opportunities, what is happening in relation to learning and teaching? Do teachers in VET have the time and willingness to strive to facilitate 'good' teaching and learning?

3 Inspiration for the research

The excellent contributions of VET teachers to learners and learning are rarely in the public domain; the human face of VET in Australia is under researched. In a time when VET has been subjected to ongoing policy changes, financial challenges and shifts of focus, it seemed important to us to identify and celebrate the positive outcomes of the system. The aim of this research is to garner narratives from VET teachers and their graduated students about their teaching and learning journeys. This project employs qualitative ethnographic research with a specific focus on narrative inquiry.

4 ECER 2020

For ECER 2020, it was proposed to conduct a workshop to facilitate a discussion on the perceptions, experiences, and ideas as to what good teaching and learning in Vocational Education and Training (VET) looks like. This builds on the small scale research project we are conducting to garner narratives from Australian VET teachers and graduate students about their teaching and learning experiences. Historically, Australian Vocational Education and Training (VET) has looked to Europe for inspiration for the sector, particularly the German dual system and English qualifications framework. Connecting with the European TVET research community was anticipated to make a welcome contribution to this narrative inquiry. The research workshop would provide an opportunity to share perceptions and to look to the future for VET teachers.

5 Methodology and Methods

The aim of this research is to conduct a discussion on perceptions, and experiences as to what good teaching and learning in VET looks like. We selected a methodology appropriate for small scale research into VET teachers and graduate students' teaching and learning experiences. Qualitative research employing narrative inquiry provides an opportunity for us to garner narratives from VET teachers and their graduated students about their teaching and learning journeys (Clandinin & Connelly, 2004). The research methods employed include semi-structured interviews, focus groups, and reference to participant and researcher journals. Thus the project participants (selected via purposive sampling through VET networks) are provided with opportunities for reflections, celebrating their learning and to share insights from these snapshots from their life histories.

This focus was prompted by both the ongoing negative press and diminution of the contribution of VET to Australian society and economy particularly through the scaling down of the preparation of teachers/trainers in VET. Harris argued that the education and practices of VET teachers and trainers is under-researched with limited knowledge of 'the VET workforce to inform future developments' (2017). We aim to contribute further insight into the people, the 'human face' involved in teaching and learning in VET. The research workshop participants will also be able to contribute their perceptions and experiences. The workshop was designed to

facilitate and encourage active participation and discussion in both small groups and the whole group.

The questions listed below frame the discussion and contribute to the development of systemic, organisational and individual innovations and actions for the issues raised

How do we define ‘good’ teaching and learning in VET?

Provide examples of negative, middling and good teaching and learning experiences

How may diversity be addressed and catered for?

What ideas and recommendations do you have for improving/enhancing practice and experiences?

The workshop was planned to provide an overview of the topic, followed by group and whole group discussions addressing the questions. Recommendations for future developments, scenarios, opportunities and challenges for VET teaching and research in this field would be drawn from the discussion.

6 Conclusions

Palmieri (2004) noted the importance of professional and occupational identity, personal attributes, such as learner focus, technical knowledge, teaching and learning expertise and demands of changing work models, such as online learning. A tension between addressing student needs and those of industry was identified.

Recent research by Smith, Yasukawa, Harris and Tuck (Smith, 2019) into the effects of teacher/trainer qualifications on the quality of VET teaching/training, found that that higher level VET pedagogy qualifications, particularly a degree, did contribute to improved teaching approaches, confidence and ability to address diversity. The overall conclusion was that teachers and trainers are crucial to the success of the VET system. Our project’s personal and individual focus will provide portraits of the people and practice in VET teaching and learning.

From our project, initial findings indicate a strong emphasis on the expertise of the individual teacher to encourage and work positively with and be considerate of learners, and importantly to be competent in pedagogy and subject content.

In addressing the question as to what defines ‘good VET teaching and learning’ in the initial focus group with VET teachers, responses provided a comprehensive listing of attributes and skills to be demonstrated by VET teachers:

Effective listener, need to have good subject matter, understand your cohort of learners, empathy with your learners, understand that the learner brings ‘stuff’ to the table, contextualise the learning to suit the learner and environment, expectations of the learner must be considered, need to work within a framework.

Be competent in pedagogy and subject content; need to be prepared; extend their learners.

Good teaching featured: being flexible, learning about community, identifying learners’ styles, strengths and weaknesses, networking with other trainers, team teaching, flexible teaching.

Negative teaching featured lack of currency, disaffection, racism and stereotyping. Good Learning included:

Skills for employment, project based learning, cooperative learning, team work, communication, active engaged learning, real learning, ongoing feedback from teacher and other learners

Negative learning featured being disengaged, unemployable, not enough feedback, lack of communication and not completing.

Participants emphasised that focusing on an outcome is not sufficient; being flexible, building learners' skills such as critical thinking, and to address learners' needs. Other points listed as important included learning about community, networking with other trainers and team teaching. Having time to engage beyond the immediate internal requirements is also important. Concerns were raised as to maintaining vocational currency, engaging in reflective practice, access to mentoring support, being engaged in a community of practice, and having greater teacher autonomy. These points resonate with the conference theme which includes building shared spaces and communities.

Defining 'good' is challenging, it is a term meaning many things to many people. The research workshop was designed to provide an opportunity to tease out our interpretations of good teaching and learning. As a replacement for the workshop, an invitation will be extended to VETNETers to take part in a survey to share ideas as to the Human Face of good vocational education and training. It is time for good stories of learning and teaching in VET to be gathered and shared.

References

- Australian Government, Tertiary Education Quality and Standards Agency. (2018). *Guidance note: Scholarship*. <https://www.teqsa.gov.au/latest-news/publications/guidance-note-scholarship>
- Australian Qualifications Framework Council. (2013). *Australian Qualification Framework* (2nd ed.). Australian Qualifications Council, South Australia.
- Chakroun, B. (2019). National Qualifications Framework and TVET teacher competence frameworks: A neglected dimension of qualifications reforms? *European Journal of Education*, 54(3), 370–388.
- Clandinin, J., and Connelly, M., (2004). *Narrative inquiry: Experience and story in qualitative research*. Jossey-Bass.
- Grollmann, P. (2008). The quality of vocational teachers: Teacher education, institutional roles and professional reality. *European Educational Research Journal*, 7(4), 535–547.
- Keating, J. (1995). *Australian training reform, implications for schools, curriculum corporation*. Carlton Australia.
- Harris, R., (2017). What do we learn from 40 years of history? Issues in VET teacher education from Kangan to today. *International Journal of training research*, 1-19.
- Kirkland, D., (2018). *What makes a good teacher? Teacher education reinvented*. NYU Steinhardt School of Education and Human Development. <https://teachereducation.steinhardt.nyu.edu/what-makes-a-good-teacher/>
- Knight, G., White, I., & Granfield, P. (2020). Understanding the Australian vocational education and training workforce. NCVER.
- Malloch, M. (2018). *Vocational education and training in Australia: Through a glass darkly*. ECER Conference, Bolzano
- Noonan, P., & Chair, X. (2019). *Review of the Australian Qualifications Framework, final report*. https://docs-edu.govcms.gov.au/system/files/doc/other/aqf_review_2019_0.pdf
- Palmieri, P. (2004). *Approaches to the idea of the 'good teacher' in vocational education and training*. Monash University. www.aare.edu.au/04pap/pal04534.pdf
- Robertson, I. (2008). VET teachers' knowledge and expertise. *International Journal of Training Research*, 6(1), 1- 22.
- Schofield, K. (2002). *A new balance: Investing in public infrastructure to sustain Victoria's training and skills development system*. Office of Training and Tertiary Education.
- Smith, E., (2019) *Executive summary the effects of the teacher/trainer qualifications on the quality of VET teaching/training*, Federation University, Australia.

Smith, E., & Keating, J., (2003) *From training reform to training packages*, Social Science Press, Victoria State Government Education and Training. <https://www.skills.vic.gov.au/victorianskillsgateway/Students/Pages/OccupationSearchDescription.aspx?type=occupation&searchid=405>

Biographical notes

Dr **Margaret Malloch** is an Honorary Professor, Victoria University Australia. She is a Life Fellow of the RSA, member of the IJRNET Board, VETNET. Her research interests include vocational education and training, workplace learning, higher education and gender equity. Both presenters are members of the Australian Council of Deans of Education Vocational Education Group.

Dr **Cheryl Ryan** is Senior Lecturer and Coordinator of the Professional Learning and Development Strand, the Master of Education, Deakin University. Research interests include: Practice and professional development and practice Leadership - pedagogies and theories, Learning - applied and embodied and Adult education and training

Meyer, I. A. M., & Schepers, C. (2020). Collaborative learning processes in oncological further education: how to improve communication skills due to the use of caro interaction system. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 200–208). <https://doi.org/10.5281/zenodo.4006995>

Collaborative Learning Processes in Oncological Further Education: How to Improve Communication Skills Due to the Use of CARO Interaction System

Meyer, Imke Anna Maria

University of Bremen, Germany, imeyer@uni-bremen.de

Schepers, Claudia

University of Bremen, Germany, schepers@uni-bremen.de

Abstract

Digital media are only used to a limited extent in nursing training. Although institutions use learning management systems like Moodle, there is no systematic integration of digitally supported teaching/learning environments into the classroom (Kamin 2013). However, computer-assisted teaching and learning can offer great added value for today's complex contents and challenges of oncological further education. CARO is a digital, interactive and multimedia teaching/learning environment and was developed in the already completed project *CARO - Care reflection online*. In the currently ongoing project *CAROpusONKO*, the software is being refined to meet the needs of specialist oncological training. A group tool is actually being developed to support group work and collaborative learning processes in class and beyond the presence phase. The concept of the group tool was tested and discussed in a group discussion with experts from oncological further education. The results of the group discussion are presented and discussed in this paper.

Keywords

oncological further education; group work; computer supported collaborative learning; design-based research

1 Introduction (and background)

In Germany, there have been several studies regarding the use of digital media in nursing education (Peters et al., 2018). Platforms and knowledge databases such as Moodle or “Pflegekompakt” are used, but the integration of digitally supported learning so far has hardly been systematic (Kamin, 2013). In the field of further training in nursing, the study situation is quite manageable. There are only indications that digital media (PowerPoint presentations or documentation programs) are being used yet (Härtel et al., 2018). Although individual online training courses are available on the market, they are usually expensive and based on simple instructional models (Peters et al., 2018). For the context of oncological further education in Germany, there has been no research on the use of digital media so far.

International studies about the use of digital media in further nursing training show a different situation (Peters et al., 2018). In a study by Alipour et al. (2014) it was investigated whether

the use of text messages is suitable for oncological training. Here, experienced nursing staff received text messages with microlearning units that they could integrate into their daily nursing routine. It should be noted that the study by Alipour et al. (2014) (among other studies) aims to provide rule-based knowledge (Darmann-Finck, 2010). Other studies already show approaches with which more complex learning goals can be achieved, such as improving the critical-reflective attitude of one's own professional role (O'Connor & Andrews, 2016). In this study, a learning app was designed to refresh key skills in practical work. However, it should be pointed out that this app is designed to support nursing staff in the clinical area.

In summary, there is still a desideratum regarding the didactic foundations as well as the relation to further oncological training. Existing teaching/learning offers rather refer to an extremely limited spectrum of educational goals (Darmann-Finck, 2010). The potential of digitally supported learning is far from exhausted. In media didactics, there are some approaches to shape digital learning (Kerres, 2018; Jahnke, 2016; Mandl & Gräsel, 2000; Schulmeister, 1997), but these do not reflect the specific requirements of the subject of care.

The project "CAROplusONKO - Care Reflection Online for oncological further education" aims to enhance the interactive learning environment CARO, which was designed and implemented in a previous project, for further training in oncological care. With CARO, multimedia "cross-action" learning processes can be designed, e.g. by using videos to work on key problems relevant to practice in multi-step didactic designs and reflect them in class. CARO provides a collection of sample lessons based on specialist media didactics by linking the media didactic approach of "Digital Didactical Design" (Jahnke 2016) with the "Interactional didactical model" (Darmann-Finck, 2010). In order to adapt the application to the context of oncological further education, there are several project aims, such as:

- the development of a curriculum due to improve communication skills in oncological nursing
- the development and evaluation of training concepts
- the development and evaluation of a software tool for colleague counselling
- the development and evaluation of a didactic concept based on the following question:

Which design elements and didactic methods are necessary to design collaborative learning processes in the context of oncological further education?

It is necessary to highlight our understanding of collaborative learning first, since there are a lot of definitions and understandings (Dillenbourgh, 1999). We think "... *that collaboration involves the construction of meaning through interaction with others and can be characterised by a joint commitment to a shared goal*" (Littleton & Häkkinen, 1999, p. 21). In order to enable learners to do this (construct meaning through interaction), students must therefore be able to communicate with each other and act in a self-determined way. Kuriyama and Sakai (2007, p. 571) say "*Collaborative learning is a collaborative and mutually interdependent learning, where the learners help each other and fosters individual learning responsibility within the group's activities to realize group objectives*". This is an important basis for the initialization of learning processes which should aim to complex learning goals. From the perspective of general didactics, group work is associated with the expectation of increasing the learning success of students (Rabenstein & Reh, 2007). In addition to the acquisition of specialist knowledge, "soft" competences such as communication skills are also important. According to Papert (1991), learning processes are particularly intensive when a so-called public entity is created, since this allows visible products (e.g. problem solutions) to be shared and discussed with other learners (Papert, 1991; Wolf, 2003). Especially in the context of working on complex

problems in groups, making the results visible and discussing them in plenary sessions is an important part of teaching in oncological further education.

1.1 Overview of the CARO Classroom Learning Interaction System architecture

The CARO Classroom Learning Interaction System combines three elements of digital teaching/learning environments (Darmann-Finck et al., 2020). In the *Learning Content Management System*, learning content such as texts, images, films and interactive exercises can be created and provided. Teaching units can be planned based on the developed curricula, learning objectives can be defined and corresponding teaching units can be assigned. In the *Classroom or Audience Response System* (CRS/ARS), not only real-time interactions in the classroom such as opinion polls, voting, test questions, but also more complex tasks such as the creation of explanatory videos, can be guided and carried out. The organisation of work phases in the classroom as well as the participation of the students is possible by means of a *Classroom Management System* (CMS).

Accordingly, the architecture of the CARO CMS extends over a network of applications:

(1) *Teacher Classroom Application* (TCA) "CARO Teacher App": Lessons can be prepared and conducted via the TCA. Lesson templates can be selected and either adopted completely or adapted for the learning group individually. Teachers can edit existing interactive assignments or create new ones themselves. In class, the teacher can use the dashboard to control the progress of lessons and manage materials. Interactive tasks can be activated for the students and texts or videos can be sent to their devices.

(2) *Learner Interaction Application* (LIA) "CARO Student App": In class, students use the LIA. It provides an overview of all courses the student is taking part in. With this app, students can receive learning materials and work assignments on their device and send the results back to the teacher. Work assignments can vary from short slider or bipolar queries, free text input or uploading and sharing your own videos.

(3) *Public Display Application* (PDA) "CARO Projector App": With the PDA, work results can be displayed and further processed in real time either via a projector or an interactive whiteboard. Digital metaplan cards, for example, can be presented and clustered together with the students and slider or bipolar queries can be evaluated and displayed in real time using different diagrams (e.g. pie chart or bar chart).

(4) *Curriculum Authoring Application* (CAA): Sample lessons are created and saved in the CAA. This content is synchronised with the teacher dashboard and is thus available to the teachers. The curriculum currently contains three learning situations, each of which is aimed at a specific educational dimension and is also linked to competences. The curriculum is based on the heuristics of interactionistic nursing didactics (Darmann-Finck, 2010).

The combination of content authoring and classroom management in the TCA, classroom interaction in the LIA and the provision of work results in the PDA, enables digitally supported live interaction in the classroom.

Until now, it has not been possible in the CARO teaching/learning application to control and manage content and interactions in small groups within a course context. However, since group work is an important part of nursing training and further nursing education, a group tool for controlling and managing group work is to be developed and implemented within the framework of the currently running CAROplusONKO project.

1.2 The First CARO Group Tool Concept Draft

As a starting point, a group tool wireframe concept was drafted by the CARO development team to help teachers to create and manage groups within the CARO system. In the first development cycle, which is described here, only the teachers' perspective has been worked upon.

The student's user perspective will be compiled in a second development cycle. Four main functional requirements were identified:

(1) create groups: In the first step, the teacher has to make basic settings for each group. These are the number of participants per group, the assignment of roles within a group and the upload of learning materials. The teacher should also determine in which phase of the lesson he or she wants to work with the groups.

(2) add participants to groups: After defining the basic settings the participants have to be added to the groups. The teacher can choose between a manual and a random selection of group members. He or she can also decide whether the participants are divided into groups already during the lesson preparation or whether they are added directly in class, for example in coordination with the participants or in order to take their actual presence into account.

(3) add material to groups: The teacher can share learning materials and work assignments with the members of a group. For this purpose, the teacher can either define which learning material or tasks should be assigned to each particular group or choose automatic and random distribution.

(4) integration of groups into the classroom management system: Teachers use the TCA to activate materials and assignments for groups of students, who can then edit and return them using the LIA. Group work results can be presented and discussed via the PDA using a projector or interactive whiteboard.

2 Methods

The development of CARO is conducted using the design-based research approach (Koppel, 2017; Reeves, 2006). This methodological approach invites the potential users of CARO to be involved in the design process, thus a user-oriented development can be ensured. Due to the progress of development, a "four-step release management" has been implemented in the project. This method will be applied to the development of every new feature in the CARO software and is explained by taking the example of the "group tool".

In the **first step** the didactic concept "organising and supervising group work" is developed and tested. In this stage of development, the concept is displayed as a non-interactive wireframe in a pdf format. The single slides show different possibilities of using the tool, such as: "how to create groups", "how to invite members", "how to integrate the group work into class" and so on. Within the first test cycle we conducted two iteration cycles of the design within the development team. To conduct a target group-oriented requirements analysis, a moderated focus group discussion has been held on the basis of key questions related to the didactic concept. Focus groups are a useful tool at the beginning of a software development process to get a better insight into the target group and their needs (Goodwin, 2009).

Based on the knowledge gained from this first test, an interactive software prototype will be developed and tested again with the target group in the **second step**. The criteria for this are user experience and usability. To verify these criteria, usability tests will be carried out with teachers and students in oncological nursing training.

In the **third step** the revised prototype is implemented within the CARO application. Based on the results of another (internal) test (both didactic concept and usability criteria), the software is adapted and errors are corrected. In the **fourth step** the software is at a stage where it can be tested under "real conditions", i.e. in courses of further education. The fourth step is then used for fine-tuning, so that the newly developed software is "production-ready" and can be used in specialist further training.

The results of this article refer to the first development step, in which the focus was on the group management by the teachers within the CARO application. In order to get concrete feedback on possible user scenarios, we conducted a group discussion with five heads of oncological further education departments, who are also teachers. The group discussion was carried out

via the platform *Zoom* and recorded with the consent of all participants. The aim was to discuss the current concept of the group tool with the target group and to obtain practical information for the further user-oriented development of the concept. The focus was on three main questions:

1. How do you conduct group work in your oncological further education?
2. Do the presented scenarios illustrate how you put together groups in practice? At which points do you see added values in the organisation of group members with CARO? And where do you see obstacles in the concept?
3. Which interaction and communication options should be available to the students within a group?

Based on the information and findings of the group discussion, the existing drafts of the group tool will be revised and an interactive prototype will be created. Thus the first step would be completed for this part of the group tool. Our article focuses on the results of the focus group discussion to reflect the design elements as well as the didactical needs for this tool. Beyond that, first ideas how to revise the developed concept will be presented.

3 Results

In the first part of the group discussion, the participants were asked how group work takes place in oncological further education. In this context groups are organised in two ways: (1) Groups are formed that work together on a long-term basis, for example because they receive project-related work assignments and work on them beyond the classroom event. In the following, these are called "project groups". Alternatively (2) group work is often integrated into face-to-face teaching. These are short-term and time-limited groups that work on a specific work assignment in class, which will be called "ad-hoc groups". All participants described group work as an important part of further education.

If we look at the communication of the group members among themselves, only one participant reported to organise group work via a digital platform (Moodle). In the other institutions of further education, the communication of individual group participants, especially in the practical phases, also takes place digitally. However, the institutions do not provide any tools or devices for this purpose and are therefore dependent on the willingness of the participants to use communication platforms from their private context (e.g. WhatsApp). In addition to the acquisition of specialist knowledge, the personal exchange between the group members plays an outstanding role from the experts' point of view for the students' learning success.

The composition of groups is based on different mechanisms. One participant described group divisions by the teacher as very important for his or her teaching. Other participants reported that member compositions are chosen randomly or students divide themselves into groups. The concept draft of the CARO group tool so far includes the functionality to add members to groups automatically and randomly or manually. The function that learners should be able to assign themselves to a certain group is very desirable from the experts' point of view.

Another important aspect of group work was the collaborative elaboration and presentation of work results. Revealing and discussing results was an important part for both students and teachers, in order to be able to complete group work successfully. Currently, the CARO application provides teachers with various interactive tools such as diagrams or clustering to present work results. The experts remarked that these tools should also be available to the students for the elaboration and presentation of the work results. According to them, the possibility for students to upload videos is an important feature. In addition, it was useful for the development of work results if the students could comment on texts within the groups and work on them collaboratively.

In the third part of the group discussion, the participants were asked about the possibilities of interaction and communication between the learners during group work with the CARO application. The desire for a chat and/or video chat program within CARO was the most popular response. Thus, it would be possible for participants to exchange information without having to use private messenger services. In addition, teachers could also join in, for example to give feedback on different work steps or to answer questions.

4 Discussion

From the experts' point of view, the concept of the group tool in the teachers' perspective corresponds in most places to the needs and practices of teachers in oncological further education. Based on the evaluation of the group discussion, the further development of the CARO group tool, which integrates the following aspects, can be derived:

- a. Learners should be given more freedom in group composition as well as presentation of work results
- b. Communication should be possible within each group and with the teacher.
- c. The possibility to work together on texts and presentations should be integrated.

These three aspects can be seen as elementary components of Computer Supported Collaborative Learning (CSCL). The field of CSCL has been dealing with the use of computer technologies to promote collaborative learning and working processes for several decades (Kühn, 2018). Relevant for the further development of student interaction possibilities in the CARO group tool is the question which cognitive tools can support group learning processes in oncological further education in a particularly target-oriented way. Cognitive tools are tools that require the learner to delve deeper into task content (Mayes 1992). These computer-based tools can be divided into five groups: (1) *Semantic Organization Tools*, (2) *Dynamic Modeling Tools*, (3) *Visualization tools*, (4) *Knowledge Construction Tools* and (5) *Socially Shared Cognitive Tools* (Jonassen & Carr 1998). In the next step of development, it should be tested which tools are suitable for which work steps in group instruction of oncological further education. For this purpose, teaching tests will be carried out with an interactive prototype of the CARO group tool, because "*cognitive tools in particular (...) only acquire their special quality when they are integrated into (...) lessons*" (Wolf, 2003, p. 86).

Based on the curriculum developed in the CAROplusONKO project, teaching materials will be developed for further education in oncology, which take group learning processes in *ad hoc* groups as well as in *project groups* into account. Learning with CARO is based on interactions that can be carried out through different interaction formats between teachers and students in the previous stage of development. In order to provide these interaction formats also within the student groups, a fundamental extension of the CARO Student App is necessary. Up to now, only simple interactions such as answering a slider query are possible. Three concrete functionalities have been emphasized by the group discussion participants: A group chat, the joint editing of texts and the possibility to make tools such as clusters or diagrams accessible to the students already during work phases. These possibilities of interaction and communication beyond the classroom can offer a great added value for learners and teacher related to collaborative learning processes. Jahnke (2016, p. 7) also speaks of "Co-expanded Communication Spaces". What is meant by this is that numerous communication possibilities arise in virtual space, which can be used synchronously or asynchronously and combined with each other. Herein lies the potential to actively learn beyond the boundaries of the conventional classroom. This offers significant benefits for oncological further education, since learning and teaching is also done across learning and working environments.

In the conducted group discussion, the test persons also expressed the wish for a possibility to communicate with the students during a group work with the CARO application. Nevertheless, according to a study by Dann et al. (2002), in addition to a precise task definition and an evaluation phase following the group work, teacher behaviour during the working phase is particularly relevant for the successful course of group work. For example, group work, in which students work independently and the teacher does intervene as little as possible, is more successful (Dann et al, 2002; Rabenstein & Reh, 2007). Further work should look more closely at the role of teachers and the associated rights when intervening in student group work (interaction and communication).

Regarding the two different types of groups (project groups vs. ad hoc groups) in oncological further education, a classification of potential educational goals can be made. According to the didactic model of Interactionistic Nursing Didactics (Darmann-Finck, 2010) used in CARO, three different educational goals are implicit: the technical knowledge interest, which aims at the acquisition of rule-directed knowledge; the practical cognitive interest, which enables the understanding of cases and situational understanding; and the emancipatory cognitive interest, which aims at the reflection of contradictions. An ad hoc group work, in which the learners are only supposed to work together cooperatively, i.e. learners work on an assignment based on the division of labour (Petko, 2014), is more suitable for tasks that aim at the technical interest in knowledge. A work order, which is collaboratively realised in a project group, can also serve the emancipatory level of knowledge, provided that the learners have extensive communication and interaction possibilities at their disposal. Especially the emancipatory interest in knowledge requires an intensive examination of the facts and the elaboration and discussion of different points of view combined with the reflection of one's own positions. Collaborative group work can support these processes and also improve the collaboration skills of the students, which is an important task for today's vocational training (Schwendimann et al., 2018).

5 Conclusion

As a result of the first development step, we can state that the concept of the group tool has been received mostly positive and already meets the requirements of the interviewed experts in many parts. Especially for the development of the Student App the group discussion delivered good results. Considering the research question "Which design elements and didactic methods are necessary to design collaborative learning processes in the context of oncological further education?" the following features: *communication opportunities* between students and between students and teachers and *cognitive tools* for the students during a group work phase must be provided in the CARO group tool. In the next development-step, we will conduct a major revision of the CARO Student App. The main goal will be the expansion of the interaction and communication possibilities between the students during a group work phase. It is indispensable that this next step is tested in terms of content, i.e. on the basis of a concrete teaching concept. In the following phases, usability tests with interactive prototypes as well as teaching experiments will be conducted. The closer examination of the teachers' role as well as the selection of methods for the work of student groups among themselves should also be part of these surveys.

The CARO group tool concept is a basic element to develop reflexive learning processes for oncological professional training. For example, in order to strengthen the professional competencies of the participants in further training and additionally to absorb their stress in a complex professional field, opportunities for a regular and systematic reflection of their nursing practice are needed (Kocks et al., 2018). To provide this within the CARO application, a digitally supported and didactically sound collegial consultation will be integrated in the group tool. For this purpose, a first digital counselling process has already been carried out with students of nursing science. The linking of the group tool with the functionality of a collegial counselling

environment is also carried out by means of small-step iterative development and test cycles in close coordination with the oncological practice partners.

The chosen method of group discussion proved to be profitable for the development process of the CARO Student App, which is still in a very early stage. The results obtained are substantial and can be well integrated into the development process. With regard to the further development of the CARO Teacher App, this is only partly true. The concept is at a more advanced stage than the Student App. Here the participants only noted the need for changes in details. All in all, it can be said that the research approach of design-based research in connection with a software development project is a suitable method, because the small-step and iterative procedure enables an agile and user-oriented development.

References

- Alipour, S., Jannat, F., & Hosseini, L. (2014). Teaching breast cancer screening via text messages as part of continuing education for working nurses: A case-control study. *Asian Pacific Journal of Cancer Prevention*, 15(14), 5607–5609. <https://doi.org/10.7314/APJCP.2014.15.14.5607>
- Dann, H-D., Diegritz, T., & Rosenbusch, H. S. (2002). Gruppenunterricht im Schulalltag. Ergebnisse eines Forschungsprojekts und praktische Konsequenzen. *Pädagogik*, 54, 11–14
- Darmann-Finck, I., Schepers, C., Wolf, K.D., & Küster, J. (erscheint 2020). Digital unterstütztes Lernen in der Pflegeausbildung. In K. D. Wolf, K. Rummeler, S. Aßmann, & P. Bettinger (Eds.). *Jahrbuch Medienpädagogik* 16. Springer.
- Darmann-Finck, I. (2010). *Interaktion im Pflegeunterricht: Begründungslinien der interaktionistischen Pflegedidaktik*. Peter Lang.
- Dillenbourg, P. (Ed.). (1999). *Collaborative learning: Cognitive and computational approaches* (1st ed). Pergamon.
- Goodwin, K. (2009). *Designing for the digital age: How to create human-centered products and services*. Wiley Pub.
- Härtel, M. et al (2018). Digitale Medien in der betrieblichen Berufsbildung – Medienaneignung und Mediennutzung in der Alltagspraxis von betrieblichem Ausbildungspersonal. Wissenschaftliche Diskussionspapiere 196. BiBB.
- Jahnke, I. (2016). *Digital didactical designs: Teaching and learning in CrossActionSpaces*. Routledge, Taylor & Francis Group.
- Jonassen, D. H., & Carr, C. S. (1998). Mindtools: Affording multiple knowledge representations for learning. In S. P. Lajoie (Ed.), *Computers as cognitive tools: The next generation*. Lawrence Erlbaum,
- Kamin, A.-M. (2013). *Beruflich Pflegende als Akteure in digital unterstützten Lernwelten: Empirische Rekonstruktion von berufsbiografischen Lernmustern* (1. Aufl). Springer VS.
- Kerres, M. (2018). *Mediendidaktik. Konzeption und Entwicklung digitaler Lernangebote*. De Gruyter.
- Kocks, A., Segmüller, T., Tietze, K.-O., & Zegelin, A. (Eds.) (2019). *Kollegiale Beratung im Pflege-team: Implementieren, durchführen, Qualität sichern*. Springer.
- Koppel, I. (2017). *Entwicklung einer Online-Diagnostik für die Alphabetisierung. Eine Design-Based Research-Studie*. Springer.
- Kuriyama, K., & Sakai, K. (2007). An agent oriented environment for collaborative learning-lessons learned through vocational training on software design with UML. In B. Apolloni, R. J. Howlett, & L. Jain L. (Eds.), *International Conference on Knowledge-Based and Intelligent Information and Engineering Systems* (pp. 567–574). Springer.
- Kühn, R. (2018). Einbindung von mobilen Geräten in kollaborative Lernprozesse. In C. de Witt & C. Gloerfeld (Eds.), *Handbuch Mobile Learning* (pp. 457–485). Springer.
- Littleton, K., & Häkkinen, P. (1999). Learning together: Understanding the process of computer-based collaborative learning. In P. Dillenbourg (Ed.), *Collaborative-learning: Cognitive and computational approaches*. Pergamon
- Mandl, H., & Gräsel, C. (2000). Instruktionale Ansätze zum problemorientierten multimedialen Lernen in der Medizin. In K. H. Bichler & W. Mattauch (Eds.), *Multimediales Lernen in der Medizinischen*

- Ausbildung. Innovationen und Trends des Medizinstudiums im klinischen Teil* (pp. 19–28). Springer.
- Mayes, J. T. (1992). Cognitive tools: A suitable case for learning. In P. A. Kommers, D. H. Jonassen, & J. T. Mayes (Eds.), *Cognitive tools for learning*. (NATO ASI Series) (pp. 7-18). Springer.
- O'Connor, S., & Andrews, T. (2016). Using Co-design with nursing students to create educational apps for clinical training. In W. Sermeus, P.M. Procter, & P. Weber (Eds), *Nursing informatics 2016. Ehealth for all: Every level collaboration – from project to realization*. (pp. 334–338). IOS Press.
- Papert, S. (1991). Situating constructionism. In I. Harel & S. Papert (Eds.), *Constructionism*. (pp. 1-12). Ablex.
- Peters, M. et al. (2018). Mobile Learning in der Pflegebildung. Entwicklungsstand und Herausforderungen am Beispiel des Projektes “Game Based Learning in Nursing”. In C. De Witt & C. Gloerfeld (Eds.) (2018) *Handbuch Mobile Learning*. Springer. 971–992
- Petko, D. (2014). *Einführung in die Mediendidaktik: Lehren und Lernen mit digitalen Medien*. Beltz
- Rabenstein, K., & Reh, S. (Eds.). (2007). *Kooperatives und selbstständiges Arbeiten von Schülern: Zur Qualitätsentwicklung von Unterricht* (1. Auflage). VS Verlag für Sozialwissenschaften.
- Reeves, T. (2006). Design Research from a technology perspective. In J. V. den Akker, K. Gravemeijer, S. McKenney, & N. Nieveen (Eds.), *Educational Design Research* (pp. 86–109). Routledge.
- Schulmeister, R. (1997). *Grundlagen hypermedialer Lernsysteme: Theorie - Didaktik - Design* (2., aktualisierte Aufl). Oldenbourg.
- Schwendimann, B. A., De Wever, B., Härmäläinen, R., & Cattaneo, A.A.P. (2018). The state-of-the-art of collaborative technologies for initial Vocational Education: A Systematic literature review. *International Journal for Research in Vocational Education and Training*, 5(1), 19–41. <https://doi.org/10.13152/IJRVET.5.1.2>
- Wolf, K. D. (2003). *Gestaltung und Einsatz einer internetbasierten Lernumgebung zur Unterstützung Selbstorganisierten Lernens*. Kovač.

Biographical Notes

Imke Anna Maria Meyer is a research associate at University of Bremen, Department of Media Education and Media Didactics. Her research includes media design and media didactics in the field of adult education.

Dr Claudia Schepers is a research associate at University of Bremen, Institute of Public Health and nursing research. Her research concerns vocational education and training in Health Care Professions, teaching and learning with digital media as well as Professionalization of teachers in adult education.

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Where Is Higher Vocational Education?¹

Moodie, Gavin

University of Toronto, gavin.moodie1@gmail.com

Abstract

This paper opens by elaborating the question it addresses: Where is higher vocational education in relation to vocational education and higher education? It then notes that the answer to this question is likely to have different implications in countries with different economic and social arrangements. The paper then describes the parts of the typology it proposes. It then analyses into idealized types the arrangement of tertiary education and the location of higher vocational education in three European countries: Austria, Germany, and the UK. These are compared with 5 non European countries: Australia, Canada, Chile, China, South Africa, and the USA. The paper concludes by identifying some patterns in the location of responsibility for long cycle and short cycle knowledge acquisition and occupational preparation. It observes considerable diversity in responsibility for higher vocational education.

Keywords

higher vocational education; typology; international comparisons

1 What is higher vocational education?

Ulicna et al. (2016) considered at length what to include in their extensive study for the European Union on higher vocational education and training in the EU. They conducted detailed studies and interviews on higher vocational education in then 28 member states of the European Union. They identified higher vocational education and training by two dimensions: level, and orientation. Much vocational education in the European Union and elsewhere is at upper secondary level. So for Ulicna et al. (2016) higher vocational education and training is above this level. They included in their narrow definition certificates and diplomas at level 4 post-secondary non-tertiary education in the International Standard Classification of Education's (ISCED) classification (UNESCO Institute for Statistics, 2012). Their broad definition also includes associate degrees, bachelors, masters, and doctorates at the International Standard Classification of Education (ISCED) levels 5 to 8.

Higher vocational education is understood differently in different contexts. While Ulicna et al. (2016) and others include in higher vocational education ISCED level 4 post secondary non tertiary education such as some certificates and diplomas, and ISCED level 5 short cycle tertiary education such as an associate or foundation degree of 2 years after completing high school, these programs are considered standard vocational education in the USA. This reflects

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jurisdictions' different understandings of vocational and academic education, and their different allocations of responsibility for different levels of programs. This is in turn related to jurisdictions' allocations of responsibility for higher academic education and research training, which also differs between jurisdictions.

Ulicna et al. (2016) second dimension of higher vocational education and training is orientation to preparing graduates for an occupation. However, they note that programs are oriented to an occupation to different extents. Programs have different combinations of occupational and academic orientation. Programs also have different emphases on different purposes, preparing graduates for direct entry to an occupation, for employment in several occupations or for employment generally, or for entry to a subsequent program which prepares graduates for an occupation.

Programs' extent of orientation to an occupation often overlaps with the extent of integration with employment in curriculum, pedagogy, and assessment. This is indicated, for example, by industry's involvement in designing the curriculum, in the extent of work based learning, and in industry's involvement in evaluating and perhaps approving programs or institutions (Ulicna et al., 2016).

These dimensions of level, orientation and extent of integration with industry overlap in ISCED 2011 and in many understandings of vocational education discussed by Ulicna et al. (2016). Thus, ISCED 2011 calls occupational preparation 'vocational' up to level 5 and 'professional' for level 5 and above (UNESCO Institute for Statistics 2012). These dimensions also overlap with types of institutions: institutions which offer mostly lower level occupational preparation are called colleges in many jurisdictions, and institutions which offer higher level occupational preparation are often called universities.

Some institutions which offer mainly occupational programs also offer academic programs; and some institutions which offer mainly academic programs also offer occupational programs. Some institutions which offer higher vocational education and training also offer lower vocational education and training. Therefore, higher vocational education is not often identified with a specific institution (Ulicna et al. 2016).

Formal education in educational institutions is only part of jurisdictions' formation of skills. The exclusion of apprenticeships from the OECD's educational statistics understates the development of skills of the jurisdictions in which a relatively high proportion of skills are formed by apprenticeships (Deißinger, 2015). Some occupations develop expertise outside formal educational institutions and apprenticeships but with a sequence of various combinations of explicit teaching and informal learning, recognised after satisfactory evaluation and usually after completion of formal assessment. Examples are Austria's and Germany's master craftsperson examination (*MeisterInnenprüfung*), and the several medical specialisations.

Skills are also importantly developed informally, through interactions with friends, family, community groups, and at work. One may conceive of skills at a range of levels being developed informally, in apprenticeships and in formal educational institutions (Figure 1).

This paper does not consider occupational preparation at an advanced level, which was the core role of universities at their foundation in the middle ages (Cobban, 1975) and remains an important role of contemporary universities. Neither does it consider the formation of skills outside educational institutions such as in apprenticeships or informally. Rather, the paper is concerned with educational institutions' preparation for occupations which is relatively recent and transgresses conventions. A prominent development is colleges which conventionally offer shorter and lower level programs offering longer and higher level occupational preparation such as applied baccalaureates.

Another transgression is institutions such as universities which are most strongly identified with academic education offering education modes strongly identified with vocational education. An example is German universities' hybrid 'dual study' programs which have many of

the characteristics of Germany's regulated apprenticeships (Graf and Powell, forthcoming). Graf (2017) finds similarities between dual study programs in Germany and cooperative study programs (co-ops) offered by some universities in the USA and apprenticeship programs offered by USA community colleges.

Another example is those of the UK's higher and degree apprenticeships (UK Government, 2020; Reeve & Gallacher, forthcoming) which are more strongly integrated with work than the work integrated learning which is now common in universities (Trigwell & Reid, 1998). A third transgression is universities which are most strongly identified with longer and higher level programs offering shorter and lower level programs strongly identified with colleges or vocational education.

This paper uses 'higher vocational education' to refer to occupational preparation which is transgressive in one of these ways: vocational institutions offering higher level occupational qualifications, or higher education institutions offering forms of education strongly associated with vocational education. It is about higher vocational education developed in institutions, which is shaded darker in the figure, and is put in the context of other tertiary education shaded lighter in the figure.

Figure 1:

A continuum of skills levels developed in different levels of formality

Skill level	Informal	Apprenticeship	Institution
Very high			
High			
Medium			
Semi			
Low			
None			
	Higher vocational education		
	Context of higher vocational education		

2 Context

A country's tertiary education system and in particular its higher vocational education reflects as well as affects its general economic, institutional and social arrangements. A high proportion of manufacturing is likely to be associated with a high proportion of systematic vocational education (Thelen, 2014). Countries have different skills levels, and form different proportions in formal educational institutions, in formal occupational skills development such as regulated apprenticeships, informally at work, and informally in other sites such as in families and in community groups. The level of vocational education also reflects the proportion of informal economic activity in the economy. The capacity of governments to support educational institutions amongst other public services is reflection in their taxation as a proportion of gross domestic product, and there are several indicators of countries' relative equality of distribution of economic and other resources.

3 Parts of the Typology

The complexity of jurisdictions' arrangements of tertiary education is illustrated by the diagrams of their systems, for example, in Cedefop's VET-in-Europe country reports. This typology is not seeking to reflect that complexity. It is therefore very different from Pilz's (2016) multi perspective typology, which is shown on Universität zu Köln's (2019) web site. Rather, this typology seeks to represent idealized models of different types of tertiary education systems

to compare them and to highlight their basic similarities and differences in characterising and locating higher vocational education. It does so by identifying 3 basic levels and 3 basic objects of tertiary education. The typology is illustrated in Table 2.

I adopt the term ‘tertiary education’ to mean education at a higher level than primary and secondary education in the same meaning as the International Standard Classification of Education ISCED 2011 (UNESCO Institute for Statistics, 2012), which is commonly called ‘higher education’ in the USA and some Canadian provinces, and ‘post secondary education’ in other Canadian provinces and elsewhere. I adopt the term ‘short cycle’ tertiary education introduced by the OECD (1971) and by Furth (1973) but depart from ISCED 2011 in expecting its typical duration to be from 1 to 2 years. ISCED 2011 specifies that short cycle tertiary education ‘has a minimum duration of two years and is typically but not always shorter than three years’ (UNESCO Institute for Statistics, 2012, p. 48), but I believe this excludes too many tertiary programs of 1 year’s duration which develop substantial skills. Short cycle tertiary education leads to qualifications called variously the diploma, associate degree, and foundation degree.

What is called here long cycle higher education is consistent with ISCED 2011’s ‘Bachelor’s or equivalent first degree’ typically of 3 to 4 years’ duration (UNESCO Institute for Statistics, 2012, p. 46). In this typology there is 1 higher level of advanced tertiary education, which combines masters and doctoral levels of a standard duration of from 1 to 4 years, to doctoral programs often take up to 7 years. While there are substantial qualitative differences between masters and doctoral programs institutionalized by universities and recognized by ISCED 2011, the numbers of enrolments in doctoral programs are too modest and removed from higher vocational education to warrant adding further complexity to this typology.

The objects of tertiary education are categorized by 3 ideal types which are rarely found in idealized form in real systems: the acquisition of knowledge, preparation for an occupation, and training. Tertiary education that seeks to acquire knowledge are similar to ISCED 2011’s ‘general education’ (UNESCO Institute for Statistics, 2012, paragraph 55). Its fields are of disciplinary knowledge and the aim is to develop expertise in disciplinary knowledge. Tertiary education that seeks to prepare graduates for an occupation are similar to ISCED 2011’s ‘vocational education’ (UNESCO Institute for Statistics, 2012, paragraph 54). Its fields are of practice and the aim is to develop expertise in practice. I find gratuitous ISCED 2011’s distinction between ‘general’ and ‘vocational’ education up to tertiary level and ‘academic’ and ‘professional’ education for tertiary levels (UNESCO Institute for Statistics, 2012).

The distinction between occupational preparation and training is not always made explicit in classification systems, but is often implicit in policy and practice. While occupational preparation develops graduates for an occupation, training is narrower in scope in developing participants’ capacity to undertake a specific task. While occupational preparation develops graduates for a medium to long term career, training develops participants’ capacity for the short term to meet an immediate need. And while occupational preparation is typically from short to long duration, training is brief of from 1 to 150 days.

Examples of training are continuing vocational education which is sharply distinguished from initial vocational education in policy and practice in much of Europe. Other examples of training are programs offered by vendors to develop users’ skills in working their equipment or software. Many colleges, universities, and occupational associations offer training in the form of short courses at various levels, from introductory to advanced. The distinctions between occupational preparation are tabulated in Table 1: they are between broad and narrow focus, and longer and short duration.

Table 1*Distinctions between occupational preparation and training*

Characteristic	Occupational preparation	Training
Scope	Broad: Occupation	Narrow: Task
Horizon	Medium and longer term: Career	Short term: Immediate need
Typical duration	Short to long: 1 to 7 years	Brief: 1 to 150 days

This typology establishes nine types of tertiary education, illustrated in Table 2.

Table 2*Three objects and 3 levels of tertiary education*

	Knowledge acquisition	Occupational preparation	Training
Advanced			
Long cycle			
Short cycle			

4 Combinations of types of tertiary education

In principle it would be possible to establish 1 type of institution responsible for offering all nine ideal types of tertiary education. It would be equally possible in principle to establish nine different types of institution which were responsible for offering only one ideal type of tertiary education. Of course, with some limited exceptions no jurisdiction adopts either of these policies in practice. Rather, jurisdictions establish different types of institutions responsible for different combinations of different types of tertiary education. The main purpose of this paper is to describe and identify patterns in jurisdictions' different combinations of different ideal types of tertiary education in different ideal types of institutions. Groups of institutions which have similar combinations of types of tertiary education are often grouped as sectors for the purposes of policy and analysis.

4.1 Austria

This typology's concentration on tertiary education provided by educational institutions does not show the substantial formal development of skills including higher vocational skills in the Germanic apprenticeship systems (DACHL – *Deutschland*, Austria, *Confoederatio Helvetica* (Switzerland) and Luxembourg). Austria has 200 legally recognized *Duale Ausbildung* (dual apprenticeship training) programs at upper secondary vocational level (ISCED 354). Some 42% of *Duale Ausbildung* are in crafts and trades, 14% in commerce, and 14% in industry (Tritscher-Archan, 2016).

Neither does this typology include higher level vocational skills developed mostly in companies but also for around 2% of candidates in specialized continuing vocational education and training institutions such as *Meisterschule* (school for master craftspeople), *Werkmeisterschule* (school for industrial master), and *Bauhandwerkerschule* (building craftsperson school) (Musset et al., 2013; Tritscher-Archan, 2016).

Much training which is very important in the labour market does not lead to qualifications regulated by government and is not included in official statistics. It is offered by around 1,800 bodies of the social partners of chambers of commerce and unions, such as *Wirtschaftsförderungsinstitut* (WIFI – Institute for Economic Promotion of the Austrian Economic Chambers)

and *Bildung Freude Inklusive* (Chamber of Labour and the Austrian Trade Union Federation Vocational Training Institute) (Tritscher-Archan, 2016).

Continuing vocational education and training was also offered by 87% of companies to 33% of their employees in 2010. Each participant spent an average of 30 hours of paid work time attending courses during the year (Tritscher-Archan, 2016).

Austria's tertiary education is constructed by its federal government and its 16 Bundesländer (Austrian states). *Universitäten* (universities) offer academic programs but also programs of advanced occupational preparation in architecture, business, engineering, information technology, and law. Medicine is often offered by specialized medical universities and teacher education programs are offered by *Pädagogische Hochschule* (university colleges). Austria's *Fachhochschulen* (universities of applied science) offer mostly long cycle and advanced occupational preparation up to masters but not PhDs. They offer programs in business, computing, design, engineering, and social work. Higher vocational education is one of their core roles.

Berufsbildende höhere Schulen (literally: vocational higher schools) are specifically Austrian in their overlap of upper secondary and post secondary levels (Musset et al., 2013). They offer programs of 5 years' duration at upper secondary level (ISCED 354) and short cycle vocational education (ISCED 554) (Tritscher-Archan, 2016) which Musset, Bloem, Fazekas and Field (2013) call in English 'VET colleges' while Tritscher-Archan (2016) renders them as 'colleges for higher vocational education'. Graf et al. (2012) describe the historical development and hybrid status of *Berufsbildende höhere Schulen*.

Figure 2

Major idealized types of tertiary education institutions in Austria

Level	Knowledge acquisition	Occupational preparation	Training
Advanced	Universitäten	Fachhochschulen	Wirtschaftsförderungsinstitut Bildung Freude Inklusive, institutions
Long cycle			
Short cycle		Berufsbildende höhere Schule	

4.2 Germany

Full-time vocational schooling at the upper-secondary level is very important in Germany for developing occupational skills and preparing for higher level vocational education, but is not considered higher vocational education for the purposes of this study. This typology's concentration on tertiary education provided by educational institutions does not show the substantial formal development of skills including higher vocational skills in the Germanic apprenticeship systems (DACHL – *Deutschland*, Austria, *Confoederatio Helvetica* (Switzerland) and Luxembourg). *Duale Ausbildung* (dual apprenticeship training) of 3 and 3.5 years' duration is classified at the German and European qualification level 4, the same level as upper secondary education. Neither does this typology include higher level vocational skills developed mostly in companies such as *Fachkaufmann* (commercial specialist), *Fachwirt* (business management specialist), *Meister* (master craftsman) nor Operative IT-Professional, which are categorized at

German and European qualification level 6, the same as bachelor (Hippach-Schneider & Huisman, 2019).

Germany's tertiary education is constructed by its federal government and its 16 *Länder* (constituent states), which reflect their different social and economic natures. Since *Länder* have distinctive arrangements a full depiction of all arrangements would be very complex. Only the broad mostly general outlines are considered here. Germany has a very strong tradition of developing academic knowledge at upper secondary level and in *Universitäten* (universities). *Universitäten* also offer agriculture, business, computing, education, engineering, law, medicine, pharmacy, and veterinary medicine. There are also *Technische Universitäten* which offer engineering sciences and social sciences, *Pädagogische Hochschulen* (universities of education), *Kunsthochschulen* (universities of arts) and *Musikhochschulen* (universities of music).

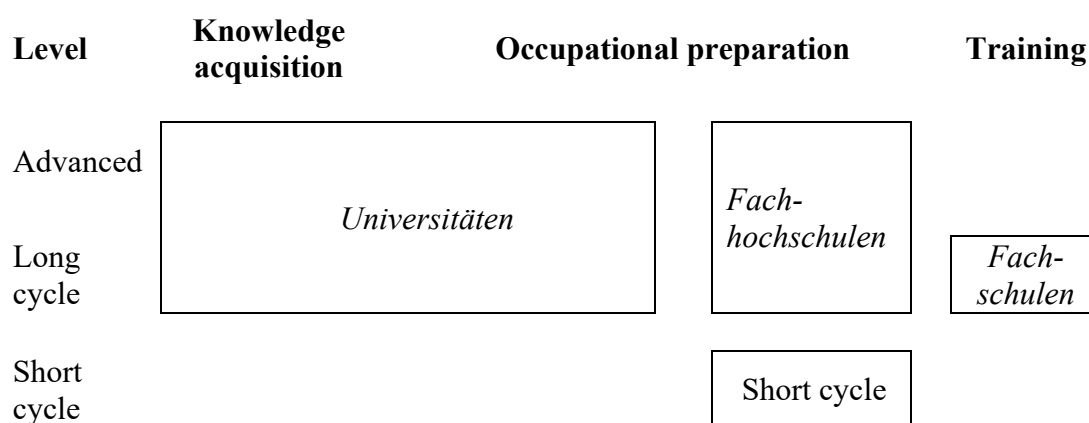
Germany's *Fachhochschulen* (universities of applied science) offer mostly long cycle and advanced occupational preparation up to masters but not PhDs. They emerged from engineering schools but now also offer art and design, business and management, communication studies, computer science, and social services. Higher vocational education is one of their core roles.

Graf and Powell (forthcoming) describe dual study programs which are mostly often offered by *Fachhochschulen*, but also by vocational academies, a few academic universities, or in the *Land* of Baden-Wuerttemberg by the Baden-Wuerttemberg Cooperative State University (Duale Hochschule Baden-Württemberg, 2020).

Thelen (2014) observes that in Germany firms are responsible for initial vocational education and training, the state for training the unemployed, and individuals themselves for continuing vocational education and training. Germany has therefore long had very weak continuing vocational education and training (Thelen, 2014) and thus training. Thelen (2014) reports that in the Netherlands and Denmark collectively bargained branch funds support a broad provision of continuing vocational education and training, which is subsidised by the Denmark state, but that 'such funds play a very marginal road in Germany'.

Figure 3

Major idealized types of tertiary education institutions in Germany



4.3 UK

Universities and other higher education providers are responsible for long cycle and advanced knowledge acquisition and long cycle and advanced occupational preparation. Universities and other higher education providers also provide some training, but most training is provided by specialized training providers, employers, vendors, and others.

Higher national diplomas, diplomas of higher education, and foundation degrees are short cycle programs, mostly for occupational preparation, which are the responsibility of universities and other higher education providers, sometimes shared with further education colleges. However, in 2018/19 they were only 2.2% of all higher education qualifications awarded (Higher Education Statistics Agency, 2019) and so are considered too detailed to be shown in this broad idealized typology of UK tertiary education. Nonetheless, they would likely be considered part of higher vocational education.

Further education is shown as the main provider of short cycle tertiary education, both for knowledge acquisition and for occupational preparation. Short cycle tertiary education programs have rather different financing, accreditation, and quality assurance depending on their orientation and source of funding (Moodie et al, 2018). This might have suggested that short cycle tertiary education be shown in separate boxes for knowledge acquisition and occupational preparation, but colleges seek to offer seamless options to their students, despite the obstacles caused by different sources of funding and coordination, and so they are shown as part of one provision in Figure 4.

‘Higher education’ and ‘further education’ are treated as markedly different sectors by governments, institutions, and students.

Short cycle training is offered by further education colleges, training providers and local education authorities (National Careers Service, n.d.).

While the UK has no institution specifically responsible for long cycle occupational preparation, this role is fulfilled by universities and other higher education providers which have been rather more applied or utilitarian than their analogues in otherwise similar countries since polytechnics were incorporated into this sector from 1992. Some universities offer what are variously called higher, degree, and graduate apprenticeships (Reeve & Gallacher, forthcoming).

Figure 4

Major idealized types of tertiary education institutions in the UK

Level	Knowledge acquisition	Occupational preparation	Training
Advanced	Universities and other higher education providers		Unis & others
Long cycle			
Short cycle	Further education colleges		Colleges & providers

5 Some Patterns

Both the construction of an idealized form of each jurisdiction’s tertiary education and the location of higher vocational education within each system required exercises of judgement, so generalisations from those constructions reflect those judgements.

Of the 11 jurisdictions reviewed, all had long cycle knowledge acquisition and occupational preparation conducted in 1 type of institution, most commonly known as a university (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Likewise all jurisdictions had short cycle occupational preparation offered by one type of institution, most commonly called a college.

Only five jurisdictions typically offered short cycle knowledge acquisition and occupational preparation in 1 type of institution, which might be called comprehensive colleges: South Africa, the UK, the USA, western Canada which is modelled on the USA, and the distinctive Québec. The other institutions offered short cycle occupational preparation in institutions which do not have a major role in knowledge acquisition, which might be called vocational colleges: Australia, Austria, Canada East, Chile, China, and Germany. Only 4 of the jurisdictions reviewed here had an institutional type focussed on long cycle occupational preparation, which are called variously *Fachhochschulen*, universities of applied science, universities of technology, *Institutos Profesionales* and formerly, polytechnics: Austria, Chile, Germany, and South Africa.

Table 1

Distinctions between occupational preparation and training

Jurisdiction	Unified long KA & OP	Unified short KA & OP	Separate long OP	Separate short OP
Australia	✓	x	x	✓
Austria	✓	x	✓	✓
Canada West	✓	✓	x	✓
Canada East	✓	x	x	✓
Canada QC	✓	✓	x	✓
Chile	✓	x	✓	✓
China	✓	x	x	✓
Germany	✓	x	✓	✓
South Africa	✓	✓	✓	✓
UK	✓	✓	x	✓
USA	✓	✓	x	✓

There was considerable variation in the location of responsibility for higher vocational education: in universities alone in Australia and Québec; in universities and comprehensive colleges in the UK and USA; in universities and vocational colleges in Canada East and China; in *Fachhochschulen* (FHS) and similar institutions alone in Chile, Germany, and South Africa; and Austria was the only jurisdiction reviewed which located higher vocational education in *Fachhochschulen* and vocational colleges (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Colleges have newly become responsible for higher vocational education in Canada, the UK, USA; and South Africa's universities of technology are a relatively recent development from their former technikons.

Table 4

Location of responsibility for higher vocational education in 11 jurisdictions

Jurisdiction	Universities alone	Universities and compre- hensive colleges	Universities and voca- tional col- leges	FHS alone	FHS and vo- cational col- leges
Australia	✓				
Austria					✓
Canada West		✓			
Canada East			✓		
Canada QC	✓				
Chile				✓	

Jurisdiction	Universities alone	Universities and comprehensive colleges	Universities and vocational colleges	FHS alone	FHS and vocational colleges
China			✓		
Germany				✓	
South Africa				✓	
UK		✓			
USA		✓			

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References

- Cedefop (Centre Européen pour le Développement de la Formation Professionnelle / European Centre for the Development of Vocational Training). (2020). VET-in-Europe country reports. <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vet-in-europe-country-reports> (accessed 16 March 2020).
- Cobban, A. B. (1975). *Medieval universities: their development and organization*. London: Methuen & Co Ltd.
- Deißinger, T. (2015). International education policy: its influence on the conception of VET and the VET system in Germany. *Research in Comparative & International Education*, 10(4), 607–621.
- Duale Hochschule Baden-Württemberg. (2020). Cooperative education at DHBW. <https://www.dhbw.de/english/dhbw/cooperative-education-at-dhbw.html>
- Furth, D. (Ed.) (1973). *Short-cycle higher education. A search for identity*. Organisation for Economic Cooperation and Development. https://archive.org/details/ERIC_ED081325
- Graf, L. (2017). Work-based higher education programmes in Germany and the US: Comparing multi-actor corporatist governance in higher education. *Policy and Society*, 36(1), 89–108. <https://www.tandfonline.com/doi/full/10.1080/14494035.2017.1278872>
- Graf, L., Lassnigg, L., & Powell, J. J. W. (2012). Austrian corporatism and gradual institutional change in the relationship between apprenticeship training and school-based VET. In M. R. Busemeyer & Trampusch, C. (Eds.), *The political economy of collective skill formation* (pp. 150–178). Oxford University Press. https://lukasgraf.de/wp-content/uploads/2019/12/GrafLassniggPowell2012_AustrianCorporatismAndCollectiveSkillFormation.pdf
- Graf, L., & Powell, J. W. (forthcoming). The origins and contemporary development of work-based higher education in Germany: Lessons for Anglophone countries? In E. Knight, A.-M. Bathmaker, K. Orr, S. Webb, L. Wheelahan, & G. Moodie (Eds.), *Realising the dream: Equity, high skills and productivity through higher level vocational education*. Palgrave Macmillan.
- Higher Education Statistics Agency. (2019). *What are HE students' progression rates and qualifications? HE qualifications obtained by level of qualification. Academic years 2014/15 to 2018/19*. <https://www.hesa.ac.uk/data-and-analysis/students/outcomes>
- Hippach-Schneider, U., & Huismann, A. (2019). *Vocational education and training in Europe: Germany*. <http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vocational-education-and-training-europe-germany-2018>
- Moodie, G., Wheelahan, L., Lavigne, E., & Coppens, L. (2018). *Case study of further education in England preliminary report*. Education International. https://issuu.com/educationinternational/docs/2018_eiresearch_tvet_england_preli

- Musset, P., Bloem, S., Fazekas, M., & Field, S. (2013). A skills beyond school review of Austria. OECD Publishing. <http://dx.doi.org/10.1787/9789264200418-en>
- National Careers Service. (n.d.). *Find a course*. <https://nationalcareers.service.gov.uk/find-a-course>
- OECD. (1971). *Towards new structures of post-secondary education; a preliminary statement of issues*. Organisation for Economic Cooperation and Development. <https://eric.ed.gov/?q=%22Towards+new+structures+of+postsecondary+education%22&id=ED052698>
- Pilz, M. (2016). Typologies in comparative vocational education: Existing models and a new approach. *Vocations and Learning*, 9(3), 295–314.
- Reeve, F., & Gallacher, J. (forthcoming). Higher vocational qualifications: Differing approaches within the UK to meeting skills needs for the 21st century. In E. Knight, A.-M. Bathmaker, K. Orr, S. Webb, L. Wheelahan, & G. Moodie (Eds.), *Realising the dream: Equity, high skills and productivity through higher level vocational education*. Palgrave Macmillan.
- Thelen, K. (2014). *Varieties of liberalization and the new politics of social solidarity*. Cambridge University Press.
- Trigwell, K., & Reid, A. (1998). Introduction: Work-based learning and the students' perspective. *Higher Education Research & Development*, 17(2), 141–154.
- Tritscher-Archan, S. (2016). *Vocational education and training in Europe – Austria*. <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/austria-vet-europe-country-report-2016>
- UK Government. (2020). *Higher and degree apprenticeships*. <https://www.gov.uk/government/publications/higher-and-degree-apprenticeships>
- Ulicna, D., Messerer, K. L., & Auzinger, M. (2016). Study on higher vocational education and training in the EU. European Commission. <https://op.europa.eu/en/publication-detail/-/publication/cf35147d-0a60-11e7-8a35-01aa75ed71a1>
- UNESCO Institute for Statistics. (2012). *International Standard Classification of Education ISCED 2011*. United Nations Educational, Scientific and Cultural Organization Institute for Statistics. <http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>
- Universität zu Köln Institut für Berufs-, Wirtschafts- und Sozialpädagogik. (2019). *Multi-perspective VET typology*. <https://wipaed.uni-koeln.de/de/forschen/german-research-center-for-comparative-vocational-education-and-training-great/overview-multi-perspective-typology-in-comparative-vocational-education/>

Biographical notes

Dr **Gavin Moodie** is Adjunct Professor in the Department of Leadership, Higher, and Adult Education, Ontario Institute for Studies in Education, University of Toronto.

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VET and Regional Innovation Strategies in Spain: An Analysis of the Public Agenda

Moso-Díez, Mónica

Bankia Foundation for Dual Training, mmoso@fundacionbankia.com

Abstract

The aim of this paper is to analyse the presence, nature and scope of vocational education and training (VET) on the public agenda for regional Research and Innovation Strategies for Smart Specialisation (RIS3) in Spain. The research question is: How is VET included in regional smart specialisation strategies in Spain? The objects of analysis are the governance and conceptualisation of VET both in the context of the RIS3 agendas established and in the setting of strategic priorities and final objectives in Spain's autonomous regions (N=17). This paper's methodology combines qualitative document and content analysis with quantitative analysis of the European RIS3 database (Eye@RIS3). The findings indicate that the VET system is not included in most RIS3 since it is not considered an innovation actor but rather an attribute of the socioeconomic context relating to workforce and skills. The data show that strategic priorities relating to education (both as an economic sector and as a research area) are few and far between and that, when it comes to VET, these are practically non-existent in all but a few regions. The relevance of this study lies in its novelty, as there is very little research in this area, and it is important to emphasise the need for further analysis in the future.

Keywords

Regional Research and Innovation Strategies for Smart Specialisation (RIS3), VET and innovation, public agenda analysis

1 Introduction

The objective of this article is to analyse the presence, nature and scope of vocational education and training (VET) within regional Research and Innovation Strategies for Smart Specialisation (RIS3) in Spain. The research question is: How is vocational education and training included in smart specialisation strategies in Spain's various autonomous regions in terms of innovation?

1.1 The EU as the driver of RIS3

This section explains what smart specialisation strategies are and how they emerged from the heart of the European innovation agenda. It also describes their subsequent inclusion in national and regional agendas and their integration into the agendas of Spain's autonomous regions.



The EU defines smart specialisation as the capacity of an economic system to generate new specialities through the discovery of new domains of opportunity and the local concentration and agglomeration of resources and competences in these domains (European Commission, 2017). This type of specialisation considers territories (specifically, regions) to be the key units of action as they provide the setting in which the main competitiveness and innovation actors interact and are where socialisation processes feed back into the various spheres (educational-scientific, business-sectoral and political-institutional) within those territories. This approach, which derives from the evolutionary theory of innovation (Asheim, Grillitsch and Trippl, 2016; Freeman, 1994; Cooke, 1992) emphasises the influence that socialisation processes have on innovation, and specially on applied innovation occurring in the product, organisational or business spheres. The literature in the field of RIS3 is still emerging (Porto and Doloreux, 2018; Foray, 2017). In the Spanish context, the literature mainly analyses specific autonomous regions as case studies (Navarro et al., 2017; Olazaran y Brunet, 2013), being the Basque Country and Navarre cases the most prolific. (Navarro et al., 2018; Albizu et al, 2017, 2011).

The inclusion of smart specialisation on the European agenda translates as the RIS3 initiative via which the European Commission has encouraged each region or nation to draw up a specific policy to promote smart specialisation by aligning innovation and competitiveness policies (European Commission, 2017). The interest in developing this type of regional innovation policy fundamentally stems from four concerns.

Firstly, the EU wants to achieve economies of scale in innovation as, by concentrating knowledge resources and linking them to a limited number of priority economic activities, countries and regions can become competitive in the global economy. The goal is to make regions ‘smarter’ by identifying their innovation assets and strengths and articulating priorities that concentrate their efforts in a way that maximises outcomes (Foray et al., 2014).

Secondly, the need to improve innovation performance is key for the EU, as set out in the 2020 Strategy and flagship innovation actions (European Commission, 2010a). The latest innovation performance scoreboard shows that there is room for improvement, as only one in three countries can be considered innovation leaders or strong innovators, while two thirds are merely modest or moderate innovators. This scoreboard is based on scores for 27 separate indicators, including innovation activities in companies, investment in research and innovation, and human resource and employment elements, and is the most widely established national and regional benchmark. (European Innovation Scoreboard, 2020).

Thirdly, the relevance of this initiative means that its integration in regional public agendas must be strategic and achieve the greatest possible consensus, attained by encouraging a participative and bottom-up agenda-setting process. The goal of this governance and participation is twofold: on the one hand, to agree on the most appropriate priorities for each region and so define a shared vision for regional innovation and, on the other, to gain the commitment of innovation system actors. These cover a broad range, spanning local government, academia, strategic sectors, companies and civil society (McCann et al., 2012).

Fourthly, at the level of institutional performance and the financing framework, the EU seeks to maximise efficiency, effectiveness and co-responsibility for the funds assigned to innovation (‘smart financing’). The goal is to leverage public and private funds towards smart specialisation priorities to achieve greater reach and performance. This has led to it becoming a requirement for access to European funding, as since 2014 EU regional and national authorities are required to develop RIS3 before investing European Regional Development Fund (2014–2020) finance in research and innovation (European Commission, 2010b).

As a result of this requirement, these strategies have grown exponentially and over 200 national and regional RIS3 strategies have been drawn up and published, although implementation of them has been very uneven. In the EU, over EUR 67 billion are available to support

these strategies under the European Structural and Investment Funds and national/regional funding. In Spain's case, each of the country's autonomous regions has drawn up an RIS programme and included it on the public agenda for regional policy (Moso-Diez et al., 2019).

1.2 RIS3 agenda-setting and VET in Spain

This section sets out the framework for analysing the RIS3 drawn up by Spain's regions (N=17) taking VET as a vector. This analysis will be limited to public policy in the agenda-setting phase. Firstly, it is important to note that in the context of smart specialisation Spain is considered a moderate innovator in which there is wide divergence between regions with very different productive, sociodemographic and institutional systems (European Innovation Scoreboard, 2020). Secondly, it should be emphasised that setting the public agenda for RIS3 follows common guidelines proposed by the European Commission. The main instrument in this regard is the 'Guide to Research and Innovation Strategies for Smart Specialisations (RIS3)' (McCann et al. 2012; Gianelle et al., 2016). This guide is aimed at managing authorities responsible for structural funds, policy-makers and regional development officers. It sets out the concept of smart specialisation and provides guidance on how to develop RIS3. Guidance is structured around six practical steps: first, analysing the innovation potential; second, setting out the RIS3 process and governance; third, developing a shared vision; fourth, identifying the priorities; fifth, defining an action plan with a coherent policy mix; and finally, monitoring and evaluating. Thirdly, a comprehensive framework for analysing RIS3 is proposed. In the framework of those policy agendas (Howlett, Ramesh and Perl, 2009), VET is analysed according to the nature, role and scope conferred in relation to the main issues influencing the setting of a public policy agenda. Four sets of variables are analysed.

The first set of variables analyses governance in the RIS3 agenda-setting process from the perspective of the VET vector. As a starting point, the inclusion of VET system actors in the governance architecture set up to define RIS3 is analysed. In other words, the focus is on analysing whether VET actors are included as part of the innovation system, whether they are merely considered an external actor, or whether neither of the former apply. Likewise, this paper studies the type of participation undertaken by VET actors in the various participative spaces created, such as committees and expert, sectoral and consultative groups.

The second set of variables studies VET in the conceptualisation of innovation and RIS3 governance, which is particularly found in the initial phase of the agenda-setting process when analysis of the region's innovation potential is conducted. The focus is on analysing the underlying conceptualisation of the nature and role of VET in the innovation system, i.e. on VET as an innovator, VET as an education and training supplier, or as neither of the former. It also analyses the understanding of VET functions within the innovation system from a functional perspective, i.e. VET as an innovator, VET as a trainer, or as neither of the former.

The third set of variables includes the specific influence of VET on strategic priorities established during the agenda-setting process. This refers to those priorities that strengthen the economic domain in terms of economic activity or strategic sectors, where VET would fall within the education domain (NACE Rev. 2). This paper also analyses how the priorities strengthen the scientific research that constitutes the scientific domain (NABS, 2007).

The second set of variables includes the specific influence of VET final objectives in relation to RIS3. Their relationship with the economic (NACE Rev. 2) and scientific (NABS, 2007) domains are also analysed.

2 Methodology

This paper's methodology combines qualitative document and content analysis with quantitative statistical analysis (Excel 19.0) of the European RIS3 database (Eye@RIS3).

The methodology is qualitative and based on bibliographic, documentary and content analysis. Analysis focuses on the public institutional document ‘RIS3 2014–2020’. In total, there are 17 autonomous regions, each with their corresponding RIS3 programmes (N=17). For this purpose, the EU guidelines for defining RIS3 (Gianelle et al., 2016; McCann et al., 2012) are taken as reference.

This paper also conducts a quantitative analysis of the RIS3 database hosted on the official platform to link the strategic priorities both with the objectives and the domains (economic or scientific) from which they stem. It is important to note that this database (Eye@RIS3) displays public investment priorities for innovation across Europe at national and regional level. It is relevant to use this tool because within the EU priorities are linked to the use of the European Regional and Development Fund (ERDF). In Eye@RIS3, data are based on the information found in Smart Specialisation Strategies and related strategic frameworks (Eye@RIS3, 2020). Strategic priorities are classified from:

- an economic approach using the Statistical Classification of Economic Activities in the European Community (NACE rev. 2) and
- a scientific approach using the Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets (NABS 2007).

Data collection is designed to match the analytical and methodological framework, making it possible to quantify fully the various items analysed in Table 1. The findings are then presented and discussed before setting out the conclusions of the study.

Table 1

Main factors defining the RIS3 agenda in terms of VET

VET vector	Strategic priorities	Final objectives
Scientific domain	N	N
Economic domain	N	N

It is important to note that the data taken from the RIS platform (the origin of which is an official EU source) may not fully match the RIS3 programmes published by Spain’s autonomous regions. This is because this tool provided by the European Commission draws on the RIS3 documents provided by Europe’s regions and, in the case of several Spanish ones, the RIS3 documents used are not always the Final RIS3 document as sometimes the Draft RIS3 document is used instead. This could lead to discrepancies, which should be studied in future research.

3 Results

Preliminary results indicate that VET is either non-existent or has a very low profile in most regional smart specialisation strategies. As for its presence, this is more of an advisory and non-binding nature, with little capacity for influence. Moreover, when VET is present, its role is mainly that of trainer for employment (Hazelkorn & Edwards, 2019; Cedefop, 2017) — to the detriment of training and educating young people — and it has practically no presence as a technology transfer or innovation actor (Toner and Woolley, 2016; Rosenfeld, 1998). Except for a few regions such as Basque Country and Navarre, VET is not systematically included as a regional innovation issue and barely as a key RIS3 actor.

From the perspective of RIS3 governance, VET actors’ presence is virtually non-existent in most of Spain’s autonomous regions. The region where they have greatest presence as a direct

innovation actor is in the Basque Country, where VET representatives participate on various committees and working groups with both executive and, above all, consultative roles.

Table 2

Governance defining the RIS3 agenda in terms of VET

VET	Scenario 1	Scenario 2	Scenario 3
Process inclusion	VET as part of the innovation system	VET as an external element	None
Participation	Executive actor	Consultative	None
Intensity	Very low	Very low	High

Source. Compiled in-house.

As regards the conceptualisation of VET in the agenda-setting process, especially when analysing the region's innovation potential, a pattern similar to the one above is observed. In the case of the role of VET, in some contexts its role is explicitly that of competence supplier (particularly of digital competences). Even though talent, competences, skills and human capital are systematically referenced in all Spain's RIS3, the role of VET remains more implicit than explicit and it is rarely mentioned

Table 3

Conceptualisation of innovation defining the RIS3 agenda in terms of VET

VET	Scenario 1	Scenario 2	Scenario 3
Role	Applied innovator	Vocational trainer	None
Functions	Technology transfer	Knowledge & skills transfer	None
Intensity	Very low	Low–Medium	High

Source: Compiled in-house.

Regarding the articulation of strategic priorities and the objectives to be pursued, this paper conducts a comparative quantitative analysis based on the content of the official RIS3 database (Eye@RIS3).

Table 4 shows that the total priorities of all the autonomous regions is 133, with an average of 7.8 for each of them, although the deviations indicate that regions such as Galicia, Navarre and Valencia are far above, and by below Rioja, Balearic Islands and Castile and Leon. This proportion is partially reflected in the final objectives (N = 615), which would give an average of 36 for each region, but Galicia (N = 78), Castile and Leon (N = 65) and Madrid (N = 64). In the case of Galicia there is coherence between the highest proportion of priorities and objectives, but this is not the case in the rest.

Table 5 shows that the proportion of strategic priorities that correspond to the economic domain of Education (N=8) with respect to the total (N= 81) is very low (1.38%), and more than a third are concentrated in the Balearic Islands.

Table 6 shows that the proportion of strategic priorities that correspond to the scientific domain of Education (N = 9) with respect to the total (N = 1'167) is extremely low (0.77%) and mostly they are concentrated in Navarre (77.7%).

Table 4*N and % of priorities and objectives, by autonomous region and total*

Autonomous regions	Strategic priorities			Final objectives		
	N	%	Desv. Mean	N	%	Desv. Mean
Andalusia	8	6.0%	0.18	30	4.9%	-6.18
Aragon	9	6.8%	1.18	42	6.8%	5.82
Asturias	5	3.8%	0.18	28	4.6%	-8.18
Balearic Islands	6	4.5%	0.18	38	6.2%	1.82
Basque Country	7	5.3%	-1.82	33	5.4%	-3.18
Canary Islands	8	6.0%	-0.82	56	9.1%	19.82
Cantabria	8	6.0%	-0.82	28	4.6%	-8.18
Castile and Leon	6	4.5%	-0.82	65	10.6%	28.82
Castile-La Mancha	7	5.3%	4.18	26	4.2%	-10.18
Catalonia	7	5.3%	3.18	13	2.1%	-23.18
Extremadura	5	3.8%	-2.82	41	6.7%	4.82
Galicia	15	11.3%	7.18	78	12.7%	41.82
Madrid	7	5.3%	-1.82	64	10.4%	27.82
Murcia	8	6.0%	-3.82	26	4.2%	-10.18
Navarre	12	9.0%	-0.82	13	2.1%	-23.18
Rioja	4	3.0%	-2.82	19	3.1%	-17.18
Valencia	11	8.3%	0.18	15	2.4%	-21.18
Total general	133	100.0%		615	100.0%	

Source: Compiled in-house from Eye@RIS3 data; Desv. Mean: deviation from the Spanish average

Table 5*N and % of priorities in the economic domain of education, by autonomous region*

	General (N)		Education (N)	
		%		%
Andalusia	39	6.7%	0	0.00%
Aragon	43	7.4%	1	0.17%
Asturias	21	3.6%	0	0.00%
Balearic Islands	50	8.6%	3	0.52%
Basque Country	25	4.3%	0	0.00%
Canary Islands	36	6.2%	0	0.00%
Cantabria	24	4.1%	0	0.00%
Castile and Leon	35	6.0%	0	0.00%
Castile-La Mancha	36	6.2%	0	0.00%
Catalonia	26	4.5%	0	0.00%
Extremadura	14	2.4%	0	0.00%
Galicia	80	13.8%	0	0.00%
Madrid	26	4.5%	0	0.00%
Murcia	38	6.5%	1	0.17%
Navarre	48	8.3%	2	0.34%
Rioja	14	2.4%	0	0.00%
Valencia	26	4.5%	1	0.17%
Total	581	100.0%	8	1.38%

Source: Compiled in-house from Eye@RIS3 data

Table 6*N and % of priorities in the scientific domain of education, by autonomous region*

Autonomous regions	Scientific domains			
	General (N)	%	Education (N)	%
Andalusia	117	10%	0	0.00%
Aragon	54	4.6%	0	0.00%
Asturias	37	3.2%	0	0.00%
Balearic Islands	30	2.6%	1	0.09%
Basque Country	92	7.9%	0	0.00%
Canary Islands	49	4.2%	0	0.00%
Cantabria	31	2.7%	0	0.00%
Castile and Leon	74	6.3%	0	0.00%
Castile-La Mancha	32	2.7%	0	0.00%
Catalonia	113	9.7%	0	0.00%
Extremadura	32	2.7%	0	0.00%
Galicia	107	9.2%	0	0.00%
Madrid	52	4.5%	0	0.00%
Murcia	50	4.3%	1	0.09%
Navarre	136	11.7%	7	0.60%
Rioja	15	1.3%	0	0.00%
Valencia	146	12.5%	0	0.00%
Total	1'167	100%	9	0.77%

Source: Compiled in-house from Eye@RIS3 data

Finally, concerning the final objectives, only one type of target that is related to VET has been found, whose is called '*Social innovation with regard to education, skills & training*', and is within the section of Social Innovation. When it is measured in the different Autonomous regions' RIS3 Strategy Plans, it is found solely a single result (N=1) out of the total (N=615), so it could be said that their presence is null.

4 Discussion

The overall findings are highly consistent and show that VET's presence and role in defining RIS3 is practically non-existent in most of Spain's autonomous communities. This marginal position of the VET system as a subject of RIS3 is consistent with its marginal position as an object. As a subject of RIS3, VET is considered a systemic actor with the capacity to operate in a variety of ways within its scope. In Spain, the VET system is made up of the Initial VET subsystem (aimed more at young people) and the Continuing VET subsystem (aimed more at employed and unemployed adults). The most well-established role for VET as subject is that of educating and training, providing the labour market with a supply of qualified and/or skilled graduates both today and throughout their working lives. However, in the last two decades several experiences have shown that VET plays an additional role, contributing to applied innovation through its capacity to transfer technology to companies in its environment (especially micro-enterprises and SMEs), as well as through its capacity to facilitate test programmes, pilot schemes and deployment projects. In this latter sense, the Basque Country and its VET Applied Research Centre, stand out particularly.

As a subject of RIS3, the actors that make up the VET system (authorities, centres, lecturers, students, partner companies, applied innovation centres, etc.)¹ are conspicuous by their absence. The practical non-existence of VET system actors on the various decision-making and consultative bodies is common to most of the country's autonomous regions. Moreover, in those regions in which these actors do participate it is normally only on a consultative basis and even then, only in the most pioneering cases, such as the Basque Country and Navarre. Very few autonomous regions recognise VET's role as a supplier of competences (particularly digital ones) and, even then, they usually only do so implicitly. In most cases, VET is relegated to the position of attribute of the employment or socioeconomic system.

Apart from the exceptions mentioned above, VET is not considered a subject of RIS3. This absence shows that in the innovation system's collective imagination, as well as in its institutional and operational deployment, the VET system is considered far removed from innovation. However, a change of direction is starting to emerge in several autonomous regions, which are starting to view VET as part of the innovation system, considering its main role to be that of training supplier (associated mainly with STEM and industrial courses), as well as assigning it the secondary role of transferring applied innovation to local firms.

VET as an object of RIS3 is understood in terms of those elements of the innovation system that are economic or scientific in nature. From the economic perspective, VET is seen as part of the education sector, as is reflected in the European classification of economic activities (classified as P. 85). This economic activity spans the various levels of the general education system,² as well as other training. However, RIS3 groups all this economic activity together, which makes it impossible to separate VET from the rest. In addition to classifying VET as an object (or economic domain), RIS3 includes VET as a scientific domain, in other words as an area of scientific research. In this case, VET, which is grouped at the post-secondary non-tertiary education level, can be distinguished from the rest of the education domain. While VET is given a higher profile in the scientific domain, the classification provided is far from adopting a systemic view of VET, as not only does it exclude Continuous VET, but it also adopts a debatable view of research in education (Moso-Diez, 2019).

VET's marginal role as both an economic and scientific object of the RIS3 strategic priorities is made clear since it represents a negligible proportion of both the overall number of priorities and those corresponding to education. The case is similar when the final objectives of RIS3 are analysed. The limited research into VET, in terms of strategic priorities and final objectives, is focused on vocational skills and, in particular, digital skills. This is striking because while there is a generic acceptance of the need to upgrade competences, qualifications and learning capacity, the VET system in both its educational and vocational dimensions continues to be ignored.

Finally, we should say that the quantitative findings are meaningful and show that the attitude to governance and conceptualisation of innovation is reflected in the strategic priorities and final objectives articulated by the RIS3 programmes drawn up by Spain's autonomous regions, which do not include the VET system.

¹ When the agenda-setting process began in 2012, Spain only had one applied innovation centre — the Basque VET Applied Research Centre (Tknkia <https://tknika.eus/en/>). This pioneering approach was found only in the Basque Country.

² Education as economic activity is broken down into the following categories: pre-primary education, primary education, secondary education, higher education, other education and educational support activities. Secondary education includes general secondary education and technical and vocational secondary education. Finally, higher education includes post-secondary non-tertiary education and tertiary education.

From a methodological perspective, it will be interesting to validate these priorities and objectives with those final RIS3 documents not included on the official platform, and then to verify them with the respective interim RIS3 assessments conducted by the country's autonomous regions, which have not been analysed in this paper as they fall outside its scope.

5 Conclusions

From the perspective of RIS3 policies, the competent authorities should reflect on the role of the VET system within regional innovation systems since that is the direction that Spain's most pioneering regions are taking. This would mean that in future RIS3 agenda-setting processes (e.g. for RIS3 2018–2021), governance would include VET as an active subject of regional innovation. It would also be beneficial to include VET as an object of RIS3, conceptualising it as part of autonomous regions' innovation potential when analysing both the local context and the SWOT. All this should lead to an increase in the number of strategic priorities and final objectives that include VET as either a subject or object of RIS3. From the research perspective, there needs to be more research linking the VET system (initial and continuing) to innovation, supporting that relationship with data and evidence. As regards RIS3, it is usual to study individual cases rather than comparing them, and these studies tend to be more descriptive than explanatory, indicating a need to advance further in this direction. It is also important to establish new theoretical approaches to these studies. In addition, it would be beneficial to have access to up-to-date official data so as both to analyse them in greater depth and to compare them, and to do so not only by country but also by sector and research area. In conclusion, it is important to outstand that further research is required in this emerging field.

References

- Albizu, E., Olazarán, M., Lavía, C., & Otero, B. (2011). Relationship between vocational training centres and industrial SMEs in the Basque Country. A regional innovation system approach. *Intangible capital*, 7 (2), 329–355. <http://dx.doi.org/10.3929/ic.2011.v7n2.329-355>
- Albizu, E., Olazarán, M., Lavía, C., & Otero, B. (2017). Making visible the role of vocational education and training in firm innovation: evidence from Spanish SMEs. *European Planning Studies*, 25 (11), 2057–2075. <https://doi.org/10.1080/09654313.2017.1281231>
- Asheim, B.T., Grillitsch, M., & Trippl, M. (2016). Regional innovation systems: Past– present–future, in R. Shearmur, C. Carrincazeaux, & D. Doloreux (Eds.), *Handbook on the geographies of innovation* (pp. 45–62). Springer. <https://doi.org/10.4337/9781784710774>
- Cedefop (2017). *The changing nature and role of vocational education and training in Europe. Volume 1. Conceptions of vocational education and training: an analytical framework. Cedefop research paper 63*. Publications Office. <http://dx.doi.org/10.2801/532605>
- Cooke, P. (1992). Regional innovation systems: Competitive regulation in the new Europe. *Geoforum*, 23(3), 365– 382. [https://doi.org/10.1016/0016-7185\(92\)90048-9](https://doi.org/10.1016/0016-7185(92)90048-9)
- European Innovation Scoreboard 2020 | European Commission. (n.d.) https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1150
- European Commission (2017). *Strengthening innovation in Europe's regions strategies for resilient, inclusive and sustainable growth*. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions. COM(2017) 376 final. https://ec.europa.eu/regional_policy/sources/docoffic/2014/com_2017_376_2_en.pdf
- European Commission (2010a). *Communication from the Commission Europe 2020 A strategy for smart, sustainable and inclusive growth. COM(2010) 2020 final*. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC2020&from=en>
- European Commission (2010b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM (2010) 553 final*. https://ec.europa.eu/regional_policy/sources/docoffic/official/communic/smart_growth/comm2010_553_en.pdf

- European Innovation Scoreboard (2020, 23 June) | European Commission (n.d.) https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1158
- Eye@RIS3, Innovation Priorities in Europe (20, 22 June) | European Commission (n.d.) https://s3platform.jrc.ec.europa.eu/map?p_p_id=captargmap_WAR_CapTargMapportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1
- Foray, D. (2017). The Economic Fundamentals of Smart Specialization Strategies. In S. Radosevic, A. Curaj, R. Gheorghiu, L. Andreescu, & I. Wade (Eds.), *Advances in the theory and practice of smart specialization* (pp. 38–51). Academic Press, an imprint of Elsevier.
- Foray, D., Morgan, K., & Radosevic, S. (2014). The Role of Smart Specialisation in the EU Research and Innovation policy landscape. *Regional and Urban Policy* (pp. 1–20). European Commission.
- Freeman, C. (1994). The economics of technical change: A critical survey article. *Cambridge Journal of Economics*, 18 (5) 463–514. <https://doi.org/10.1093/oxfordjournals.cje.a035286>
- Gianelle, C., D. Kyriakou, C. Cohen & M. Przeor (Eds) (2016). *Implementing Smart Specialisation: A handbook*. Publications. <https://doi.org/10.2791/610394>
- Hazelkorn, E., & Edwards, J. (2019). *Skills and Smart Specialisation: The role of Vocational Education and Training in Smart Specialisation Strategies*, Publications Office of the European Union.
- Howlett, M., Ramesh, M., & Perl, A. (2009). *Studying public policy: Policy cycles & policy subsystems* (3rd ed). Oxford University Press.
- McCann, P., Landabaso, M., Goenaga Beldarrain, X., Goddard, J., Ortega-Argilés, R., Nauwelaers, C., Foray, D., Morgan, K., European Commission, & Directorate-General for Regional Policy. (2012). *Guide to research and innovation strategies for smart specialisation (RIS 3)*. Publications Office.
- Moso-Diez (2019). Una aproximación a la investigación europea sobre la Formación Profesional. In B. Echeverría & P. Martínez (Eds.). *Diagnóstico de la investigación sobre la Formación Profesional Inicial en España (2005-2017)* (pp. 9–29). Fundación Bankia por la Formación Dual. <https://www.dualizabankia.com/recursos/doc/portal/2019/07/08/diagnostico-investigacion-fpi.pdf>
- Moso-Diez, M., Atwell, G., Gessler, M., Nägele, C., & Nardi, P. (2019). VET and regional Smart specialisation strategies: A comparative approach. A panel discussion. B. E. Stalder & C. Nägele (Eds.). *Trends in vocational education and training research, Vol. II. Proceeding of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VET-NET)* (pp. 338–348). <https://doi.org/10.5281/zenodo.3371561>
- Navarro, M. (2017). *Retos y oportunidades para la Formación Profesional en relación con la especialización productiva en Castilla y León*. Fundación Bankia por la Formación Dual. <https://www.dualizabankia.com/recursos/doc/portal/2019/07/08/estudio-retos-oportunidades-fp-cyl.pdf>
- Navarro, M., Albizu, M., Egaña, J., Egurbide, I., Retegi, J., & Vázquez, R. (2018). *La formación profesional de Navarra. Hacia un nuevo modelo de centro y el reto de la FP dual*. Fundación Bankia por la Formación Dual. <https://www.dualizabankia.com/recursos/doc/portal/2019/07/08/fp-navarra.pdf>
- Olazaran, M., & Brunet, I. (Eds.) (2013). *Entorno regional y formación profesional: los casos de Aragón, Asturias, Cataluña, Madrid, Navarra y País Vasco*. Publicaciones Universitat Rovira i Virgili. <https://doi.org/10.17345/9788484242437>
- Porto, I., & Doloreux, D. (2018). Knowledge stakeholders in RIS' literature: To be or not to be. *Ekonomiaz Revista vasca de economía*, 94(2), 78–107.
- Rosenfeld, S. (1998). *Technical colleges, technology deployment and regional development*. OECD.
- Toner, P., & Woolley, R. (2016). Perspectives and debates on Vocational Education and Training, skills and the prospects for innovation. *Revista Española de Sociología (RES)* 25(3), 319–342.

Biographical notes

Dr **Monica Moso-Diez** is the Head of the Research and Innovation Centre at Fundación Bankia por la Formación Dual in Spain. Her research interests are focused on VET public policy making, public policies for research and innovation policies and VET, cooperation between VET centres and companies, and business innovation strategies and systems.

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Towards a Hybridization of Vocational and Academic Qualification Paths? Evidence from Companies' Recruitment and Training Strategies in Selected Industries

Mottweiler, Hannelore

Federal Institute for Vocational Education and Training, mottweiler@bibb.de

Annen, Silvia

Federal Institute for Vocational Education and Training, annen@bibb.de

Abstract

In Germany, current scientific debates on the relationship between the vocational and the higher education systems discuss the end of a clear distinction between both systems. On the one hand, this is reflected by an increasing permeability between vocational and academic qualification pathways (Wolter & Kerst, 2015). On the other hand, researchers conclude growing areas of overlap between vocational and higher education (e. g. Severing & Teichler, 2013) as well as an increase of hybrid models combining vocational and academic characteristics (e.g. Euler, 2017). Against this background, this paper seeks to provide a comprehensive analysis of the recruitment and training strategies of companies in relation to selected educational models. In doing so, the following qualification strategies used by companies in four different industries are compared: dual study programs, special 'fast track' vocational training programs combining initial and further vocational training certificates and trainee programs for externally recruited university graduates. The results allow for a substantiated evaluation of the use of certain recruitment strategies by companies and a differentiated view of the relevant context factors.

Keywords

vocational and academic qualification paths; recruitment strategies; training models; hybridization

1 Introduction

The relationship between vocational and higher education is no longer as clear and distinguished as it has traditionally been. This development is reflected in structural tendencies like an increasing permeability between vocational and academic qualification pathways (Wolter & Kerst, 2015) as well as a growing overlap between vocational and higher education and training (e. g. Severing & Teichler, 2013). Furthermore, an increase of hybrid qualification models combining vocational and academic elements is characteristic for the increasingly blurred lines between the vocational and the higher education systems (e.g. Euler, 2017). This development seems to be strongly related to companies' intent to attract the best talent.



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Focussing on the recruitment of vocational specialists and mid-level managers at the German Qualification Framework Level 6 (Bachelor degree or VET equivalent), this paper investigates the following recruitment and training models and its underlying strategies:

1. Dual study programs (*hybrid strategy*)
2. Fast track further VET training programs, so called “Abiturientenprogramme” (*vocational strategy*)
3. Trainee programs for externally recruited Bachelor University graduates (*academic strategy*).

These three models are hypothesized to have a specific target group focus. Furthermore, this paper aims to analyse the contextual factors of these three models to gain insights regarding the company specific recruitment strategies and their determinants. In doing so, the following research aims are addressed:

- Analysing the incidence and relevance of hybrid qualification paths in respect to vocational and academic recruitment, as well as qualification strategies comparing four different industries: retail and trade, logistics, tourism as well as banking and finance.
- Explaining the relationship between and the functions of vocational, academic and hybrid recruitment and training models.
- Analysing prospective recruitment strategies and intentions, as well as discussing possible consequences of the analysed strategies in terms of transitions towards a hybridization of vocational and academic educational pathways.

2 Selected recruitment and training models for higher vocational and middle management positions

All three analysed models are described in the following, regarding their main structural and intentional characteristics and their general relevance in the German educational system and labour market.

5.1 Hybrid Strategy: Dual Study Programs¹

Evidence for a growing extent of hybrid fields of education can be seen by increasing numbers and providers of dual study programs (Hofmann & König, 2017), which connect university and in-company training. Dual study programs combine organisational and curricular elements of the vocational and higher education systems, linking the learning venues of the company with a university. In addition, they link central rules, standards and mission statements of VET and higher education. This applies, for example, to curricula, teaching staff and/or financing. They are thus hybrid forms of organisation and at the same time represent a new form of institutional permeability between VET and higher education (Graf, 2015).

Research in the field of dual study programs emphasizes the main functions of such programs such as recruitment, socialization, security, integration, as well as diversity (Krone, 2019). Regarding recruitment and security functions, prior research in selected commerce industries shows that companies seek to attract and retain high performing school graduates. Another motive for the establishment of dual study programs is to combine company specific practical learning with theoretical training requirements (Mottweiler et al., 2018). For school leavers with university entrance qualifications, dual study programs offer demanding, fast, practically oriented and paid academic training with very good chances of being taken on in a training company (Graf, 2015).

¹ A dual study program is defined as a course of study at a university or university of cooperative education with integrated vocational training or practical phases in a company (<https://www.bibb.de/de/702.php>).

Vocational strategy: Fast track vocational training programs (“Abiturientenprogramme”)

A model of combining initial vocational training and further VET training, which is particularly discussed in the research findings of Elsholz et al. for the retail sector, are so-called “Abiturientenprogramme” (programs for school-leavers with university entrance qualification) (Elsholz et al., 2017). In these programs, initial vocational training is closely linked to further VET training. In most cases, these programs are organised in companies in such a way that the participants complete a dual vocational training program, e.g. as a retail salesperson, in the first 18 months and immediately afterwards attend advanced training, then as a retail specialist, in a further 18 months. Upon completion of this qualification path, graduates have a qualification in a recognised training occupation as well as a qualification in state-regulated continuing vocational training (Neu, 2018).

This combined training is aimed primarily at the target group of school-leavers with Abitur and high-performing school leavers. In this way, companies aim to offer young adults attractive career opportunities from the start of their training and increase the attractiveness of vocational training.

5.2 Academic Strategy: Trainee-programs for externally recruited Bachelor Graduates

In addition to the two qualification paths presented so far, which are directly aimed at school leavers, companies also make use of trainee programs. These programs provide university graduates with a targeted introduction to professional practice. Within the framework of these programs, the trainees pass through various company departments and/or locations and in this way are systematically integrated into the company. In doing so, they are supposed to become acquainted with different areas of the company through a systematic job rotation. Usually, the trainee programs have a limited duration and last between 6 and 24 months. In practice, there are two main objectives of trainee programs - the general development of junior management staff and the targeted familiarization with and preparation for a previously defined area of the company (so-called specialist trainee programs), whereby the trainee is deployed in various areas directly related to the defined position. The aim is to assure a broad knowledge of the future position and the areas associated with it, as well as to provide trainees the opportunity to build up their company networks (Bundesministerium für Wirtschaft und Technologie, 2012).

Drawing on these three recruitment and training strategies for vocational specialists and middle management positions, this paper comprehensively analyses the role of companies in terms of hybrid educational models. This includes the comparison of hybridization strategies with special ‘fast track’ vocational training programs (“Abiturientenprogramme”, c.f. Elsholz et al., 2017; Neu et al., 2017) and trainee programs for externally recruited Bachelor graduates.

3 Theoretical background

In the current “academisation” debate, the question arises whether the increasing availability of dual study programs is a reaction of companies to the increasing tendency of high-school graduates to go to university. In this context, emphasis is laid on the demand-oriented trigger for a paradigm shift towards a stronger preference for dual study programs. Elsholz et al. (2017) argue that an important motive for the expansion of dual study programs is the increasing demand for such training paths by school leavers. On the other hand, school leavers are confronted with a growing supply of dual study programs. Within the scientific discourse it is discussed whether the trend towards “academisation” meets the increasing demand for higher qualifications, or whether a central motivation of young people to take up academic studies is to gain reputation and access to jobs with higher prestige, more influence and a higher income (Bosch, 2019). However, previous research also suggests an effect of industry- and organisation-related conditions. Accordingly, these aspects will be considered in the following analyses.

In order to focus on the role of companies' recruitment choices in terms of an overall trend towards a hybridisation, the underlying theoretical framework is linked to a structuration-theoretical perspective of analysis. The aim is to combine the different explanatory approaches "strategy follows structure" vs. "structure follows strategy" as well as the complex relationships between strategy and structuring in corporate recruiting decisions. In this respect, we argue that companies do not develop their strategies in isolation from organisational and institutional framework conditions, but rather refer to them in their actions. On the other hand, it also can be assumed that decisions of strategic management have a structuring effect on organizational and institutional settings.

This contribution refers to Anthony Giddens' Theory of Structuration (Giddens, 1984) - in order to explain the duality of the structural framing of the German (vocational) education system for companies' decisions and vice versa the structuring impact of companies' human resource management actions for the German educational system. Drawing on Giddens' Theory of Structuration the work of Ortmann et al. (2000) provides further considerations for management decisions. The recursive constitutional relationship between action and structure is transferred to the strategic actions of managers. In this structuring process, strategic management decisions move within a certain decision-making corridor, such as technology policy or organisational culture, which limit the decision-making autonomy (Ortmann et al., 2000).

In order to capture strategic decisions of companies for vocational, hybrid or academic recruitment and training programs the following analysis considers differences in company overall recruitment and training policies, e.g. general preferences towards internal or external personnel recruitment as well as organizational and industry specific characteristics. Possible consequences of these decisions on the micro-level of the German vocational education system are discussed hereafter.

4 Methods

The presented research draws on a quantitative (CATI) Enterprise Survey with HR Managers or managing directors of companies conducted in 2018. Within the four selected industries, the sample group considered were nationwide enterprises with at least five employees, which have a middle management level or employ high skilled workers. The central topics of the survey contain standardised questions on the training and further training models of the companies, educational qualifications as well as recruitment and deployment strategies of vocational specialists and mid-managers, competence requirements and measures for competence development as well as future personnel strategies. The survey achieved a response rate of 40.8% with 802 completed interviews.

In order to analyse the occurrence of hybrid qualification paths in companies, we ran multivariate logit models on the odds of using dual study programs, fast track vocational education programs as well as trainee programs for externally recruited Bachelor graduates. Independent variables of these statistic models comprise organizational characteristics (company size, industry) as well as company specific strategies in terms of recruitment and training (internal or external recruitment strategies, qualification requirements for middle management positions, prospective personal politics).

Additionally, semi structured qualitative interviews conducted with HR Managers in the respective industries were analysed focusing on the aspects vocational and academic recruitment as well as qualification strategies.

5 Results

5.1 Incidence and relevance of alternative training and recruitment models

The following section provides an overview of the use of the three described training and recruitment models, which qualify for middle management positions or high skilled professions

on the German Qualification Frame Work Level 6, describing a vocational, academic and hybrid pathway: fast track vocational programs, dual study programs as well as Bachelor trainee programs in a cross-sectoral comparison.

The overall results show a more widespread use of dual study programs compared to fast track vocational programs and Bachelor trainee programs. The results of the sector comparison illustrate a higher use of dual study programs by companies in tourism (43%) and the banking and finance sector (59%) - compared to companies in retail & trade and logistics (33%) (cf. Table 1). The use of fast track vocational training programs is more pronounced in retail & trade and in the banking and finance sector than in tourism and logistics: Fast track vocational programs are used by 23% of the retail and trade companies surveyed and 25% of the financial services companies. In tourism, the share is 14% and in logistics 12%. Only few companies offer special trainee programs to qualify external university graduates for tasks in specialist and middle management positions. Trainee programs are more often used by companies in the banking and finance sector (13%) compared to companies in the other three sectors (cf. Table 1).

Table 1

Use of dual study programs, fast track vocational education programs and trainee programs for externally recruited Bachelor graduates by industry

		Dual Study Program		Fast track vocational education programs		Trainee Program for externally recruited Bachelor Graduates	
Industry		N	%	N	%	N	%
Retail & Trade	No	144	67.3	120	77.4	192	89.7
	Yes	70	32.7	35	22.6	22	10.3
	Total	214	100.0	155	100.0	214	100.0
Logistic	No	134	67.0	120	88.2	185	92.5
	Yes	66	33.0	16	11.8	15	7.5
	Total	200	100.0	136	100.0	200	100.0
Tourism	No	108	57.4	124	86.1	170	90.4
	Yes	80	42.6	20	13.9	18	9.6
	Total	188	100.0	144	100.0	188	100.0
Banking & Finance	No	83	41.5	126	75.4	174	87.0
	Yes	117	58.5	41	24.6	26	13.0
	Total	200	100.0	167	100.0	200	100.0

Source. TyBi Enterprise survey 2018, own calculation, unweighted data.

5.2 Motives for the use of respective recruitment and training strategies²

Vocational strategy: fast track vocational programs “Abiturientenprogramme”

Important motives for the introduction of fast track vocational programs become clear in the case of a surveyed company in the logistics department of a wholesale firm. Here a fast track vocational program was initiated in order to be able to recruit for team leader positions. With the purpose of enhancing the training quality and to be able to recruit the best applicants, a program had been set up for candidates with *Abitur*, in which the (fully financed) logistics master craftsman/-woman follows two years of training, including a guarantee of employment. The company sites that had introduced the program had a sufficient number of applicants.

² Due to the lack of survey data on the motive of establishing trainee-programs, this comparison only covers the vocational as well as the hybrid strategy.

In addition, the quantitative survey results emphasize the motive of long-term retention of high-performing school leavers in the company as a central motive (40 percent of respondents across all industries) for establishing such programs. Confirming the qualitative results, the motive of increasing the companies' attractiveness (34%) and a faster qualification of personnel for senior specialist and middle management positions (26%) are also of significant relevance (cf. Table 2).

Table 2

Main reason for offering fast track vocational programs

	Industry					Total
	Retail & Trade	Logistics	Tourism	Financial Services		
Increasing the attractiveness of the company for school leavers with university entrance qualification	N	10	3	11	13	37
	%	29.4	21.4	55.0	31.7	33.9
Long-term retention of high-performing school leavers	N	15	7	4	18	44
	%	44.1	50.0	20.0	43.9	40.4
Faster qualification of personnel for vocational specialist - or middle management positions	N	9	4	5	10	28
	%	26.5	28.6	25.0	24.4	25.7
Total	N	34	14	20	41	109
	%	100.0	100.0	100.0	100.0	100.0

Source. TyBi Enterprise survey 2018, own calculation, unweighted data

As expected, the sector comparison shows differences, but they are not statistically significant due to the small number of cases. The argument of employee retention through the targeted promotion of regulated further training was also addressed in one of the qualitatively surveyed tourism enterprises. Here, a lack of attractiveness of current regulated further training in tourism was mentioned, which, according to this company, would speak against the implementation of such a program (c.f. Mottweiler et al., 2018).

Hybrid strategy: dual study programs

Asked about the motives for establishing dual study programs, similarities occur with the motives of establishing fast track vocational programs. 36% of the companies across all sectors see the early retention of high-performing school leavers in the company as the most important reason. This argument is particularly important for companies in the logistics, banking and finance as well as the retail and trade sectors. The respondents also state the relevance of the best possible combination of theoretical and practical requirements. In addition, 19% of the companies emphasize the importance of increasing the attractiveness for applicants by offering dual study programs. By contrast, only 14% of the companies across all sectors believe that training through dual study programs provides a better match for the company's skill requirements (see Table 3).

Table 3*Most important reason for offering dual study programs*

		Industry				Total
		Retail & Trade	Logistics	Tourism	Financial Services	
Best possible combination of theoretical and practical occupational requirements	N	24	22	26	29	101
	%	35.8	33.3	32.5	24.8	30.6
A better fit of learning content to the competence needs of the company	N	10	8	14	14	46
	%	14.9	12.1	17.5	12.0	13.9
The early retention of high-performing school leavers to the company	N	24	27	21	47	119
	%	35.8	40.9	26.3	40.2	36.1
Making the company more attractive to applicants in general	N	9	9	19	27	64
	%	13.4	13.6	23.8	23.1	19.4
Total	N	67	66	80	117	330
	%	100.0	100.0	100.0	100.0	100.0

Source. TyBi Enterprise survey 2018, own calculation, unweighted data

5.3 Future relevance of vocational, hybrid and academic strategies

The analysis of recruitment strategies also addresses the future relevance of different recruiting or qualification paths for Human Resource measures and concepts, which are closely related to educational decisions and educational pathways of employees on middle management positions. In this respect, the companies were asked whether initial and further VET, the external recruitment of Bachelor graduates and the expansion of dual study programs are expected to become increasingly important for companies in the future.

Overall, the results illustrate that initial and further vocational education and training will continue to be important in attracting skilled workers to middle-level specialist and management positions. However, with growing size of the company, the relevance of dual study programs also increases. Recruiting academics on the external labour market will become more important for less than 20% of the companies surveyed. No significant differences in future personnel policy could be identified in a cross-sectoral comparison (c.f. Mottweiler, 2018).

5.4 Determinants of recruitment and training decisions: hybrid, vocational and academic strategies

Measures

Three logistic regression models were used to analyse the probability of companies using the selected recruitment and training programs in the context of overall recruitment and training strategies as well as organisational and sectoral characteristics. Dependent variables are the use (reference category: not use) of 1) dual study programs, 2) fast track vocational programs and 3) Bachelor trainee programs. The independent variables capture the use of alternative recruitment and training programs, qualification requirements for middle management positions, personnel recruitment methods (internal or external recruitment), future recruitment and training strategies, as well as company size and industry sectors.

Results

Table 4 shows the effects of the independent variables on the odds of using vocational, hybrid or academic training programs – taking the combined use of different training models into account. The results indicate a close connection between vocational and hybrid training

programs: Companies using dual study programs are more likely to also use fast track vocations training programs. In contrast, there is no significant correlation between the probability of using academic and hybrid or vocational training programs.

Qualification requirements for middle management positions only show a significant effect in predicting the incidence of Bachelor trainee-programs: Companies that require completed vocational training to fill in middle management positions are less likely to offer trainee programs for Bachelor graduates. In line with this finding, there is a statistically significant negative correlation between the recruitment method and the probability of using trainee programs: As expected, companies that primarily rely on internal personnel recruitment strategies have a lower probability of using bachelor trainee programs.

Furthermore, there is a correlation between current and the expected future strategies of specific recruitment and training programs. Companies that report an increasing relevance of dual study programs for their future personnel policy have a 4 ½ times higher probability of also currently using dual study programs. There is a directionally negative (not significant) relationship between a perceived future gain in relevance of dual education and training and the use of both dual study programs and trainee programs. This result is interpreted in the sense that companies that follow traditional paths of vocational education and training are less likely to use hybrid or academic recruitment and training models (see Table 4).

As expected, organisational and sectoral characteristics such as Company size and Industry matter. With growing size, companies are more likely to use dual study programs or offer Bachelor Trainee programs. Referring to our qualitative research results, these findings can be explained by a higher financial and human resource effort for such programs, which can be handled easier by bigger companies. Industry-specific differences are especially relevant regarding the odds of using dual study programs as well as fast track vocational programs. Compared to the logistic sector, companies in tourism as well as in the banking and finance sector are more than twice as likely to use dual study programs. The specific relevance of fast track vocational programs in retail and trade as well as in the banking and finance industry is confirmed by the multivariate analysis (see Table 4).

Regarding the explanatory power of the three models, there are differences. The second model (fast track vocational program) has a rather low pseudo R^2 of 0.09. Model 1 is characterized by a significantly better explanatory content (0.27) and model 3 achieves a value of 0.21, which is within the acceptable range for both models (see Table 4).

6 Conclusion and discussion

Regarding the overall question of increasing hybridisation between vocational and academic qualification paths, the results indicate an increasing relevance of dual study programs for the qualification of vocational professionals and candidates for middle management positions. In this respect, companies seek to attract and retain high school graduates with academic career preferences and at the same time try to secure practical experience and skills as well as company specific knowledge.

On the other hand, strategic decisions for offering hybrid qualification are especially related to company size and industry. With growing size, companies are more likely to use hybrid qualification paths. Large companies especially use a variety of vocational as well as academic recruitment and training models in order to secure skill demands for different qualification levels and working areas. Hybrid strategies in the form of dual study programs are more likely to be used by tourism and banking/ finance companies whereas vocational strategies (vocational fast track programs) are associated especially with retail and trade and banking/finance companies.

Table 4

Incidence of selected recruitment and training programs: results of binary logistic regression models

Dependent Variable(s): Use of specific program (1= yes 0=no)	Dual Study pro- grams		Fast track voca- tional program		Bachelor Trainee- program	
	<i>OR (Std. Err.)</i>		<i>OR (Std. Err.)</i>		<i>OR (Std. Err.)</i>	
<i>Recruitment & training program</i>						
Dual study program	-		2.617***	(.738)	1.699	(.605)
Fast track further VET training pro- gram (“ <i>Abiturientenprogramm</i> ”)	2.775***	(.796)	-		1.360	(.431)
Bachelor-Traineeprogram	1.426	(.521)	1.399	(.430)	-	
<i>Qualification requirement for middle management position (Ref.: no qualification require- ments)</i>						
Completed vocational training	0.647	(.187)	1.177	(.393)	0.175**	(.102)
Further vocational training	0.695	(.183)	0.968	(.283)	1.057	(.351)
Academic qualification	0.642	(.270)	0.975	(.427)	0.827	(.419)
<i>Future recruitment and training strategies</i>						
Increasing relevance initial & higher VET	0.709	(.149)	1.008	(.231)	0.790	(.226)
Increasing relevance dual study programs	4.574***	(.973)	1.401	(.335)	1.879*	(.562)
Increasing relevance external re- cruitment of Bachelor Graduates	0.873	(.241)	1.150	(.320)	1.018	(.347)
<i>Recruitment Methods (Ref.: internal & external recruitment)</i>						
Internal recruitment	0.625	(.180)	0.751	(.253)	0.242**	(.143)
External recruitment	0.706	(.250)	0.643	(.310)	0.297	(.255)
Comany size (ln)	1.864***	(.169)	1.095	(.097)	1.526***	(.165)
Industry (Ref.: Logistic)						
Retail & trade	0.839	(.254)	2.582**	(.905)	1.128	(.482)
Tourism	2.364**	(.744)	1.262	(.493)	1.736	(.795)
Banking & finance	2.419**	(.748)	2.099**	(.748)	1.191	(.507)
Constant	0.032***	(.018)	0.039	(.025)	0.011***	(.008)
Number of Observations	579		579		579	
LR chi²	212.34***		51.70***		90.24***	
Pseudo R²	.265		.092		.208	

Note. *Statistically significant at the .05 level; ** at the .01 level; *** at the .001 level, OR = Odds Ratio. Source: TyBi Enterprise survey 2018, own calculation, unweighted data

The results also show a close connection between vocational and academic strategies, with a significant probability of firms using both, dual study programs *and* fast track vocational programs. The qualitative analysis results suggest that both strategies are used in a complementary sense in order to recruit different target groups. The results also show that initial and further VET without specialized programs still plays a significant role in the majority of the surveyed companies within the selected industries.

Regarding the question of whether the recruitment and training strategies of companies contribute to an increasing hybridisation of the German vocational training system, the results

can be interpreted in a theoretical context as recursive constitutional developments – which at the same time force but also restrain hybrid developments. This is currently mainly due to the contextual dependency on industry and company size. Changing infrastructural hurdles for companies to establishing dual study programs may enable smaller companies to participate in such programs in future. On the other hand, the vocational strategy of offering fast track vocational programs may be a strategic alternative for smaller companies in order to secure qualified candidates. Currently, such programs are not very widespread.

References

- Bosch, G. (2019). *Berufliche Aus- und Fortbildung in Zeiten der Akademisierung*. Paper presented at the BIBB Fachtagung: Berufliche Aus- und Fortbildung in Zeiten der Akademisierung.
- Bundesministerium für Wirtschaft und Technologie. (2012). *Fachkräfte sichern. Traineeprogramme*. Bundesministerium für Wirtschaft und Energie.
- Elsholz, U., Neu, A., & Jaich, R. (2017). Stellenwert und Zukunft beruflicher Aus- und Fortbildungsprofile. Veränderungen in Folge der Akademisierung aus Unternehmenssicht. *BWP*, 5, 28–31.
- Euler, D. (2017). Gleichartig, aber nicht gleichwertig? Überlegungen zu einer Neubestimmung des Verhältnisses zwischen Berufs- und Hochschulbildung. In D. Münk & M. Walter (Eds.), *Lebenslanges Lernen im sozialstrukturellen Wandel. Ambivalenzen der Gestaltung von Berufsbiographien der Moderne* (pp. 39–61). Springer VS.
- Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. University of California Press
- Graf, L. (2015). Hybridisierung von Berufs- und Hochschulbildung in Deutschland, Österreich und der Schweiz. In U. Banscherus, O. Engel, A. Mindt, A. Spexard, & A. Wolter (Eds.), *Differenzierung im Hochschulsystem. Nationale und internationale Entwicklungen und Herausforderungen* (pp. 163–176). Waxmann Verlag.
- Hofmann, S., & König, M. (2017). *Duales Studium in Zahlen 2016. Trends und Analysen*. Bundesinstitut für Berufsbildung.
- Krone, S. (2019). *Das duale Studium – Funktionen einer hybriden Bildungsform*. Präsentation im Rahmen der BIBB Fachtagung „Berufliche Aus- und Fortbildung in Zeiten der Akademisierung“ Bonn, 25.06.2019.
- Mottweiler, H. (2018). Auslaufmodell Berufsbildung? Aktuelle Befunde und Trends zur Akademisierung in ausgewählten kaufmännischen Berufsbereichen. *BWP*, 5.
- Mottweiler, H., Annen, S., Jordanski, G., Kock, A., Milolaza, A., Tiemann, M., & Schaal, T. (2018). *Zwischenbericht. Forschungsprojekt 4.1.303: Typische Bildungsverläufe und Karrierewege in ausgewählten kaufmännischen Berufsbereichen – Konkurrenz und Komplementarität zwischen beruflich und akademisch Qualifizierten*. Bundesinstitut für Berufsbildung.
- Neu, A. (2018). Gestaltungsoptionen zur Stärkung beruflicher Aus- und Fortbildung aus Sicht betrieblicher Akteure. In E. Wittmann, D. Frommberger, & B. Ziegler (Eds.), *Jahrbuch der berufs- und wirtschaftspädagogischen Forschung 2018* (pp. 25–38). Verlag Barbara Budrich.
- Neu, A., Elsholz, U., & Jaich, R. (2017). Zum Stellenwert beruflich-betrieblicher Bildung aus Sicht von Unternehmen. *bwp@*, 32.
- Ortmann, G., Sydow, J., & Windeler, A. (2000). Organisation als reflexive Strukturation. In O. Günther, S. Jörg, & K. Türk (Eds.), *Theorien der Organisation. Organisation und Gesellschaft* (pp. 315–354). VS Verlag für Sozialwissenschaften.
- Severing, E., & Teichler, U. (2013). Akademisierung in der Berufswelt? Verberuflichung der Hochschulen? In E. Severing & U. Teichler (Ed.), *Akademisierung in der Berufswelt?* (pp. 7–18). Bertelsmann Verlag.
- Wolter, A., & Kerst, C. (2015). The 'academization' of the German qualification system: Recent developments in the relationships between vocational training and higher education in Germany. *Research in Comparative & International Education* 10(4), 510–524.

Biographical notes

Hannelore Mottweiler is Senior Researcher at the Federal Institute for Vocational Education and Training (BIBB) in Bonn. She received her PhD at the University Duisburg-Essen in

Germany. Her main areas of research are structure, regulation and governance of Vocational Education and Training, transformation in professional qualifications and employment as well as occupation and employment-related research to ascertain, analyze and investigate training and regulatory needs.

Silvia Annen is Senior Researcher at the BIBB (Bonn) and holds a Ph.D. in Economics and Social Sciences from the University of Cologne. For two years, she was a visiting scholar at the University of Toronto (Ontario Institute for Studies in Education) and she is a member of the German-French expert commission for VET. Her main research fields are comparative research in VET, recognition of competences and qualifications, educational pathways and labour market usability of qualifications as well as occupational research in the commerce sector.

Nägele, C., & Düggeli, A. (2020). Careers in VET. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 241–247). <https://doi.org/10.5281/zenodo.4274094>

Careers in VET

Nägele, Christof

University of Applied Sciences and Arts, Northwestern Switzerland, christof.naegle@fhnw.ch

Düggeli, Albert

University of Applied Sciences and Arts, Northwestern Switzerland, albert.dueggeli@fhnw.ch

Abstract

Further education and training provision is crucial to develop a sustainable, self-determined career, but also to continuously build knowledge and skills that allow an active and a sustainable participation at work. We have a closer look at the planning and engagement in informal, or formal further education and training after having finished initial VET. We focus on contextual factors which might have an influence of becoming engaged in further education. First, we ask for the effect of the value an individual assigns to further education and the availability of information on planning and becoming engaged in further education. Such values play a crucial role in career decisions and was shown in motivational theories of educational choices as well as the availability of information leading to informed career decisions. Second, we ask for predictors of the value and the information available by looking at individual and work-related factors. Specifically, we test the hypothesis that an individual's protean career orientation, learning opportunities and the embeddedness in the work-group are correlated with the value and the available information. We can show differential effects of these factors on planning and engagement in further education. Our data stemmed from two waves of a multi-cohort longitudinal questionnaire-based survey on educational decisions and educational pathways (BEN), running from 2012 to 2016 in the German part of Switzerland. We discuss the results considering the consistent gendered educational and professional pathways by showing that individual and workplace factors have gender-specific effects on the value of further education, the information available and consequently on the planning and engagement in further education. It is crucial to have a closer look at different processes and pathways to further education that seem to replicate structures in which men strive for further education in sake of advancing their career and women stick to the work team if it is supportive postpone the planning of further education.

Keywords

career planning, engagement, gender, decision process

1 Careers in VET

Further and continuing education serves many goals. It lays the grounds for a satisfying individual career (Price & Reichert, 2017); in many countries, policy interventions aim at enabling continuing learning pathways (Hooley, 2014); societal or technological changes ask for



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continuous engagement in learning in the workplace (Noe et al., 2014). Despite the high importance of further education, many young people do no longer invest in their educational career once they have acquired their job-entry diploma and once they have become employed. Generally, people leaving the "learning pathway" (Biemans et al., 2018) are at a higher risk to invest in the long term less in their continuing education and eventually to cease further education activities.

After having completed initial vocational education and training, most young people start working either in their training company or another company. In the foreground is the work in the company, after a long period of training. They take the decision to take up further education against this background. After having finished initial vocational education and training, it is expected and legitimate first to focus on the job. But in the long-term, the job-entrants should start investing in their further education. The question is what motivates young people at work to get back on a learning pathway and become engaged in further education (Nägele & Stalder, 2019).

In this paper, we focus on an individual's motivation for attending further formal education on the tertiary level or in continuous education after having completed initial vocational education and training on the upper secondary level. Following motivational models of educational choices, the value given to further education is an essential driver in developing the attitude to plan and attend further education (Wigfield et al., 2017). Values can be seen as an external factor in terms of the social cognitive career theory (Lent & Brown, 2020). Values allow people to take a decision to follow a specific goal which is in conflict to another goal (Hofer et al., 2007). This is an important process if it comes to a decision on whether to remain working and earning money versus becoming engaged in a further education which reduces in the short term the income or hampers resources for the family or other individual activities. The knowledge about further educational options helps to structure and differentiate the planning and also to foresee the consequences of decisions, and information can help to overcome decision biases (Greenhaus & Powell, 2012). A lack of information can hinder an individual to enter a career choice process or to take a decision (Kulcsár et al., 2020). We hypothesise that the interplay of the value of further education and the availability of information will increase the likelihood of planning further education and at a later point in time also of becoming engaged in further education.

Additionally, we ask what factors might influence the value and availability of information. Several factors are discussed that might point the path to further education, such as sociodemographic, psychological, or organisational aspects (Kyndt & Baert, 2013). In our study, first, we highlight the role of individual and job-related factors in predicting the value of further education and in adding to the availability of information. More specifically, we have a look at the protean career orientation of an individual (Hall, 2004). An individual with a protean career orientation is self-directed and compared to an individual that relies on the organisation to advance one's career (Hall et al., 2018). These people take their career decisions make their decisions independently. Second, we are looking at the work design. A work situation in which a person can use and develop knowledge and skills will more likely stimulate the wish to develop competences and to invest further education and training as work becomes more meaningful (Hackman & Oldham, 1975). A good job-design is a resource that can stimulate personal growth and development (Bakker & Demerouti, 2007). More specifically, we look at the vital role of learning opportunities at work. Thirdly, we will have a look at the role of the team in advancing an individual's educational career. Work teams are an essential resource for individuals, also if it comes to the development of competences within the team. Organisations rely on teamwork (Salas, 2005). Team cohesion and development opportunities within the team can also hinder the planning of further external education.

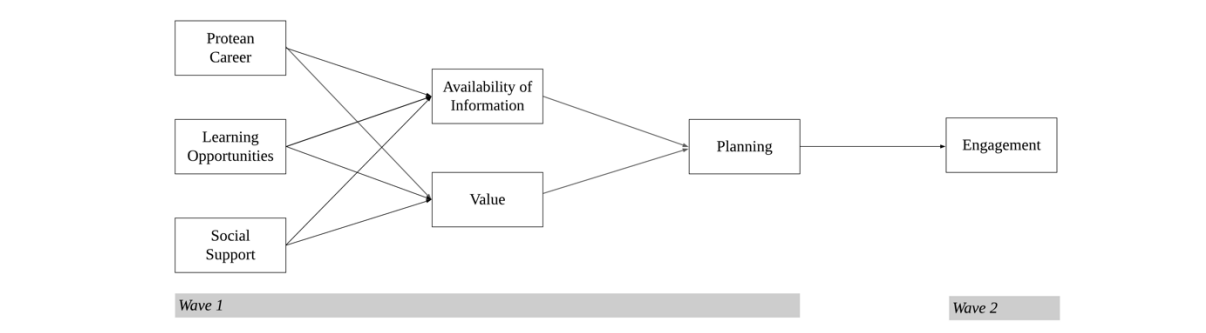
We hypothesise that a protean career orientation and learning opportunities at work will have a positive impact on the values and the availability of information. The effect a team can have

can either be positive or negative, as it is not completely clear whether a supportive team fosters or hinders the planning of further education. Hence, we formulate this hypothesis without determining the direction of the effect.

In Switzerland, vocational and educational pathways often differ between women and men. Vocational and professional pathways are still heavily gendered (SKBF, 2018). This fact is mirrored in the data of the Federal Statistical Office (<https://www.bfs.admin.ch/bfs/de/home.html>). We expect that the protean career orientation, the learning opportunities and social support by the team have a gender-specific effect on the value of further education and the availability of information. The conceptual model is given in Figure .

Figure 1

Conceptual model planning and engagement in further education



2 Methods

Our data stemmed from two waves of a multi-cohort longitudinal questionnaire-based survey on educational decisions and educational pathways (BEN), running from 2012 to 2016 in the German part of Switzerland (Neuenschwander et al., 2018). The participants were either recruited in 2012 at vocational schools (cohort one), by sending out letters to employers, asking them to name collaborators to participate in the study or by directly sending out letters to potential participants (cohort two). The selected sample for the analysis in this paper consisted of individuals who took part in 2014 (wave 1) and 2016 (wave 2). We selected those 634 people from the sample who were in 2014 working and not engaged in education and training; the age limit was set to 35 years.

Wave 1: Planning. Participants were asked about their plans to attend further education with a single item with the answer options 1 "no plans", 2 "vague plans" to 3 "specific plans" (Neuenschwander et al., 2018), mean = 1.63; standard deviation = .74, $N = 641$, min = 1, max = 2, and median = 1.00. **Availability of information.** Participants were asked on how good they were informed about their options to attend further education. Four items asked how informed the participants were on offers in further education (Neuenschwander et al., 2018), for example 'I have a good overview of offers in further education and training'. The response scale ranged from 1 'not at all' to 6 'completely', Cronbach's alpha = .84, mean = 3.96; standard deviation = .96, $N = 643$, min = 1, max = 6, and median = 4.00. **Value of further education.** The value given to further formal education was measured according to Wigfield et al. (2017) with three items. 'I consider further education and training for me as... a) useful, b) important, c) attractive'. The response scale ranged from 1 'not at all true' to 6 'completely true', Cronbach's alpha = .84, mean = 4.89, standard deviation = .91, $N = 643$, min = 1, max = 6, and median = 5.00. **Protean career orientation** was measured with three items (Briscoe et al., 2006). Cronbach's alpha = .77, mean = 4.26, standard deviation = .58, $N = 643$, min = 1, max = 5, and median = 4.33. **Learning opportunities** at work was assessed with three items (Prümper et al., 1995), for example, 'I can learn a lot of new things at work' based on the skill variety at work. The response

scale ranged from 1 'not at all' to 5 'completely', Cronbach's $\alpha = .75$, mean = 3.87; standard deviation = .80, $N = 634$, min = 1, max = 5, and median = 4.00. *Social support* was assessed with three items (Prümper et al., 1995), for example, 'I can count on my colleagues when it gets difficult at work'. The response scale ranged from 1 'not at all' to 5 'completely', Cronbach's $\alpha = .77$, mean = 4.06, standard deviation = .78, $N = 641$, min = 1, max = 5, and median = 4.00.

Wave 2: Engagement in further education. Some of the participants had no plans or were still planning their further education, whereas others were attending or had even completed further education since 2014. To define the outcome variable that reflects the engagement in further education, a compound variable was built, based on the following information. First, people were asked in a multiple response item whether they were employed or in further education. Second, in a single item participants were asked about their plans to attend further education with the answer options 1 "no plans", 2 "vague plans" to 3 "specific plans" (Neuenschwander et al., 2018). Third, participants were asked to list all further education that they attended during the last years. The resulting variable has three levels 1 "no engagement", 2 "little engagement", 3 "full engagement", mean = 1.91; standard deviation = .88, $N = 643$, min = 1, max = 3, and median = 2.

3 Results

Analysis with manifest variables were run, separately for women and men, see Figure 2, using JASP (JASP, 2020).

For men, the effect of planning on engagement was significant, .36, $p < .01$. There were significant effects of the value of further education, .28, $p < .01$, and the availability of information, .20, $p < .01$ on planning. There was no direct effect of the availability of information, 10, $p = .09$ and no direct effect of the values, .04, $p = .51$ on engagement. For women, we find a significant effect of planning on engagement, .28, $p < .01$. There are significant effects of the value of further education, .28, $p < .01$, and the availability of information, .16, $p < .01$ on planning. There is no direct effect from information on engagement, .02, $p = .63$, but a direct effect of value, .16, $p < .01$. This results replicate previous findings showing that the value of further education and the available information lead to planning which later results in engagement in further education. The results show also that the value of further education is more critical for the motivation to follow further education for women than for men. For men, it is the planning that counts. It seems that men can implement their plans to pursue further education more consistently than women. Based on the data available, we can only guess about possible reasons. Men engage in further education because they have planned it, women, because they have planned it and because it is of a high value. The crucial differences in the two models become evident by looking at protean career, learning opportunities and social support as predictors of value of further education and information available. We found different results for men and women. For men, the availability information was only predicted by protean career, .32, $p < .01$ and value only by protean career, .16, $p = .04$. Neither learning opportunities nor social support predicted value availability of information. In men, protean carer orientation is positively related to planning and engagement, based on more information and higher values attributed to further education. For men, we find no effect of workplace factors nor of the social support in the team. The picture is different for women. Information was predicted by learning opportunities, .20, $p < .01$ and negatively by social support, -.17, $p < .01$; value is predicted by protean career, .15, $p < .01$ and negatively by social support, -.10, $p = .04$. In women protean career orientation is a good predictor of the value of further education, positive learning opportunities are positively related to the availability of information, and positive social support hinders information seeking, as it is negatively related to it.

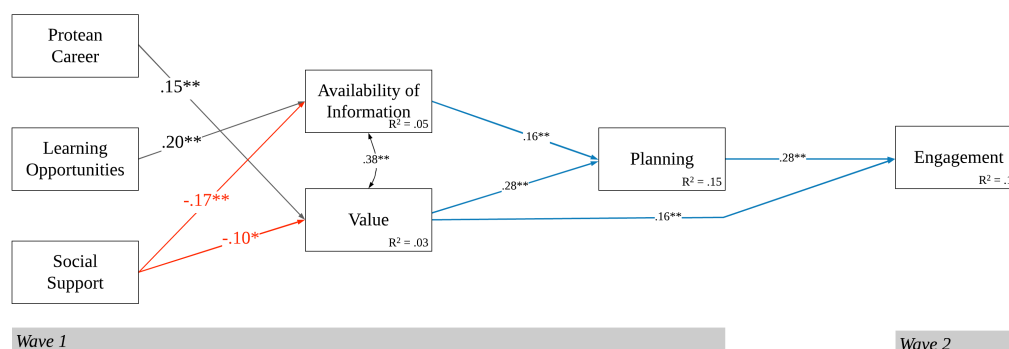
We see two very distinct patterns for men and women on how information and value relate to protean career orientation, learning opportunities and social support at work. Men seem to

plan their career based on their mindset that they need to design their career and that it is their responsibility. Learning opportunities additionally drive women at work. If they work in a supportive work environment, they seem to become less interested in information about further education, and they value further education lower.

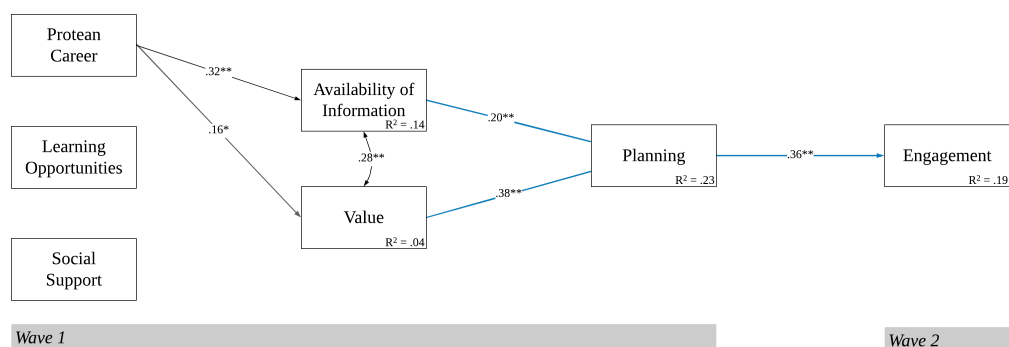
Figure 2

Path models for women and men – engagement in further education

female



male



4 Discussion

We can show that individual factors, the job-design and work-related social factors play a role in planning and becoming engaged in further education. The process goes through stimulating information seeking and through the value given to further education.

The results presented are based on data from young working people after having finished initial vocational education and training. We are, in a way puzzled by the results, as it seems to confirm many stereotypes that come to mind. Are young men in Switzerland driven to become engaged in further education based on their career thinking and women by the value they assign to further education? It would be interesting to have a closer look at the underlying processes. Based on the data available, we can only take notice that there are differences and that women rely besides on the values more on workplace factors in designing their further educational pathway, which leads to the question on employers' options to promote women's educational careers more strongly than for men.

Implication for theory. The process in becoming engaged in further education is different for women and men and social support, which is generally seen as positive at the workplace, can hurt the availability of information on further education. As values help people to handle conflicting goals their role in the decision process of women and man needs to get closer attention {Hofer et al., 2007, #70076}. It might well be that women rely more on social support and that they are satisfied with the situation. Therefore, the value of further education becomes more

important as it must compete against e.g., family values. Men become motivated to follow further education if it fits their thinking of designing their professional career. Women become engaged if they assign value to further education. Women and men seem to pursue different objectives when planning further education.

Implications for practice. The result shows that we need to promote learning pathways and educational careers of women and men differently. Based on our findings, a woman's path to further can be promoted supporting their planning and additionally help them to highlight that further education is of high value. Men, on the other hand, can be triggered by a prospect that they can follow their career.

Limitations. In this paper, first results are presented. This paper presents preliminary results, based on manifest constructs. It is planned to refine the analyses running the model with latent variables.

Conclusion. If we want to foster career of women and men having completed initial vocational education and training, we need to take into account that different factors trigger the planning of and engagement in further education. Whereas men seem to rely on information and a strong protean career orientation, women rely also on their workgroup and learning opportunities at the workplace. One size of measures does not fit all!

References

- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309-328. <https://doi.org/10.1108/02683940710733115>
- Biemans, H., Mariën, H., Fleur, E., Beliaeva, T., & Harbers, J. (2018). Promoting students' transitions to successive VET levels through continuing learning pathways. *Vocations and Learning*, 12(2), 179-195. <https://doi.org/10.1007/s12186-018-9203-5>
- Briscoe, J. P., Hall, D. T., & DeMuth, R. L. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior*, 69, 30-47. <https://doi.org/10.1016/j.jvb.2005.09.003>
- Greenhaus, J. H., & Powell, G. N. (2012). The family-relatedness of work decisions: A framework and agenda for theory and research. *Journal of Vocational Behavior*, 80(2), 246-255. <https://doi.org/10.1016/j.jvb.2011.12.007>
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, 60(2), 159-170. <https://doi.org/10.1037/h0076546>
- Hall, D. T. (2004). The protean career: A quarter-century journey. *Journal of Vocational Behavior*, 65, 1-13. <https://doi.org/10.1016/j.jvb.2003.10.006>
- Hall, D. T., Yip, J., & Doiron, K. (2018). Protean careers at work: Self-direction and values orientation in psychological success. *Annual Review of Organizational Psychology and Organizational Behavior*, 5(1), 129-156. <https://doi.org/10.1146/annurev-orgpsych-032117-104631>
- Hofer, M., Schmid, S., Fries, S., Dietz, F., Clausen, M., & Reinders, H. (2007). Individual values, motivational conflicts, and learning for school. *Learning and Instruction*, 17(1), 17-28. <https://doi.org/10.1016/j.learninstruc.2006.11.003>
- Hooley, T. (2014). *The evidence base on lifelong guidance: A guide to key findings for evidence policy and practice*. The European Lifelong Guidance Policy Network (ELGPN); International Centre for Career Development and Public Policy (ICCDPP); International Association for Educational and Vocational Guidance (IAEVG).
- JASP, T. (2020). JASP (Version 0.14)[Computer software]. <https://jasp-stats.org>
- Kulcsár, V., Doborean, A., & Gati, I. (2020). Challenges and difficulties in career decision making: Their causes, and their effects on the process and the decision. *Journal of Vocational Behavior*, 116. <https://doi.org/10.1016/j.jvb.2019.103346>

- Kyndt, E., & Baert, H. (2013). Antecedents of employees' involvement in work-related learning: A systematic review. *Review of Educational Research*, 83(2), 273-313. <https://doi.org/10.3102/0034654313478021>
- Lent, R. W., & Brown, S. D. (2020). Career decision making, fast and slow: Toward an integrative model of intervention for sustainable career choice. *Journal of Vocational Behavior*, 120, 103448. <https://doi.org/10.1016/j.jvb.2020.103448>
- Nägele, C., & Stalder, B. E. (2019). Motivation and engagement of learners in organizations. In S. McGrath, M. Mulder, J. Papier, & R. Stuart (Eds.), *Handbook of vocational education and training: Developments in the changing world of work* (pp. 1-15). Springer International Publishing.
- Neuenschwander, M. P., Nägele, C., & Düggele, A. (2018). BEN II - Schlussbericht zu Händen des Staatssekretariats für Bildung, Forschung und Innovation (SBFI): Bildungsentscheidungen und Bildungsverläufe von Jugendlichen (BEN). Pädagogischen Hochschule FHNW.
- Noe, R. A., Clarke, A. D. M., & Klein, H. J. (2014). Learning in the twenty-first-century workplace. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 245-275. <https://doi.org/10.1146/annurev-orgpsych-031413-091321>
- Price, S., & Reichert, C. (2017). The importance of continuing professional development to career satisfaction and patient care: Meeting the needs of novice to mid-to late-career nurses throughout their career span. *Administrative Sciences*, 7(17). <https://doi.org/10.3390/admsci7020017>
- Prümper, J., Hartmannsgruber, K., & Frese, M. (1995). KFZA. Kurz-Fragebogen zur Arbeitsanalyse. *Zeitschrift für Arbeits- und Organisationspsychologie*, 39, 125-131.
- Salas, E. (2005). Is there a "big five" in teamwork. *Small Group Research*, 36(5), 555-599. <https://doi.org/10.1177/1046496405277134>
- SKBF. (2018). *Bildungsbericht Schweiz 2018*. Schweizerische Koordinationsstelle für Bildungsforschung.
- Wigfield, A., Rosenzweig, E. Q., & Eccles, J. S. (2017). Achievement values interactions, interventions, and future directions. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation* (pp. 116-134). The Guilford Press.

Biographical notes

Dr **Christof Nägele** is lecturer and researcher at the University of Applied Sciences and Arts, School of Education. He is co-chair of VETNET. His research focusses on vocational orientation, career choice of young people, learning and career development of adult workers, individual, group level and structural resources in vocational education and training.

Dr **Albert Düggele** is a Professor of Educational Psychology at the University of Teacher Education of the University of Applied Sciences Northwestern Switzerland. His research focuses on educational processes, resilience development and youth in the transition to adulthood.

Romero-Rodríguez, S., García-Jiménez, E., Moreno-Morilla, C., & Mateos-Blanco, T. (2020). Career guidance: A key factor in success pathways in VET (Andalusia, Spain). In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 248–257). <https://doi.org/10.5281/zenodo.4007041>

Career Guidance: A Key Factor in Success Pathways in VET (Andalusia, Spain)¹

Romero-Rodríguez, Soledad

Universidad de Sevilla, sromero@us.es

García-Jiménez, Eduardo

Universidad de Sevilla, egarji@us.es

Moreno-Morilla, Celia

Universidad de Huelva, cmoreno8@us.es

Mateos-Blanco, Tania

Universidad de Sevilla, taniamb@us.es

Abstract

Research that has focused on the analysis of the student success and dropout trajectories is scarce but agrees on the importance of career guidance. In this paper we propose: a) To analyze the situation of Vocational Education and Training (VET) students in relation to their success, drop-out and mobility trajectories between training cycles and b) To understand the vision that guidance agents have in relation to the contribution that vocational guidance can give to the improvement of VET student learning. The results have been obtained through a mixed sequential research design. The results indicate the need to develop vocational guidance actions that serve to improve academic results and prevent high dropout rates in VET.

Keywords

Career development; early leaving; career management; vocational training.

1 Introduction

The figures from the Organisation for Economic Co-operation and Development (OECD) and the Ministry of Education and VET (MEFP, 2018) show that the graduation rate in VET in Spain is lower (25%) than those from the OECD (36%) and the European Union (EU) (41%). This figure contrasts with the graduation rate of the general education, where the Spanish average (56%) is higher than the OECD (53%) and the EU (49%) one.

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There is still little research on the analysis of success and early school leaving (ESL) pathways of VET students. However, a certain consensus is observed in them in the consideration that a factor, which reinforces academic perseverance, is the disorientation of the students and the lack of guidance and support services (Mas, Olmos & Salvá, 2017). On the other hand, a review of the literature on this issue points towards the need to personalize VET processes, by addressing the issue that affects each student in a holistic manner (personal, academic, social) and adapting training to these needs (Cerdá et al., 2017). Overall, research that intends to analyze the global situation of VET highlights the need to increment and improve the presence of guidance in this educational level (Sanz, 2010; Sanz & Manzanares, 2018; Renés & Castro, 2013; Álvarez-Rojo et al., 2015). The Instituto de la Empresa Familiar (IEF, Family Enterprise Institute) (2018) analyses the Spanish figures of college dropout (18%), the percentage of students who would not pursue the same VET degree (30%) or overqualification (50-64%) to justify the need to enhance career guidance, in the context of VET.

Eurydice/Cedefop (2014) advise that, although VET, as compared to general education, provides higher rates of ESL, this fact should not be blamed on the quality of VET, but to the degree of selection of the educative systems that tends to direct those students with a higher risk of ESL to it. According to the students' profile, different prevention, intervention and compensation initiatives have been developed at European level in order to fight against ESL in VET (Cedefop, 2014, 2016). In the Spanish context, the I Plan Estratégico de Formación Profesional (I Strategic Plan for Vocational Education and Training, Ministry of Education and VET-MEFP, 2019) points out that countries that count with a strong VET system have low ESL (Early School Leaving) rates. Having an accessible quality guidance system fosters the development of career management competences. These competencies make the necessary elements for an adequate choice-making available, which decreases significantly the failure of personal projects, school absenteeism, social imbalance and inequities. The ELPNG (European Lifelong Guidance Policy Network) (2015) poses that the development of career management competencies contributes to the participation in learning and the commitment to it, as well as the progress in learning and work. Furthermore, it promotes the development of career adaptability, allowing people to set goals and find strategies to achieve them. On the bases of these premises, we pose in this work:

1. To analyse the situation of VET students in relation to their success and early school leaving from VET cycles.
2. To understand the approach of guidance counsellors (teachers, counsellors, companies) in relation to the contribution that career guidance can make to the improvement of the learning of VET students from the perspective of lifelong learning. Similarly, to inquire about the career guidance measures which should be taken, according to their perspective.

2 Methodology

The present work draws the preliminary findings of the appraisal carried out about the situation of VET in Andalusia (Spain). The results were obtained by means of a sequential mixed method research design (Creswell & Plano Clark 2017), in which qualitative and quantitative information has been taken into account.

The qualitative information collected comprises documents and data of different kind and content, obtained from several sources (official organisms, databases, publications, reports, websites, etc.).

The sources of documentation used for the analysis of the state of career guidance in VET have been classified as follows, according to the following distribution: 1. Regulation, circular letters, recommendations; 2. Normative documents (laws, ordinances, and regulations); 3.

Technical reports; 4. Actions and proceedings undertaken in Spain, 5. Guidance intervention plans and programs; 6. Websites and information documents.

The contributions have been analyzed through the SWOT technique. These contributions were analyzed through category systems. On the other hand, statistical analysis has been carried out with data extracted from institutional databases (Ministry of Education and VET): registration fees, academic performance, qualification and mobility of VET students. Descriptive and inferential analysis have been made, considering variables such as sex, geographical zone, the level of VET and professional families. The results have helped to analyze the success and ESL pathways of VET students.

3 Results

In the Autonomous Community of Andalusia, it is possible to study the three levels of Initial Vocational Training: Basic VET Programmes, ISCED 353 (hereinafter, B-VET), Intermediate VET Programmes, ISCED 354 (hereinafter, I-VET) and Higher VET Programmes, ISCED 554 (hereinafter, H-VET). The majority of the Vocational Training courses offered are carried out by the H-VET students (68.4%) in all of the provinces of Andalusia. The situation of Vocational Training in Andalusia is described below.

3.1 The situation of vocational training students in Andalusia

3.1.1. Basic VET

The number of students enrolled in the 1st year of Basic VET in Andalusia between the 2014-15 and 2017-18 school years is 31,486, with an annual average with small fluctuations of around 7,900 students. At this level, most of the students enrolled are male (23,458), and they represent 75% of the total. 53.32% of enrolled students pass to 2nd grade one year after enrollment, while 45.5% do not pass that year. In terms of school performance, the percentage of female students who are promoted to 2nd grade one year after enrollment is higher (55.16%) than that of male students (52.69%). School results are completed with a small number of students who finish their studies without a degree at this level, some of whom obtain degrees in education such as Adult Secondary Education, or who request a transfer of their academic transcript.

37.97% of students enrolled in the 1st year of Basic VET obtain the qualification at this level after passing all the professional modules of the first and second year of the training cycle, one year after starting their studies. More than a year after beginning their studies, an average of 9% obtain a VET degree, in the same or another training cycle. Finally, an average of 54% of the students do not have a VET degree. Of these, slightly more than a thousand students finally obtain a degree in Continuing Learning.

The number of students enrolled in the 1st Specific Basic VET in Andalusia between 2014-15 and 2017-18 school years is 647, with an annual average with small fluctuations of 162 students. At this level, the majority of those enrolled are male students (395), representing 61% of the total. 51.62% of those enrolled pass to 2nd grade one year after enrolling, while 48.22% do not pass that year. In terms of school performance, the percentage of female students who are promoted to 2nd grade one year after enrolment is higher (54.37%) than that of male students (49.87%). School results are completed with a small number of students who finish their studies without a degree at this level, some of whom obtain degrees in education such as Adult Secondary Education.

3.1.2. Intermediate VET

The students enrolled in I-VET in Andalusia between 2011-12 and 2017-18 school years is 64,877, with an annual average of 9,268 students. The results show a significant decrease in the

number of students enrolled from 2014-2015 school year, which can be attributed to the implementation of the Organic Law of Education (Ley Orgánica de Educación, LOE 2016) and the consequent partial disappearance of Organic Law for Organization of the Educational System (Ley Orgánica de Ordenación General del Sistema Educativo, LOGSE, 1990) degrees. These two laws are different, for instance, the number of training hours, and the curriculum.

At this level, the majority of those enrolled are female students (41,639), and they represent 61% of the total. The 51.62% of the students pass to 2nd year one year after enrolling, while 48.22% do not pass that year. In terms of school performance, the percentage of female students who are promoted to 2nd grade one year after enrolment is higher (54.37%) than that of male students (49.87%). School results are completed with a small number of students who finish their studies without a degree at this level, some of whom obtain degrees in courses such as Adult Secondary Education, students who exceed 50% of the hours of the first year but who do not promote to 2nd year, and those who obtain degrees at another level.

The 57.36% of students enrolled in 1st year of I-VET (LOGSE degrees) obtain the degree at this level after passing all the professional modules of the first and second year of the training cycle, one year after starting their studies. However, there are significant differences in favor of female students enrolled at this level, the 61.79% obtaining their degree one year later, compared to 49.41% of male students. More than one year after beginning their studies, an average of 16.48% obtain a Vocational Training degree, in the same or another training cycle. Finally, an average of 25.21% of the students do not have a degree in Vocational Training. Of these, around 700 students finally obtain a degree in Continuing Education.

The number of students enrolled in 1st I-VET (LOGSE degrees) in Continuing Education between 2011-12 and 2017-18 school years amounts to 1936, with an annual average of 277 students (Table 30). At this level, the majority of those enrolled are female students (1,451), representing 75% of the total. The 73.09% of the enrolled students pass to 2nd year one year after enrolment, while 26.86% do not pass that year. In terms of school performance, the percentage of female students who are promoted to 2nd grade one year after enrolment is higher (74.16%) than that of male students (69.90%).

64.05% of the students enrolled in the 1st I-VET (LOGSE degrees) in Continuing Education obtain the degree at this level after passing all the professional modules of the first and second year of the training cycle, one year after starting their studies. However, there are significant differences in favour of female students enrolled in this level, 66.02% obtaining their degree one year later, as compared with 58.14% of male students. More than one year after beginning their studies, an average of 11.77% obtain a VET degree, in the same or another training cycle. Finally, an average of 21.90% of the students do not have a degree in VET. Of these, a few students finally obtain a degree in Continuing Education.

The number of students enrolled in 1st I-VET (LOE degrees) in Andalusia between 2011-12 and 2017-18 school years is 190,103, with an annual average of 27,158 students. At this level, the majority of those enrolled are male (122,526), representing 64% of the total. 48.84% of the enrolled students pass to 2nd grade one year after enrolling, 14.69% exceed 50% of the hours of 1st grade but do not manage to promote to 2nd grade, while 36.48 % do not pass that year. In terms of school performance, the percentage of students who promote to 2nd year one year after enrolment is higher (56.03%) than that of students (44.87%).

38.26% of the students enrolled in 1st year of I-VET (LOE) obtain the degree at this level after passing all the professional modules of the first and second year of the training cycle, one year after starting their studies. However, there are significant differences in favour of female students enrolled at this level, 43.82% of them obtaining their degree one year later, compared to 32.09% of male students. More than one year after beginning their studies, an average of 23.95% obtain a VET degree, in the same or another training cycle. Finally, an average of

40.41% of the students do not have a degree in VET. Of this student body, almost 2,300 students finally obtain a degree in Continuing Education.

3.1.3. Higher VET

The number of students in 1st of H-VET (former LOGSE degrees) in Andalusia between 2011-12 and 2017-18 school years amounts to 61,394, with an annual average of 8,771 students. Table # shows a significant decrease in the number of students enrolled from 2013-2014 school year, attributable to the implementation of the LOE, with the consequent disappearance of some degrees, although some of them are still maintained.

At this level, the majority of those enrolled are female students (32,367), representing 53 per cent of the total. The 77.80% of those enrolled pass to 2nd year one year after enrolling, while 22.13% do not pass that year. In terms of academic performance, the percentage of female students who are promoted to 2nd grade one year after enrolment is higher (79.02%) than that of male students (76.45%). School results are completed with a small number of students who finish their studies without a degree at this level, some of whom obtain a degree in Continuing Education, students who exceed 50% of the hours of the first year but do not pass to 2nd year, and those who obtain a degree at another level or are pending homologation, validation, or transfer of their file.

3.2 Career guidance as a contribution to improve the learning of VET students in a lifelong learning perspective

The information collected comprises documents of different nature and content, obtained from various sources (official bodies, databases, publications, reports, etc.). Of the total number of documents consulted, 42.9% have been published in the last four years (2016-2019), indicating a prolific documentary bibliography during this period on the subject under consideration and close to the percentage published between 2006-2015 (50.5%).

With regard to the area of origin of the documents referring to professional orientation and vocational training, 80.7% came from the educational area, followed by the labour area with 11.8%. Documents in which the subject appears framed from a more integral educational-labour perspective, only represents 7.3% of the total documents analysed.

The content of the documentary sources has been analysed through an inductively developed category system. In order to respond to the second objective of the study and after carrying out the qualitative analysis of the selected documentation according to this category system, the following key questions are extracted.

A. A career guidance approach that enhances the learning of vocational training students should be approached in a life-long process and with a gender perspective

Guidance is seen as a factor in the quality and effectiveness of vocational training both prior to entry and on exit (OECD, 2004). From this approach (OECD, 2003; Sultana, 2004) it is considered that vocational guidance should start at an early age and continue until active ageing.

The relationship between guidance and vocational training should be seen as an essential factor in achieving excellent, inclusive and quality training, according to the parameters recently proposed by the European Commission's Advisory Committee on Vocational Training (2018b) with the 2030 horizon.

Vocational guidance acquires special relevance as an element of accompaniment for people on the routes they can take within education and training systems that must be characterized by the permeability and recognition of previous learning that has been able to be developed in both formal and non-formal or informal contexts. This is why the expert groups set up under the

auspices of the European Commission (VET4EU2, 2015, 2018) call for a close relationship between Vocational Education and Training (VET) and effective guidance services.

Likewise, the guidance process must be centered on the person as the main actor in the construction of his/her project, which promotes the individual's self-confidence, and which observes the gender variable. To this end, it is necessary to design tools that address self-knowledge and personal identity, the exploration of one's own interests, knowledge of the educational system and the approach to the world of professions, decision-making and the choice of studies and professions from a gender equality perspective.

B. Career guidance models being developed at European level for the development of career management skills are increasingly becoming systemic and comprehensive

The European Commission's Advisory Committee on Vocational Training indicates the need to incorporate the development of career management skills in vocational training (European Commission, 2018b). They propose that VET should enhance the development of transversal competences and empower people to lead a self-determined professional life, to cope with multiple life transitions and to be able to exercise active citizenship. The development of these competencies should be integrated into the curriculum (Cedefop in the Sultana report, 2004). The recent communiqué of the International Centre for Career Development and Public Policy (ICCDPP, 2019) proposes 12 recommendations to generate policies for citizenship's career development. Among them, it proposes the inclusion of career management competencies in the educational curriculum from childhood and throughout education and training, both in formal and non-formal settings.

C. Vocational guidance from a preventive approach to reduce premature abandonment and return in VET

Given the recognition of guidance in European countries as a powerful tool in the fight against early school leaving, it should be noted that a large part of the measures approved focus on strengthening vocational guidance systems from a preventive approach to the problem. Some of these measures are (Eurydice and Cedefop, 2014; Cedefop, 2015, 2017):

- Expanding and strengthening the guidance system from the early stages of schooling.
- Preparation of teachers in the field of AET.
- Development of new guidance approaches to facilitate transitions.
- Intersectoral cooperation between the guidance services of different administrations.

Early and comprehensive vocational guidance becomes a guarantee measure to help young people choose vocational training as a positive option as (Cedefop, 2016):

- It avoids common prejudices in the choice of training offer and about those routes that offer better professional opportunities.
- It helps to know the different options and specialties of vocational training as one more training route.
- It helps young people to know and understand their learning needs and professional preferences according to their characteristics and strengths.
- It provides adequate information about the vocational training program in which they are enrolled or about the occupation they want to perform and for which they have to be trained.

- It provides help and advice on various issues such as choice of specialization, transition to the workplace or networking within the occupational group.

In this context, educational and vocational guidance takes on special relevance when addressing disadvantaged young people mainly for two reasons: it restores confidence and provides the necessary motivation to stay in vocational training studies; it generates a positive image of education and capitalizes on the individual skills and experiences of students by showing them their growth potential.

D. Developing integrated career guidance systems in collaboration with guidance agents from different fields

The various reports and recommendations that have been developed by European bodies have justified the need to develop integrated vocational guidance systems by referring to the benefits that they could bring and have referred to them as a prerequisite for providing quality guidance which is inclusive and connected to lifelong learning. Some of these contributions are (Cedefop, 2006 2010, 2013, 2016; European Commission, 2015, 2018b; European Council, 2019; Sultana, 2004):

- To favour the construction of flexible and permeable training itineraries
- Adaptation to the needs of citizens throughout their lives
- Facilitating the validation of non-formal and informal learning
- Improving skills in line with labour market demand
- To encourage the diversification of training itineraries and non-traditional options for study and work
- To overcome gender barriers
- To prevent early school leaving
- Improving the accessibility of counselling services
- Develop comprehensive - not one-off and fragmented - guidance plans
- To give continuity in the permanent process of acquiring key competences

One of the main challenges in the development of integrated systems is in the collaboration and coordination between the different guidance actors. Cedefop (2008, 2010a) concludes that there are still shortcomings, overlaps, gaps and inconsistencies that make it difficult to develop a strategy that allows all citizens to access quality guidance services throughout their lives.

4 Conclusions

In summary, results indicate that there is a high percentage of students who do not graduate at the expected time. Academic performance indicators show important opportunities for improvement, there being differences in terms of sex, geographical area, VET levels and professional families. There is mobility between professional families. All this points out the students' need for career guidance. To meet this need, experts and reports propose designing career guidance plans for the prevention of ESL and achievement improvement; addressing the gender gap in the access, qualification and promotion in VET; establishing mechanisms for the detection and promotion of talent; favouring the development of personalized training itineraries; designing a curricular proposal for the development of career management competencies in general education and adult education; integrating the development of career management competencies in the VET curriculum; boosting career guidance actions in the previous levels and during the VET; designing integrated career guidance systems in which educational administrations,

employment, companies and social agents participate, that support and cover the rest of proposed actions.

References

- Álvarez Rojo, V. B., García Gómez, S., Gil Flores, J. Y., & Romero Rodríguez, S. (2015). Necesidades de Información y Orientación del Alumnado de Formación Profesional en la Comunidad Autónoma de Andalucía. *Bordón*, 67(3), 15–34.
- Cedefop (2006). *Mejorando las políticas y sistemas de orientación continuas. El uso de herramientas de referencia comunes en Europa*. Oficina de Publicaciones Oficiales de las Comunidades Europeas.
- Cedefop (2008). *From policy to practice. A systemic change to lifelong guidance in Europe*. Cedefop Panorama series, 149. Office for Official Publications of the European Communities.
- Cedefop (2010a). *Modernización de la formación profesional. Cuarto informe de investigación sobre formación profesional en Europa: resumen*. Oficina de Publicaciones Oficiales de las Comunidades Europeas.
- Cedefop (2010b). *Acceder al éxito. La orientación permanente, la clave para una mejor formación y mejores oportunidades en Europa*. Oficina de Publicaciones de la Unión Europea.
- Cedefop (2013). *Políticas de formación profesional y aprendizaje permanente más eficaces: concienciación, análisis y asesoramiento. Los logros de Cedefop en 2012 y sus planes para 2013*. Nota informativa 9076 ES, enero, 4 pp.
- Cedefop (2014). *L'orientation professionnelle en période d'instabilité: une interaction de bénéfices économiques, sociaux et individuels*. Nota informativa 9094-FR, décembre, 6 pp.
- Cedefop (2015). *Refuerzo de la educación y la formación profesionales para una vida mejor*. Nota informativa 9096 ES, marzo, 4 pp.
- Cedefop (2016). *Leaving education early: putting vocational education and training centre stage*. Publications Office of the European Union.
- Cerda-Navarro, A., Sureda-Negre, J., & Comas-Forgas, R. (2017). Recommendations for confronting vocational education dropout: A literature review. *Empirical Research in Vocational and Educational Training*, 9(17). <https://ervet-journal.springeropen.com/track/pdf/10.1186/s40461-017-0061-4>
- Creswell, J.W. y Plano Clark, V.L. (2017). *Designing and conducting mixed methods research*. Sage Publishing.
- ELPGN (2015). *Guidelines for Policies and Systems Development for Lifelong Guidance: A Reference Framework for the EU and for the Commission*. The European Lifelong Guidance Policy Network (ELGPN).
- European Commission (2015a). *Nuevas prioridades para la cooperación europea en educación y formación. Proyecto de informe conjunto de 2015 del Consejo y de la Comisión sobre la aplicación del marco estratégico para la cooperación europea en el ámbito de la educación y la formación*. Comunicación de la Comisión al Parlamento Europeo, al Consejo, al Comité Económico y Social Europeo y al Comité de las Regiones. 26-08-2015, COM (2015), 408 final.
- European Commission (2015b). *Riga Conclusions 2015 on a new set of medium-term deliverables in the field of VET for the period 2015-2020, as a result of the review of short-term deliverables defined in the 2010 Bruges Communiqué*. 22 de junio de 2015, 8pp.
- European Commission (2018b). *Proposal for a council recommendation on key competences for lifelong learning*. Commission Staff Working Document. 17-01-2018, COM (2018), 14 final.
- European Commission (2018a). *Opinion on the future of vocational education and training post 2020*. 3 december. Advisory Committee on Vocational Training. 15 pp.
- European Commission (2019). *Education and Training 2020: Working Group Mandates 2018 – 2020*. Comisión Europea.
- EURYDICE, & Cedefop (2014). *La lucha contra el abandono temprano de la educación y la formación en Europa: estrategias, políticas y medidas. Informe de Eurydice y Cedefop*. Publications Office of the European Union.

- ICCDPP (2019). *Communiqué 2019. Diriger los servicios de desarrollo de carrera en un futuro incierto: garantías de acceso, integración e innovación*. 9th International Symposia on Career Development and Public Policy. 17-20 junio 2019.
- Instituto de la Empresa Familiar (2018). *Orientación profesional y formación dual. Hacia un modelo integrado para el empleo juvenil*. Instituto de la Empresa Familiar y Fundación Bankia por la Formación Dual.
- Mas, O.; Olmos, P., & Salvà, F. (2017). Programas de formación profesional de nivel 1 (PFI): un estudio de caso desde la perspectiva docente. *Curriculum*, 30, 103–124.
- Ministerio de Educación y Formación Profesional (2019). *Plan Estratégico de Formación Profesional del Sistema Educativo*. <http://www.todofp.es/dam/jcr:163978c0-a214-471e-868d-82862b5a3aa3/plan-estrategico-fp.pdf>
- OECD (2003). Orientation professionnelle. Nouvelles pistes de réflexion In OECD: *Analyse des politiques d'éducation* (pp. 41–63). <http://www.oecd.org/fr/education/innovation-education/19987799.pdf>
- OECD (2004). *Orientación profesional y políticas públicas. Cómo acortar distancias*. OCDE-Ministerio de Educación y Ciencia.
- Sanz, C. (2010). La orientación profesional en los sistemas de formación profesional. *Revista Española de Orientación y Psicopedagogía, REOP*, 21 (3), 643–652.
- Sanz, C., y Manzanares, A. (2018). El modelo de orientación profesional en cuestión. Revisión de sus referentes teórico-prácticos. En A. Manzanares y C. Sanz (Dir.). *Orientación Profesional. Fundamentos y estrategias* (pp. 65–88). Universidad Castilla La Mancha
- Sultana, R. G. (2004). *Politiques d'orientation dans la société de la connaissance. Tendances, défis et réponses en Europe. Rapport du synthèse du Cedefop*. Office des Publications Officielles des Communautés Européennes
- VET4EU2 (2015). *Declaration on the medium-term deliverables of the Riga. Conclusions*. <https://www.efvet.org/wp-content/uploads/2019/12/VET4EU2-Declaration-on-the-medium-term-deliverables-of-the-Riga-Conclusions.pdf>
- VET4EU2 (2018). *Position Paper on European Union policy after 2020 on Vocational and Educational Training*. <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail-Doc&id=38451&no=1>

Biographical notes

Dr Soledad Romero-Rodríguez is a Professor in the Educational Research Department at the University of Seville (Spain). She is a member of the Board of Directors at the International Association of Educational and Vocational Guidance (IAEVG). She has carried out research projects on guidance programs for career construction from a narrative-systemic approach, career guidance in Vocational Education and Training programs, and professional and life transitions. She has a particular interest in the methodological approaches in career guidance studies. She is currently focusing on sensorial and collaborative ethnography and systemic-narrative approaches in career guidance & VET studies.

Dr Eduardo García-Jiménez is a Professor in the Educational Research Department at the University of Seville (Spain). He was a member of the board of trustee at the National Quality Assurance Agency (ANECA). Currently, he is a member of the degree accreditation committee at Madrid Quality Assurance Agency (Fundación madrimasd). He is also a member of the State Network of Teaching in Higher Education (RED-U). He has carried out researches on assessment for learning approach in Pre-school Education and Primary Education. He has a particular interest in Literacy and language ethnography, and he is improving his expertise in the methodological approaches in literacy studies. Thus, he is currently focusing on sensorial ethnography, collaborative ethnography and digital ethnography.

Dr **Celia Moreno Morilla** is a lecturer in the Educational Research Department at the University of Huelva. Her PhD is entitled “Rethinking literacy in Spanish Primary Education from mixed methods: Lens of pupils, families and teachers”. From the start, her research studies have focused on the analysis of literacy incorporating different educational stages, socio-economic and cultural contexts, applying various methodologies. She is currently taking part in the research project “Literacy as a Social Practice in Preschool Education and Primary School (5-7 years of age): Research and Intervention Design with Children in Low Income Contexts The focus of her research is on the analysis of interrelations established between children, youths and digital technologies in everyday settings at the present time.

Dr **Tania Mateos Blanco** is an Associate Professor in the Department of Theory and History of Education at the University of Seville (Spain). Her research activity has been developed in the following lines: cultural diversity and interculturality, narrative applied to education, employability, guidance and VET, as well as emotional education. In relation with her professional career, she has been cantered in the field of education, working and collaborating as a teacher and technician of training and professional guidance in different public institutions.

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A Sector Qualification Framework (SQF) Level 2-4 for Industrial Shoe Production – Added Value or Good for Nothing?

Saniter, Andreas

Institute Technology and Education (ITB) University Bremen, asaniter@uni-bremen.de

Harberts, Vivian

Institute Technology and Education (ITB) University Bremen, harberts@uni-bremen.de

Abstract

In the year 2008, European Union authorities published the European Qualification Framework (EQF) for lifelong learning (cp. EU 2008) to increase transparency of qualifications, mobility of workers and image of VET and requested the member states to develop National Qualification Frameworks (NQFs), to level the national respective regional qualifications of all sectors and to refer the NQFs to the EQF. Since then no or only very small advantages induced by NQFs were published. One of the main reasons is the inherent broadness respective openness of the descriptors of the levels. A promising approach to overcome this dilemma are Sector Qualification Frameworks (SQF); ICSAS project developed, implemented and evaluated a SQF for the sector of industrial shoe production. Findings can be summarised as follows: SQFs are a step towards transparency and recognition of qualifications – but no silver bullet.

Keywords

sector qualification frameworks; transparency, spheres of activity; levels of autonomy

1 Context

In the years 2008 and 2009, the European parliament and the council published a row of recommendations to improve Vocational Education and Training (VET) in the member states, among others the recommendation «on the establishment of the European Qualifications Framework for lifelong learning» (cp. EU 2008 and EU 2017). The European Qualification framework consists of 8 levels, starting with level 1 for (almost) unskilled workers and ending with level 8 for PhD holders. Table 2 mirrors the levelling of qualifications from most European Union member countries, minor deviations (+/- 1 level for some countries are possible).

To achieve transparency and comparability of qualifications and to increase mobility of workers and the image of VET, National Qualification Frameworks (NQFs) in the European countries were established, national qualifications were levelled and NQFs have been connected to the European Qualification Framework (EQF). Most of the NQF are very similar to the EQF and refer to the same or comparable descriptors for the levels. Table 3 quotes the descriptors of the EQF for level 4.



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Table 2
Levels of EQF and chosen qualifications

EQF level	Chosen qualifications
1	Not relevant
2	VET-propaedeutic measures
3	Short VET qualifications, leading to semi-skilled work
4	VET-qualifications for skilled workers, general university entrance diploma
5	Technicians (some countries), Short Cycle Higher Education (SCHE) like foundation degree in UK
6	Technicians (some countries), Bachelor (Higher Education, HE)
7	Few Continuous VET (CVET) qualifications, Master (HE)
8	PhD

Table 3
EQF-descriptors for level 4 (source: EU 2008)- The learning outcomes relevant to Level 4

Level 4	learning outcomes relevant on Level 4
Knowledge	factual and theoretical knowledge in broad contexts within a field of work or study
Skills	a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study
Competence	exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

In the last years already many papers were published, arguing that general Qualification Frameworks, might they claim national or transnational relevance, are «somehow nothing but a paradigmatic case of travelling educational reforms» (Bohlinger, 2019). A main reason for this failure of sector-independent Qualification Frameworks (QF) can be seen in the fact that all non-sector related QF refer to broad and open descriptors like «A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study» (EQF, level 4, skills, EU 2008). Focussing on one sector, only, offers the option to specify the mentioned «field of work or study» and to characterise the «range of cognitive and practical skills».

The transnational Erasmus+ research and development project ICSAS (Integrating Companies in a Sustainable Apprenticeship System, for details see ICSAS 2020a) worked on these two aspects; aiming at developing a Sector Qualification Framework (SQF) for the sector of industrial shoe production. Additionally, it levelled all Initial Vocational Education and Training (IVET) qualifications on level 2-4 from the participating countries Germany, Spain, Portugal and Romania and evaluated the SQF.

2 Research questions and methodological approaches

This part of ICSAS project concerns the following research questions:

- How to specify the «field of work or study»?
Project partners performed a row of interviews with experts from the sector, formulated drafted spheres of activity to describe the field of work, confirmed the answers via Learning Station Analyses (LSA, a modified work-process analysis, for details see ICSAS 2018) and validated the findings in expert-workshops.

- How to characterise the «range of cognitive and practical skills»?
Activities started with desk research; analysing how colleagues who have developed a SQF for other sectors have answered this question. Drafted answer of ICSAS project team was confirmed via workshops with IVET-practitioners (trainers, VET-teachers).
- Which spheres of activity are tackled (partly) by the IVET qualifications of the four countries?
In Spain, Germany, Romania and Portugal VET-researchers mapped the identified spheres of activity with the respective national curricula. The drafted mappings were validated in workshops with IVET-practitioners (trainers, VET-teachers), again.
- How could a Sector Qualification Framework (SQF) for Industrial Shoe Production could look alike?
Project partners developed different versions of visualising the SQF and interviewed practitioners on comprehensibility and usability.
- Is a SQF of benefit for the recognition of qualifications awarded in other countries?
Confirmed (from pedagogical and technological perspective) SQF was discussed with colleagues from human resources departments, being responsible of hiring new staff for industrial shoe production and other experts.

3 Findings

Each vocation can be described by a couple of spheres of activity – prior research in various sectors and countries revealed that the number of “spheres of activities” varies between 5 and 16, depending on the concrete vocation and normative decisions of the researchers and other stakeholders involved; neither number nor differentiation between spheres are od-given. Spheres of activity describe the respective skilled labour based on purposeful and meaningful work contexts. Spheres cover a complete vocation and are typical for a particular sector.

Skilled work in shoe manufacturing can be described by 9 spheres of activity, out of which 5 spheres (cutting, pre-stitching and stitching, lasting, assembly, finishing) were estimated as core elements of the vocation, whereas the other 4 (design, technical development, production planning, quality assurance) were estimated as peripheral spheres.

Table 4

Findings on question 1; spheres of activity:

Core	cutting	pre-stitching and stitching	lasting	assembly	finishing
Peripheral	design	technical de- velopment	production planning	quality assur- ance	

Comprehensive descriptions of the spheres can be consulted via ICSAS (2019a), in the following box the description of the sphere “cutting” is documented:

Box 1

Holistic description of the sphere “cutting”

The task of the cutting department staff is to cut the shoe parts from upper, lining, interlining and reinforcement materials (leather, synthetic leather, natural or synthetic textiles) in the required geometries.

The following cutting techniques are used:

* Hand cutting with knife and pattern stencils: Mainly used for sample and small series production.

* Clicking machines and cutting dies (swing arm cutting presses for cutting upper and lining leather, travelling head and beam cutting presses for natural and synthetic textile materials): typically used for serial production.

* Dieless cutting on automated CAM cutting tables (oscillating blade / punching / roughing tool, water jet or laser): mainly used for prototyping and small series production, but also for serial production. The cutting geometries are provided by the CAD system.

Material, colour, number of pairs and special requirements can be found in the accompanying specifications that come with each work batch.

Prior to cutting, the leather hides and skins must be checked in terms of differences in thickness and colour, quality zones and eventual defects. Crucial in leather cutting – whether manual, machine cutting or computer-aided – is the compliance with the cutting rules (quality rule, pairing rule, stretch direction) because they influence the quality of the final product. Skill and experience in creating a cutting layout on a hide or skin are also imperative to minimise waste, because the upper leather represents by far the largest single cost item in shoe production.

Further operations in the cutting room are splitting of the cut parts (to reduce them to the required even thickness) and stamping of the parts (article number etc.). The quality control of the cuts is carried out directly in the department.

In each of the participating four countries the national qualifications of the sector have been analysed with respect to the coverage of the spheres; detailed national reports can be consulted via ICSAS (2019b). This part of the paper refers to the findings in Germany only – findings from other countries follow the same structure. First step was to sketch an overview of the national qualifications, as documented in Table 5.

Table 5

German qualifications of the sector

Name of qualification (DE)	Name of qualification (EN)	DQR level	EQF level	Length	Permeability	Amount of learners
Einstiegsqualifizierung „Herstellung von Schuhen“* (IHK 2019)	Entry training “production of shoes” *	2	2	9 months	Might be (in fact: this option almost never occurs) recognised when starting an apprenticeship as an “industrial shoemaker” via a reduction of length by 6 months	Not published
Fachkraft Lederverarbeitung (BIBB 2011)	Assistant for leather processing	3	3	2 years	Fully recognised as the first 2 years when starting an apprenticeship as an “Industrial shoemaker”	6 new contracts in 2017 (according to BIBB)
Industrieller Schuhfertiger (BIBB 2017)	Industrial shoemaker	4	4	3 years	-	36 new contracts in 2017 (according to BIBB)

Note. *: No qualification with relevance for labour market

Main features of entry training “production of shoes”:

- Very short curriculum (1 page!)
- Refers only to spheres of activity “cutting” and “stitching”.
- “Basic cognitive and practical skills” or “largely under supervision” (from level 2) describe learning outcomes (LO) quite realistic.
- Includes the option to shorten a qualification as an “industrial shoemaker” by 6 months.

Main features of Assistant for leather processing

- Equals the first 2 years of the curriculum of the industrial shoemaker; curricula for learning venue school even states: “Common classes for both vocations are possible.” (and real, due to small amounts of apprentices)
- Fully creditable against “industrial shoemaker”; holders of “Assistant for leather works” need only 1 additional year of VET to become an industrial shoemaker.
- Refers to spheres of activity “cutting”, “stitching” and “finish” (only leather, not soles/shoes).
- “a broad spectrum of cognitive and practical skills” or “work autonomously” (from level 3) describe learning outcomes (LO) for these 3 core spheres quite realistic.
- Offers additionally insights into peripheral spheres “technical development” (station: “Technical Pattern Making (Uppers)”, “design” (station: “upper coordination”) and production planning.




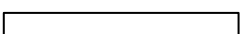
Main features of Industrial shoemaker:

- Covers all 5 core spheres (cutting, stitching, lasting, assembly, finishing)
- “a spectrum of cognitive and practical skills” or “set own learning and work objectives” (from level 4) describe learning outcomes (LO) for these 5 core spheres quite realistic.
- Covers “production planning” and “quality assurance” in parts; only the planning of the production of a shoe (not a whole production line) resp. quality assurance of established materials and processes.
- Offers additionally insights into the other 2 peripheral spheres.

Findings on the second question, on how to differentiate the level of work of a qualification holder in the different spheres, pointed in a unique dimension: the level of autonomy. That skilled workers have the necessary knowledge and skills for successful working on a task of a sphere of activity was self-evident for the experts consulted, Table 5.

Table 6

Level of autonomy as descriptor for performance

	autonomous performance
	initiation
	partly; e. g. planning of a single product (not production line)
	not tackled

The application of results from question 1 and 2 led to the coverage of the spheres of activities by the three German qualifications according to Table 6.

Table 7*German qualifications of the sector and coverage of the spheres of activity*

	Cutting	Stitching	Lasting	Assembly	Finishing	Design	Technical development	Production planning	Quality assurance
Level 2 Entry training	•	•							
Level 3 Leather processing	•	•			•	•	•	•	•
Level 4 Industrial shoemaker	•	•	•	•	•	•	•	•	•

As already indicated by Table 7, project partners and experts consulted agreed on this version of visualising the SQF; Table 8 documents the level 4 of the SQF from all four countries, to be discussed in the final section of this paper.

Table 8*Qualifications on level 4 of the sector in Germany, Spain, Portugal and Romania and coverage of the spheres of activity*

Level according to EQF (Qualification)	spheres of activity in footwear sector								
	Cutting	Stitching	Lasting	Assembly	Finishing	Design	Technical development	Production planning	Quality assurance
DE Industrial shoemaker	•	•	•	•	•	•	•	•	•
PT Footwear pattern maker	•	•	•	•	•	•	•	•	•
PT Footwear Manual Production Technician	•	•	•	•	•	•	•	•	•
PT Footwear & Leather Goods Production Manager	•	•	•	•	•	•	•	•	•
RO Technician in textile and leather industry - footwear included	•	•	•	•	•	•	•	•	•
RO Technician in footwear industry	•	•	•	•	•	•	•	•	•
RO Designer technician in textile and footwear industry	•	•	•	•	•	•	•	•	•
ES Footwear and fashion accessories technician	•	•	•	•	•	•	•	•	•

Note. Comparable schemes for levels 2 and 3 can be consulted via ICSAS 2020b.

4 Conclusions and Outlook

Findings reported till now were a nice finger exercise, but the relevant question is number five: Is a SQF of benefit for the recognition of qualifications awarded in other countries? To answer this question, approx. 20 experts, working in human resource and/or training departments of shoe companies or in specialised training institutions were interviewed, partly in workshops in Germany, Spain, Portugal and Romania. Leading questions of the interviews were the following:

1. Is the SQF structured in a comprehensible and understandable way?
2. Do you agree with the coverage of the areas of national qualifications?
3. Do you think that this SQF brings added value for your company when recruiting staff abroad?

The answers on the first two questions can be summarised very briefly: No relevant complaints on the structure of the SQF nor the levelling respective coverage of national qualifications were raised. Thus, the first aim of a SQF, to increase transparency of qualifications of a sector, awarded in different countries has been reached. Additionally, it improves the image of VET in countries, where the reputation of VET is traditionally rather weak, as the following quote of a Romanian expert indicates:

Having a common SQF that makes a correspondence between the qualifications from the four main footwear manufactures in Europe (PT, ES, DE and RO) is a confirmation for Romanian companies of their experience in the field.

Regarding the 3rd interview questions, the answers were more widespread. Firstly, the basic assumption of this paper, that general frameworks are too broad, was confirmed, as a German expert stated:

EQF and DQR are not relevant, but every professional sector should have a SQF.

The SQF matrix as an overview of foreign qualifications was appreciated and some potential for recognition was seen, e. g. in Romania:

The SQF helps workers to prove their knowledge and skills when they apply for a job in a different company.

But other experts highlighted that even qualifications from different countries that are (structural) very similar could include very different concrete skills, among others, depending on the kind of shoes. In Spain, this diversity was seen positive:

[There are] relevant differences depending on the country of production, and therefore, the foreign professionals that come to Spain may contribute with their different criteria, hence enriching the sector.

Whilst a German human resources delegate was much more sceptical:

SQF is not of much use, because even when recruiting new employees qualified in Germany, the companies have to look exactly where the new employees have learned and the colleague has to trial work.

Against the background that Portuguese companies have problems in recruiting skilled and motivated workers for the sector, the discussion in Portugal took another direction: how can the transnational SQF be of use for updating Portuguese qualifications? Portuguese project partners presented already a drafted new qualification, by filling the gaps in terms of not tackled spheres of an existing qualification on level 2 in order to raise it to level 4, the experts argued:

[The drafted] new qualification would be more attractive especially to young people. The qualification title should be thought in detail.

Especially to increase the image of VET, Portuguese colleagues are aiming at:

Elevat[ing] the Footwear Production Manager already existing [cp. table 7] in the SQF from level 4 to level 5.

Thus, an unexpected added value of transnational SQF was disclosed: SQF have the potential to serve as a background for mirroring national qualifications and potential weaknesses of covering the relevant spheres of activity. But, despite this unexpected positive effect, project partners' conclusions can be summarised as follows:

Yes, a SQF level 2-4 increases the transparency and comparability of qualifications of a sector awarded in different countries.

No, a SQF is not the missing link for boosting transnational mobility of skilled workers or substantially increasing image of VET.

A reason for the latter might be that SQF developed in ICSAS project is restricted to levels 2-4; strong and established CVET programmes, leading to qualifications on level 5-7, are usually seen as a very positive element of VET-systems, as they state that IVET is not a dead end. Therefore project partners applied for a new project, aiming at updating respective developing CVET in the sector; including the supplementation of the SQF to levels 5-7 and hoping that impact of a "complete" (in terms of covering all relevant levels) SQF will have more influence.

From a broader perspective, experience gathered in ICSAS tends to question whether well-meant but rather technocratic initiatives of European Union policies like the European Qualification Framework are really improving VET. Referencing of qualifications in most countries was much more based on the image then on the quality of a qualification/educational strand. Thus, ICSAS partners would like to recommend that both, practice and governance should refer to apparent good practice and mutual learning and trust.

References

- BIBB (2011). *Fachkraft Lederverarbeitung*. <https://www.bibb.de/de/berufeinfo.php/profile/apprenticeship/220310>
- BIBB (2017). *Industrieller Schuhfertiger*. <https://www.bibb.de/de/berufeinfo.php/profile/apprenticeship/240616>
- Bohlinger, S. (2019). Ten years after: The 'success story' of the European qualifications framework. *Journal of Education and Work*, 32(4), 393–406.
- EU (2008). *Recommendation [...] on the establishment of the European Qualifications Framework for lifelong learning*. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF>
- EU (2017). *Recommendation of 22 May 2017 on the European Qualifications Framework*. <https://op.europa.eu/en/publication-detail/-/publication/ceed970-518f-11e7-a5ca-01aa75ed71a1/language-en>
- ICSAS (2018). Learning station analysis. http://icsas-project.eu/wp-content/uploads/2018/05/O1_LSA_EN-version_Germany.pdf

- ICSAS (2019a). *Spheres of activity of Industrial Shoemakers*. http://icsas-project.eu/wp-content/uploads/2020/03/IO_06_EN.pdf
- ICSAS (2019b). *National reports*. <http://icsas-project.eu/results/>
- ICSAS (2020a). *Integrating companies in a sustainable apprenticeship System*. <http://icsas-project.eu/>
- ICSAS (2020b). *Sector Qualification Framework (SQF) industrial shoemaker level 2-4*. http://icsas-project.eu/wp-content/uploads/2020/06/06_SQF-Table_EN.pdf
- IHK (2019). *Einstiegsqualifizierung Herstellen von Schuhen*. <https://www.ihk.de/documents/38722/85835/Herstellung+von+Schuhen/c88ada29-b15c-4ec0-80d9-247e606c90ce?version=1.1>

All internet resources consulted on the 10.07.2020.

Biographical notes

Dr **Andreas Saniter** is a senior researcher and the international research coordinator at the Institute for Technology and Education (ITB), University of Bremen. Educational background in physics, research interests in expertise development, transnational comparative research and policy learning. Sometimes desperate with technocratic EU policies and officers.

Vivian Harberts is a junior researcher at the Institute for Technology and Education (ITB), University of Bremen. Educational background in chemistry and education, research interests in recognition of prior learning (RPL). Considering writing her PhD thesis on Continuous Vocational Education and Training (CVET) in industrial shoe production.

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The Role of Key Influencers for Young Adults Choosing the Apprenticeship Pathway to the World of Work

Simonen, Petri

University of Glasgow, p.simonen.1@research.gla.ac.uk

Abstract

Young adults' transitions from schooling to work have been and continue to be an area of interest for researchers and policymakers alike. This study examines the role of key influencers in young adults' educational decision-making by investigating who the key influencers are and in what ways they are influencing young adults. The data was collected through semi-structured qualitative interviews. The findings indicate the key influences vary according to young adult's social circles. The role of institutions and institutional influencers was increased when young adult's social circle did not contain the needed information about apprenticeships and apprenticeship opportunities. Implications for policy and future research are discussed.

Keywords

transitions; apprenticeships; educational choice

1 Introduction

Young adults' transition from schooling to work have been a notable area of policy since the 2008 financial crisis. This topic is relevant for across Europe as nation states have been utilising different education and labour market policies to reduce youth unemployment, which often emphasise the VET pathway as is the case in Scotland (Parreira do Amaral, Kovacheva & Rambla, 2019; Scottish Government, 2014). The Covid-19 situation is not making the topic any less salient today as the disruption it has caused in the economy is again hitting employability as companies struggle for survival, reducing the hiring rates (Skills Development Scotland, 2020). For these reasons understanding young adults' decision-making and why they choose an apprenticeship is important for policymakers as well as researchers seeking to understand the processes behind the decision-making.

This study examines how young adults (16 – 25 years old) are influenced by other people – key influencers—as they are considering their education and training options after compulsory education. The data collection was conducted as part of MRes degree in 2018. The focus of the study is on role of influencers for young adults choosing to go to Modern Apprenticeship (MA) training in Scotland. This study is contributing to the academic debate about the effects of structural factors versus individual agency on young adults' educational decision making and their school-to-work transitions (Furlong, 2009), and it examines the added dimension of influencers as agents that exert some of the structural factor effects. This study seeks to contribute to that



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discussion by examining the variety of ways different people in young adults' lives contribute to their decision-making and how different institutional influencers – such as careers advisors – are a part of the mix of influences that affect young adults' educational choices.

Influencers are defined in the study as people who interact with young adults and affect their decision-making in various ways. Key influencers are the people who have the greatest influence on young adults. Key influencers can be part of young adults' social networks (for example family members, friends, and other relatives), or they could be individuals fulfilling an institutional role as they interact with young adults (for example teachers and careers advisors). These two types of influencers are categorised as personal and institutional influencers respectively. The forms of influence include expressions of support regarding young adults' choices, providing information for decision-making, promising and providing practical support in the application process, and linking young people with possible opportunities for apprenticeships. The project concerns the following research questions:

- Who are the key influencers for young adults?
- How do the key influencers affect young adults' decision-making?

1.1 Agency and structure in educational decision-making

The academic debate in studies of school-to-work transitions and decision-making had for a long time been divided into two schools of thought; structuralists and individualists (Furlong, 2009). Structuralists have argued that structural factors such as socioeconomic status, gender, and ethnicity are the most significant factors affecting individuals' life courses, including educational choices (Furlong, 2009; Evans, 2002). These effects have been argued to stem from the restricting effects caused by the lack of resources among those in lower socioeconomic classes and cultural learning effects. The mechanics for the structural effects have been often studied utilising Bourdesian frameworks (Atkinson, 2010;2017), where the socioeconomic status (SES) provides an environment where a young person grows up, and where they develop a habitus. The SES also comes with a differing amount of economic capital, and variants of social and cultural capital, as the social learning environments and social circles vary largely on the basis of SES (Atkinson, 2010; 2017).

On the other hand, individualists such as Beck and Beck-Gernsheim (2002) have argued that in post-industrial societies the effects social class have started to weaken. They have argued that this has resulted in a societal condition where people need to create their identities through individual choices, rather than it being imposed, or handed down, through structures like socioeconomic class. This view emphasises the individual agency as the most significant factor affecting one's life courses. This theoretical perspective emphasises the *need* for actively constructing one's identity due to weakened societal structures (Roberts, 2009). This results in a condition where individual responsibility for one's social standing and career choices is emphasised.

Studies have emerged from this debate examining how structural factors affect individuals' decision-making and how they might restrict or limit personal agency. The interaction between structural and agential factors is one of the developing areas of research in the field. One term for restriction of agency through structural factors is 'bounded agency' (Evans, 2002) and it is forming the theoretical framework in which this study is situated. The concept of bounded agency is useful for it elegantly expresses the constraining effects of SES and other structural factors to an individual who occupies a social environment where individual is responsible for, and is forced to make decisions about, their career and life trajectories.

1.2 The Scottish policy context

The Scottish education and labour policy context is one where the focus is on providing the needed tools for young adults' educational decision-making. The flagship policy in this area at the time of data collection and writing is called *Developing the Young Workforce* (DYW; Scottish Government, 2014). The policy is a broad policy addressing various perceived issues in Scottish vocational education and transitions from schooling to vocational education (Scottish Government, 2014). The aspects of the policy most relevant for this study were to do with apprenticeships and career guidance.

The first relevant part was the creation of an apprenticeship pathway that started earlier and could be accessed while in school. This started off as 'pathfinder' project in DYW documentation and over its implementation it became a work-based learning option in Scottish *Curriculum for Excellence* called Foundation Apprenticeships (Scottish Government, 2018). The Foundation apprenticeship expanded the apprenticeship pathway from the start and it was coupled with a set of more advanced graduate level apprenticeship frameworks under the title of Graduate Apprenticeships to extend the apprenticeship pathway further into higher levels of qualifications (Scottish Government, 2014).

The second relevant part for this study involved improvements to career services offered to young adults. This involved creating partnerships with employers in the areas around schools. One of the reasons for the creation of these partnerships was to improve visibility of local industries and different jobs in school (Scottish Government, 2014). These partnerships with local industry seek to broaden the amount options that are visible for young adults while they are in school and to expose the young adults to more career options before they have to make decisions (Scottish Government, 2014; 2018). One of the aspects of the study was to see if these efforts to make different apprenticeships and college options more visible in school have been noticed by young adults themselves and if careers advisors providing the information services are viewed as key influencers and supporters.

2 Methodology

This study uses qualitative case-study methodology as it is well suited for gaining insight into a specific phenomenon or how people belonging to a group think (Alasuutari et al., 2008). Data used in the study comes from Semi-structured interviews. The semi-structured interview technique was used as it is a well-established tool for understanding people's views, thinking, and personal experiences about a specific topic while allowing for some flexibility to pursue unexpected strands in enquiry. (Howard & Berg, 2017; Kvale & Brinkmann, 2009). The interviews were one-to-one and conducted either in person or via video calling software Skype. Each interview lasted between 20 and 35 minutes. Interviews were transcribed by the research and analysed using thematic analysis. The coding was done using R Qualitative Data Analysis (RQDA) software package in R (Huang, 2016). The themes coded in the analysis were a combination of pre-determined themes derived from the research questions and focus, as well as themes that emerged from the coding process and were not anticipated prior to the analysis.

To be eligible for the study, the participants had to be between 16 and 25 years old and either doing a Modern Apprenticeship (MA) or having just completed one at the time of the interviews. The sample of the study consisted of 10 young adults (19 to 23 years old at the time of the interviews) who were all completing their apprenticeships in a single organisation. However, while the participants were all doing their apprenticeship in the same organisation, they were based in different locations across Scotland. The participants were completing two different kinds of MAs. First of the two MAs was situated in the area of youth support and career development, while the second type of MA was in the area of Business and Administration. The MAs in the study were of at least SCQF (Scottish Credit and Qualification Framework)

level 5, making them fall within the qualification level that the Scottish Developing the Young Workforce policy aimed to increase in ratio compared to lower level qualifications (Scottish Government, 2014). Any references made to the participants are done using pseudonyms. The data for the study was collected in 2018 as part of an MRes degree dissertation.

3 Results and Discussion

The results of the study are covered in this section. The findings part describes the findings to the research questions as well as additional themes picked up during the analysis. The implications of the findings are discussed in the following part, focusing on what the results suggest for policy in Scotland and for other places with similar policy approaches.

3.1 Findings

RQ1) Who are they key influencers for young adults?

The key influencers for the participants showed a notable variance from person to person in the study, but the influencers could be divided into three groups. These groups of key influencers for choosing to go into a Modern Apprenticeship (MA) training were careers advisors, parents and relatives, or peers. The variance in key influencers' roles appears to stem primarily from the forms of influence and support contained within the young adult's social circle, containing both 'parents and relatives' as well as the 'peers' groups. In some instances the young adult had the necessary information and support within their personal social circle, in which case the influencers with institutional roles played a smaller part. Of the influencers in young adult's social circle parents were usually the key influencer, but sometimes they did not have the resources that the young adult needed to make the decision, such as information about career opportunities or knowledge about apprenticeships. In these cases other people within the social circle with relevant information were more prominent as influencers, or their place was taken by influencers with an institutional role.

...one of my dad's friends. Who was actually an intern here. She said to me that I should consider it. (Jack)

The influence was not always direct, as in the influencer in person providing information, assistance, or even just a person to talk to about educational choices. Sometimes the influence was indirect, taking a form of providing resources that the young adult could utilise on their own if they chose to do so. This distinction will be discussed in the section below, but it is notable that this indirect assistance was most often provided by institutional influencers, especially careers advisors. The institutional influencers were viewed to provide the basic information about apprenticeships and some of the options, but the information from them was often seen as being limited and directed towards certain options. The factor dictating which options were emphasised for the young adult in school appears to have been grades, resulting in those with good grades being directed towards university and little attention being given towards other possibilities. In instances when other options such as apprenticeships came up in school, the presented selection was limited.

In terms of when I was coming up to leaving school, I got the impression that maybe if you had a certain level of education that you were almost expected to go to university. (Margaret)

When I was at school they were quite erm, talked about the sort of construction industry, the modern apprenticeship. I think it was the beginning of like the NHS

having modern apprenticeships. And sort of your usual hairdresser ones and stuff as well. (Helen)

For this reason, and for the fact that contact time with careers advisors in schools is limited, the careers guidance in schools was found to be lacking for many in the sample despite being named most consistently as a source for information about apprenticeships. However, some of the participants had gone to careers services outside schooling, usually after deciding that university or college was not right for them, and these careers services were found to be more useful.

RQ2) How do the key influencers affect young adults' decision-making?

The main forms of influence were identified from the interviewees and coded into four different categories, which were 1) information provision, 2) expressions of support and affirmation, 3) practical support, and 4) apprenticeship opportunity linkages. These forms of influence were not exerted solely by any single type of key influencer. Instead, there was variation from case to case and multiple influencers could provide the same form of influence, as was indicated earlier. However, most common source of information that influenced the young adults' choice to go into MA training came from schools and careers advisors specifically. Careers advisors were attributed to providing the tools that the young adults used in their self-driven search for jobs and apprenticeships, which increased their importance as information and tool providers as they enabled more efficient self-driven search for information and opportunities.

This is where—you know, after registering at the 'my world of work' website that—that I found there was other avenues and it wasn't just—cause it was mainly construction—I would say that's cool. (Steven)

In some cases, the information about apprenticeships and different MA options came from their personal social networks, which included parents, peers and relatives. This was the case where the parents were aware of apprenticeship opportunities in the field they were working on, or if they had done apprenticeship training themselves.

But it's all about using your networks at the end of the day so. I did just that. (Alex)

In these instances the role of institutional influencers was smaller, mostly providing information about application and job search tools. Personal social networks were also the providers of practical and emotional support for young adults, as well as a person to discuss ideas for options with for the young adults in the sample. These discussions with peers and parents ended up supporting the initial idea of the young adult to apply to an apprenticeship.

Family was a big one. So obviously talked it through with them. ... Erm, got some feedback that I should be going for it. (Helen)

Even within the limited sample captured a significant amount of variation in young adults' journeys to apprenticeships and in motivations for applying to an apprenticeship. The journey was not always a straightforward transition from compulsory schooling to a modern apprenticeship. Instead, many in the sample had gone to university, college, or straight to work after schooling but were not happy with their experiences. This dissatisfaction resulted in them seeking other options and led to them finding a suitable apprenticeship option for themselves.

Another factor that emerged as important for the availability of options was the geographic location of the young adult. Some participants had the impression that their location did not

offer the breadth of options that were available near the larger population centres of Glasgow and Edinburgh.

Possibly in my area it's a bit more rare for these types of apprenticeships to come up so I wonder if that maybe contributed to not being as aware of different kinds of apprenticeships. (Margaret)

Besides the two research questions outlined above, the study also examined why young adults chose to do an apprenticeship and what their journey into an apprenticeship was like. The motivations for choosing an apprenticeship was varied even in the sample with only two apprenticeship frameworks. Most participants had a mix of motivations and some of them were viewed to be more central than others. First type of motivator was a financial one. Apprenticeship was perceived to be a good choice financially as one did not have to go into debt to get an education and the 'earn while you learn' aspect of an apprenticeship was appreciated.

Erm, it's just money to be honest. (Jack)

For others the primary motivations had more to do with the form or training, location, or aiming for a job where they would feel fulfilled. These motivations were more common than the financial motivations. This suggests that the format of learning in an apprenticeship and the careers available through an MA are significant factors in attracting young adults to apprenticeships besides the 'earn and learn' aspect which was attractive to many. The support and structured work-based learning was viewed as a large benefit over applying for a job without the apprenticeship component.

I thought, if I'm getting paid then that's basically... it's a full-time job, you're getting trained, it's comfortable. Like I wouldn't be comfortable jumping into something that I would have to learn like within a week. Whereas within MA you learn in two years. (Jack)

3.2 Discussion

The findings outlined above have some implications for the importance of different influencers and the conditions when the different influencers occupy a key role. One of the main findings was that there is substantial variation in which influencers provide the different kinds of influence for young adults. However, the finding that institutional influencers (careers advisors and teachers) were the most common sources of information-based influence has implications for the role of careers services. The role of careers advisors in Scottish DYW policy is to provide the information that young adults need for making career choices (Scottish Government, 2014). The findings suggest that the career advisors occupy this role and that they are the 'baseline' provider for the information, i.e. the key source for information when personal influencers from young adult's social circle do not have the information that the young adult seeks.

However, the critiques of the careers guidance in schools indicate that the guidance given to the young people can be overly restricted in the limited amount of contact time and when grades are used as the guiding factor for options that are discussed during the meetings. This indicates that 'better information' if construed as more personalised and with more contact time even for those that are not viewed most at risk could improve the usefulness of the careers guidance in school. The motivations of the participants varied substantially in the sample, so the task for the careers advisors to use them as a starting point for a broader range of suggested options might not be easy, but it might make the offered support more relevant when these factors take a centre stage instead of grades.

The study also has implications for the debate about structural and agency factors, and the findings generally support the bounded agency theoretical approach (Evans, 2002). The motivations for young adults to choose an apprenticeship were varied, but they were driven by personal preferences of the young adult. These motivations were either about pursuing preferred fields, making money while gaining qualifications, or other factors outlined earlier.

This study cannot provide answer for if and how the preferences are shaped by structural factors as the focus is different from studies like those conducted by Atkinson (2017), but some of the journeys by young adults provide a good indication of the constraining effects of structural factors to young adults' decision-making. These journeys were those people's who had chosen to go to a university or a college after school, but had not enjoyed their experiences. hanged after further discussion with careers advisors, sometimes outwith school, or after using self-guided online resources.

After the young adults gained more information about different apprenticeship In these instances the impression about apprenticeships these young adults had was limited to just few fields that did not interest them. This impression about apprenticeships c frameworks and found a field of interest they started considering an apprenticeship option for themselves. This provides support for the limited window of options that is considered by a young adult based on their impressions of the different options available to them. Having accurate and relevant information available to the young adults thus appears to open the window of considered options and potentially make it more likely that the first option chosen after schooling is a satisfactory one for the young adult.

Going beyond careers advisors, the impression about apprenticeships in schools more generally was limited and lacking. Apprenticeships were perceived to be limited to fields such as construction and hairdressing partially as those fields were shown as examples of apprenticeships, and other fields did not get the attention as it was colleges and especially universities that were portrayed as the desirable options. This was especially true if one had good grades. It could be that the policy aims in DYW had not yet translated into actions in schools when the data for the study was collected, but the findings support earlier findings in UK that there is a perceived prestige disparity between apprenticeships and higher education (Brockman & Laurie, 2016).

The Learner Journey Review (Scottish Government, 2018), some of the same issues as the findings above and it appears that making careers advice more personalised is one of the central aims going forward. This involves making the support start earlier, making it a longer term support and shifting the focus more towards personal interests rather than focusing on grades. These changes are in line with the findings of the study.

The limitations of this study include the limited scope of the study as the sample for the study is small. This means that while the data gained from the interviews is rich, the view is narrow and the experiences of the participants in this study might not be the experiences of apprentices in other fields for example. Additionally, the study is focused in the young adults' views and does not examine the views of the influencers, which would be important in understanding why some influencers become key influencers and what their aims are. Future studies conducted by the researcher in his PhD research seek to address these weaknesses. The sample in the PhD study is going to be larger and will contain data from the influencers as well as the young adults in order to better understand how the influencers affect young adults' decision-making and what the aims, attitudes, and information levels of the influencers are when they are supporting young adults.

References

- Atkinson, W. (2010). *Class, individualization and late modernity - In search of the reflexive worker*. Palgrave Macmillan.

- Atkinson, W. (2017). *Class in the new millennium: The structure, homologies and experience of the british social space* (1st Edition). Routledge.
- Beck, U., & Beck-Gernsheim, E. (2002). *Individualization: Institutionalized individualism and its social and political consequences*. Sage.
- Brockmann, M, and Laurie, I. (2016). Apprenticeship in England – the continued role of the academic–vocational divide in shaping learner identities. *Journal of Vocational Education & Training*, 68(2), 229–244.
- Evans, K. (2002). Taking control of their lives? Agency in young adult transitions in England and the New Germany. *Journal of Youth Studies*, 5(3), 245–269.
- Furlong, A. (2009). Revisiting transitional metaphors: Reproducing social inequalities under the conditions of late modernity. *Journal of Education and Work*, 22(5), 343–353.
- Howard, L., & Berg, B. L. (2017). *Qualitative research methods for the social sciences*. Pearson.
- Huang, R. (2016). *RQDA: R-based qualitative data analysis*. R package version 0.2-8. <http://rqda.r-forge.r-project.org/>
- Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing*. Sage.
- Roberts, K. (2009). Opportunity structures then and now. *Journal of Education and Work*, 22(5), 355–368.
- Scottish Government. (2014). *Developing the young workforce: Scotland's youth employment strategy: implementing the recommendations of the commission for developing Scotland's young workforce*. Scottish Government.
- Scottish Government. (2018) *15-24 learner journey review*. Scottish Government.
- Skills Development Scotland. (2020). *COVID-19 Labour Market Insights – Preparing for the 'new normal'*. <https://www.skillsdevelopmentscotland.co.uk/what-we-do/skills-planning/covid-19-labour-market-insights/> on 16th of July 2020.

Biographical notes

Petri Simonen is a PhD student in University of Glasgow. His research examines the role of influencers in young adults' educational decision-making.

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"Research for the Internationalisation of Vocational Education and Training" – a Mapping Review of a Federal Funding German Research Program

Steinert, Maren

University Bremen, Institute Technology and Education (ITB), Germany, maren.steinert@uni-bremen.de

Abstract

In 2017 the German Federal Ministry of Education and Research announced the funding line „Research for the Internationalization of Vocational Education and Training (IBBF)“. This funding line aims to strengthen institutional research on vocational education and training for international collaboration. In this paper, the project proposals of the funded projects are reviewed through qualitative content analysis. The projects are then systemised regarding their objective, research question, and expected results. Moreover, inductively built clusters concerning geographical, thematic, and methodical classification are presented to point out links between projects. The first research question is what kind of research interests can be identified within the sample and what methods are used. The clusters not only identify possibilities for continuing research and new projects they are also the basis on first assumptions about how a sustainable network of research initiatives within this context can be designed. The following research question is, where interfaces for the development of a research network can be identified.

Keywords

review; cluster analysis; international research on VET; Germany, content analysis

1 Introduction

Vocational education and training (VET) is considered an important tool to strengthen socio-economic development e.g. to reduce youth at risk, unemployment rates, and capacity building (Hoeckel & Schwartz, 2010; ILO 2012). International cooperation in VET has a long tradition in Germany's politics (German Bundestag, 2013; German Bundesregierung, 2019). Actors like the GIZ (German Society for International Cooperation) or GOVET (German Office for International Cooperation in Vocational Education and Training) support the German government in its aim to improve the quality of international vocational education and training. Especially expertise in dual training is in high demand around the globe (Hoeckel & Schwartz, 2010, p. 12; Greinert, 2006). Many funding lines of the German government focused on policy transfer and internationalisation of standards in VET. To strengthen the research in this field internationally, in 2017 the German Federal Ministry of Education and Research announced the



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funding line „Research for the Internationalisation of Vocational Education and Training (IBBF)“. The unique aspect of this specific funding line is the emphasis on research not only as a means of vocational training cooperation but also as a subject for funding. Strengthening or developing a sustainable research discipline for vocational education and training in the partner country is an integral part of the individual projects. Besides, the establishment of an international research network is one of the overarching objectives. In the announcement the aims of the IBBF funding line are described as follows:

1. strengthen the expertise of universities and other research institutions in research on international vocational training projects and the training of academic vocational training staff,
2. integrate this expertise into the BMBF's international vocational training cooperation and
3. make it available to foreign partners to support reform processes abroad towards more practice-oriented initial and continuing vocational education and training (cf. Federal Ministry of Education and Research, 2017).

Therefore, three funding actions were defined: action (A) addresses current topics in vocational training research within the framework of cooperation in vocational training, action, while (B) targets research on the prerequisites for successful vocational training cooperation in BMBF¹ partner countries. Action (C), finally, aims the development of pilot measures for capacity building for vocational training research in the same context.

In addition to the funded projects² in these three actions, a meta-project (MP-INVET) was installed. It targets the creation of a network that supports the sustainability and development of VET research through conducting research on the ongoing research activities within the funding line and its environment. The author of this paper works as an associate in this meta-project, hence she has access to the unpublished project proposals. The aim of this paper is, to systemize the project proposals because although recent efforts of systematization in form of handbooks made a big step forward, systematic research on VET is still lacking in many countries (McGrath et al., 2019; Achtenhagen, 2006). Within this context, two research questions lead this contribution: how can the structure of the IBBF-projects be described and where are similarities and differences between them? What interfaces can be identified for future network activities?

2 Methods and description of the sample

Thus, the first step of the analysis is a cluster analysis to identify in which relations the projects have differences and similarities. The differences show the diversity of the researched aspects in this funding line. The similarities show the possibility for synergies in between the research projects which could be further established through linking them in cluster networks. Therefore, three different types of clusters are presented based on an analysis of the unpublished project proposals: A geographical, a sectoral, and a thematical cluster. The clusters' structures are guided by the cluster requirements shown by Bacher et al. (2011). As they explain, a cluster should always follow the rule of homogeneity within a cluster and heterogeneity between clusters (cf. Bacher et al., 2011).

Within the second step that aims to systemize the research designs and the methods of the analyzed projects, qualitative content analysis is applied. Schreier (2014) understands this

¹ BMBF stands for the abbreviation of the Federal Ministry of Education and Research [Bundesministerium für Bildung und Forschung].

² There are nine subsidized projects in the IBBF funding line, but one of them (CodeVET) takes place in two different countries (China and Russia). Therefore, the project is systemized in two units within this paper. It is expected that further projects will be funded during the funding period.

approach as a descriptive procedure to represent selected text meanings by categories to point out causal connections (ibid.). In this paper, the structuring qualitative content analysis is used, following Mayring (2014). There is a common argument around the definition of content analysis being qualitative or quantitative. Mayring states that “the central idea of Qualitative Content Analysis is to start from the methodological basis of Quantitative Content Analysis but to conceptualize the process of assigning categories to text passages as a qualitative-interpretive act” (2014, p. 10). It means, that the method focuses on the evaluation of frequencies (as the quantitative approach does) but the category-building process is based on qualitative interpretation. The categories within this paper are derived from the content bottom-up (inductively) to meet the variability of the proposals while following a rough structure. Data basis for the analysis are the proposals of the IBBF-projects. The specific focus of the analysis is on the research methods to be conducted within the projects. In addition to that, the first step to identify approaches for a network in this funding line is taken. The meta-project aims to build a network to encourage interdisciplinary knowledge and experience transfer. For a top-down network formation – as planned here, initiated by the meta-project - Payer (2008, p. 15) gives three steps: (1) Determining network potential, (2) external impulse for network formation and establishment of a strategic network node and (3) network development through targeted interventions of the strategic network node. In this case, the network node is the meta-project MP-INVET. If its task is to intervene strategically to build the network, at first the network potential has to be figured out in detail. Summing up this part, the applied framing categories are described as follows:

Step 1: Project overview structured by

- aim of the project
- research scope
- expected research results

Step 2: Cluster analysis structured by

- geography
- topic
- funding action
- research methods used

Within Step 3, a systematization of the IBBF-projects is conducted based on the results obtained so far. This procedure aims to answer the first research question by identifying similarities and differences between those projects. Within the discussion of the results, finally, interfaces between the projects and approaches to adapt network activities deriving from the results. Limitations of this study, a summary of the findings as well as the pointing of research desiderata close the contribution.

3 Analysis and Results

The next sections present the findings of the different analysis levels. At first, the descriptive analysis of the project proposals regarding the research intentions of the projects is presented. Then followed by the geographical cluster, a cluster of the research topics concerning the funding actions, and lastly, the method cluster. The findings show similarities and differences between projects to give first hints for network potential.

3.1 Structuring content analysis of the projects

A structuring overview of the projects firstly matches the expected variety of projects. A clear scope lies in the creation of cooperation forms, which is also an expected result. However, Table 1 also shows different directions for the planned cooperation directions. While some projects focus on higher education and permeability, others deal with the fit of actual existing VET systems, structures, and concepts and the maybe changing needs according to a changing work environment. Internationalization e.g. might be seen as one aspect of a changing work environment, as well.

Table 1

Description of the IBBF projects' aims, research scopes, and expected results

Acronym	Aim	Research scope	Expected results
CAPE-VET (South Africa)	Country specific requirements to establish a higher education qualification program for VET teachers with adjustable transfer elements from the German VET system.	Structure of VET, conditions to success in VET cooperation, expectations of German VET providers and future cooperation partners, academic education and permeability towards VET, future VET forms, conditions of design of VET	Development of pilot courses of study to professionalise VET teachers in South Africa and a strengthened research network in South Africa (and Germany)
CodeVET (China and Russia)	Realisation of a comparative analysis of intended and implemented curricula in the field of business administration	Dimensions of the concept of curriculum: intended curriculum, implemented curriculum, achieved curriculum and competence orientation in the development of regulatory instruments	Recommendations for curriculum development, research findings on vocational training cooperation and export
DualPeru (Peru)	Analysis and identification of successful conditions for successful cooperation between Germany and SENATI in Peru	The actual fit of company training plans and actual needs, training quality (cooperation and practice), the role of in-company instructors	further cooperation between Peru and Germany, enhancement of in-company training in line with other research results
DualReg (Mexico)	research conditions for successful international cooperation in VET in Mexico	Conditions for the success of international vocational training cooperation in Mexico, highlighting the industrial and tourism sector	inspire a broader Mexican discourse on quality improvement in VET and optimise transfer activities in the long term
Efach (China)	A complete inventory of vocational training cooperation between Germany and the People's Republic of China, comparison of	Clarify the validity of identified factors of success in previous international cooperation in VET also for	Identification of key factors for successful vocational training cooperation outside development cooperation - Full survey of all forms

	the different concepts of international vocational training cooperation	development cooperation and private sector	of vocational training cooperation with the PR China
KuPraMex (Mexico)	Analysis of the “white collar syndrome” in Mexico and the cultural practices concerning non-academic work	Cultural practices and institutional frameworks that shape e.g. career choices, recruitment, and structural decisions	Tools for the analysis of work culture practices as a contribution to vocational pedagogical theory formation and for comparative country studies
InVet (Vietnam)	Explaining of competencies needed by German VET actors to develop and implement sustainable business models in the context of internationalization	The actual fit of the German VET system’s structure with organizations’ demands at an international level, competition ability of German VET providers compared to those from Australia and the USA	Testing their developed international business model canvas, which then can be used as a development tool for future business models for VET
ProWoThai (Thailand)	Building vocational training research capacity and initiating research-based reforms in Thailand	Work-based learning as a way to qualify researcher’s in Thailand, implement and sustain higher quality research and strengthen the training in businesses	Development and testing of study and learning materials for VET, recommendations for vocational policy reforms in the context of Thailand 4.0
QualIndia (India)	Vocational training cooperation of India and Germany, the establishment of research networks with India, development of an indicator-based research tool for quality measurement of vocational training institutions in India, comparison of ITIs and polytechs colleges	Quality of VET-Systems, country-specific indicators for quality measurements, Teaching in ITIs and polytechs colleges	Development, testing and providing an indicator-based research tool for quality measurement of vocational training institutions in India, strengthen the research network

3.2 Geographical and thematical cluster analysis of the IBBF-projects

The clusters serve for a deeper understanding of the projects’ different orientations. Therefore, the IBBF-projects were analysed regarding their geographical and thematical orientation. As Table 2 shows, 60 % of the projects are in cooperation with partners in Asia. This is not surprising, considering Asia does have some economic “big players” such as China and India. Also, according to GOVET, all the Asian countries represented in this funding line do have a history of cooperation with Germany. Currently, Thailand wants to establish this cooperation

even more (German Office for International Cooperation in Vocational Education and Training [GOVET], 2020a). India has an immense interest in German knowledge on VET because half of India's population is 25 years old or younger, but they are lacking of well-trained professionals (GOVET, 2020b). For both China and Russia exist letters of intent for bilateral cooperation with Germany (GOVET, 2020c, 2020d). So overall the high frequency of Asian countries within this funding line is not surprising. Three projects are researching America, more specifically in South and Central America. Only one project is researching VET in Africa. This may be the consequence of the already existing “Africa-Strategy” by the BMBF from 2014-2018 (Federal Ministry of Education and Research, 2018), which specifically targeted African countries for cooperation. In conclusion, the cluster shows that the IBBF funding line is focussing on countries outside of Europe, Australia, and North America.

Table 2

Geographical Cluster of the 10 IBBF- projects (own presentation)

Region	Country	N	%tot
Africa	South Africa	1	10
	Σ	1	10
America	Mexico	2	20
	Peru	1	10
	Σ	3	30
Asia	Russia	1	10
	India	1	10
	Thailand	1	10
	Vietnam	1	10
	China	2	20
	Σ	6	60

Table 3 provides an overview of the cluster analysis concerning the topics and funding action of the IBBF-projects. Important topics appear to be (initial) dual vocational training, policy transfer, and conditions for success related to several aspects and contexts. Those findings indicate that, under the roof of education cooperation development, especially the “basics” of VET systems become relevant, such as the duality of work and learning (fundamental idea), creation of political infrastructure at government level (sustainability) and control of the context (showing the way, e.g. through best practice examples like CAPE-VET). The results suggest that e.g. policy-transfer goes together with at least one certain aspect of VET.

The left column informs about the funding action that was introduced at the beginning of this paper. It informs about most of the projects being located in funding action (B). In the announcement of the Federal Ministry of Education and Research (2017) this action is described as “research on the prerequisites for successful VET cooperation in countries with existing BMBF cooperation in VET and in other countries and regions. Funding will be provided for projects which research the prerequisites for successful international VET cooperation. Funded projects will carry out research on the factors that determine successful VET cooperation but also develop best practices for its effectiveness. The projects should be able to provide research-based findings and recommendations for action in international VET cooperation.” This could be an indication of projects being more likely to take place in countries where structures of cooperation already existed. Those structures for example may be networks with relevant actors for the VET system in the cooperation country. This argument also harmonises with the findings in Table 2.

Table 3
Research scope of the IBBF-projects

Subject	Project	Cultural acceptance of VET	Digitalization/ Industry 4.0	Learning and teaching methods	Teacher training	Further training for teachers	Dual education and training	Quality assurance	Policy-Transfer	Educational service	Conditions for success	Business models
A	CAPE-VET				X				X		X	
	CodeVET			X								
	QualIndia							X				
B	DualReg					X	X		X		X	
	DUALPeru					X	X				X	
	efach										X	
	KuPraMex	X										
C	ProWoThai		X	X			X					
	IntVet								X	X		X

3.3 Inductive categories for systemizing data collection and research methods

To get a raw presentation of the data collection process and research methods used by the IBBF-projects, there are no deductive categories used. Instead, the method names are conducted directly from the research proposals. Afterwards, links and overlaps are grouped into generic categories to get a systematic overview. Many projects deliver various methods of data collection and/or data analysis. Therefore, the percentages regarding the method column in table 4 are not adding up to 100 %. If a project has various qualitative methods mentioned, the frequency of each method increases by one, but the percentages are referring to the ten projects as total. For example, when ten projects use qualitative and two use quantitative data collection methods, but there are only ten projects in total, it means that all projects (ten out of ten) use qualitative methods and shows that two projects use a mixed-methods approach. As Table 4 shows, in general, the projects working under the IBBF funding line all lean on a qualitative approach for collecting and analysing data. Two projects (20%) use a quantitative approach while collecting data, and state that they want to do statistical analysis (efach, QualIndia). The preferred method to collect data are interviews/questionnaires. The approaches differ in terms of depth versus width. Some projects aim to have in-depth interviews or biographical interviews, others use questionnaires to get probably a wider rather than deeper view.

Table 4*Research methods used by the 10 IBBF-projects*

Data collection	Method	N	% tot
Qualitative	Observation	5	50
	Interviews/ Questionnaire	10	100
	Document analysis	5	50
	Documentary image and text analysis	1	10
	Case study	1	10
Quantitative	Interviews/ Questionnaire	2	20
Data analysis	Method	N	% tot
Qualitative	Qualitative content analysis	4	40
	Data analysis	1	10
	Focus group discussions	1	10
	Validation Workshops	1	10
Quantitative	Statistical analysis	2	20
	Content analysis	1	10
No information		2	20

Note. N = Number of times, a project stated they will use the method (many projects use more than one method). %tot = Percentage of method used in reference to the total number of projects (10).

4 Discussion

Concerning the analysed data (project proposals) it is important to note that the funding line is at the beginning right now. Projects may need to remodel some of their aims or methods while research is in progress, especially since the Covid-19 pandemic belated the data collecting processes. Also, the style of writing in the project proposals in some areas seems vague, some use broader terms and concepts for explaining their methods and some are very detailed. In two proposals there was no method of data analysis to be found. This might be because in most cases the process of writing the project proposal takes place before data is collected. Possibly projects can't define with certainty what data analysis method will fit their data yet.

The fact that most projects focus on the funding action b indicates that the cooperation with BMBF partner countries is a pre-selection and reduces the relevance of choice regarding the actual project countries. This is also supported by the results of the geographical cluster. It will be a question to discuss in upcoming research if national reforms are possible within these cooperation research processes.

Regarding the research methods used by the IBBF projects, it appears that the researchers of the projects are efficiently collecting data on the ground and making insider knowledge (in the form of expert interviews and participatory observation) accessible. This has the positive effect that various aspects of the individual cases are sufficiently analyzed. The context can be included and conclusions on causal relationships can be drawn for the case at hand. Concerning a high degree of abstraction of the results and the transferability to other cases on a large scale, however, the funding line is lacking. Cross-sectional data or respectively data sets with a three- to four-digit case number are unusual. This may be influenced by the object of research, as the problem of generalization of qualitative results in the field of VET is already observed by others (Achtenhagen, 2006). Another factor that comes into play while talking about the used methods

in research on vocational education and training is, that it mostly focuses on the current state of educational systems and aims to give action proposals or identify best-practice recommendations. Those aims differ between countries, sectors, and topics, which makes it more complex, to formulate theories.

5 Conclusion

In summary, the findings should give context about the internationalisation of vocational education and training based on this specific funding line. By identifying differences and similarities between projects, initial considerations regarding the development of a sustainable network of research initiatives can be made. The geographical cluster, for example, shows that the funding line primarily focuses on three areas - Africa, America, and Asia – whereas 60% of the projects are located in Asia. Most of the projects take place in funding action B, which means they cooperate with already existing partner countries. The results of the qualitative content analysis regarding the used methods of the projects in the funding line indicate that qualitative approaches are far more common than quantitative designs. In the data collection process mainly interviews (with different focuses) and questionnaires are used. For the analysis qualitative content analysis is used by 40 % of the projects.

Considering all the similarities network links can be found in many clusters. Geographically it is obvious to initiate a network between the projects which research the same country, so eFach and CodeVet in China and KuPraMex and DualReg in Mexico. It may help on the microlevel, for example, to find new interview partners, the other project already has acquired. On an institutional level, existing contacts can be transferred in between projects to get faster and possibly more trustworthy access to certain actors. Although there might be overlaps in the general topic of the research project - here four projects analyse the conditions for success – the potential for networking is rather small here. Exchange of experience is certainly insightful, but the conditions can be very heterogenic between countries and therefore VET systems. The cluster regarding methods shows, that many projects collect data via interviews or questionnaires. In future, with the help of a network, this fact could be used to carry out a questionnaire across the entire funding line to make comparisons between countries.

With a view to future research, it would, therefore, be important to collect and evaluate the data from the funded projects across funding lines. This connection of the individual research projects can be promoted by a functioning network. Within the funding line, the projects work together with researchers in the target country. For further research work, transnational cooperation - particularly with a view to international comparative VET research - would be a central aspect for further institutionalisation of the field.

References

- Achtenhagen, F. (2006). Lehr-Lern-Forschung [Teaching and learning research]. In R. Arnold & A. Lipsmeier (Eds.), *Handbuch der Berufsbildung* [Handbook of vocational education and training] (2nd rev., pp. 586–609). VS Verlag für Sozialwissenschaften. <https://dx.doi.org/10.1007/978-3-531-90622-5>
- Bacher, J., Pöge, A., & Wenzig, K. (2011). *Clusteranalyse: Anwendungsorientierte Einführung in Klassifikationsverfahren* [Cluster analysis: application-oriented introduction to classification methods]. Oldenbourg Verlag.
- Federal Ministry of Education and Research. (2017). *Announcement. Regulations governing funding for research on the internationalization of vocational education and training (VET)*. berufsbildung-international.de/files/BEK_IBBF_eng.pdf
- Federal Ministry of Education and Research. (2018). The Africa strategy of the BMBF: creating prospects! New impetus for cooperation with African partners in education, science and research. https://www.bmbf.de/upload_filestore/pub/Afrika_Strategie_eng.pdf

- German Bundestag (2013). *Strategiepapier der Bundesregierung zur internationalen Berufsbildungszusammenarbeit aus einer Hand* [Federal Government strategy paper on international VET cooperation from a single source]. https://www.bmbf.de/files/strategiepapier_der_Bundesregierung_zur_internationalen_Berufsbildungszusammenarbeit.pdf
- German Bundesregierung (2019). *Strategie der Bundesregierung zur internationalen Berufsbildungszusammenarbeit* [Strategy of the Federal Government for the international cooperation in vocational education and training]. https://www.bmbf.de/files/137_19_Strategie_Bundesregierung.pdf
- German Office for International Cooperation in Vocational Education and Training (2020a). *Thailand, Berufsbildungszusammenarbeit* [Thailand, VET-Cooperation]. GOVET. <https://www.bibb.de/govet/de/10777.php>
- German Office for International Cooperation in Vocational Education and Training (2020b). *Indien, Berufsbildungszusammenarbeit* [India, VET-Cooperation]. GOVET. <https://www.bibb.de/govet/de/10050.php>
- German Office for International Cooperation in Vocational Education and Training (2020c). *China, Berufsbildungszusammenarbeit* [China, VET-Cooperation]. GOVET. <https://www.bibb.de/govet/de/9907.php>
- German Office for International Cooperation in Vocational Education and Training (2020d). *Russland, Berufsbildungszusammenarbeit* [Russia, VET-Cooperation]. GOVET. <https://www.bibb.de/govet/de/10612.php>
- Greinert, W.-D. (2006). Geschichte der Berufsausbildung in Deutschland [History of vocational education and training in Germany]. In R. Arnold, & A. Lipsmeier (Eds.), *Handbuch der Berufsbildung* [Handbook of vocational education and training] (2nd rev. ed., pp. 499–508). VS Verlag für Sozialwissenschaften. <https://dx.doi.org/10.1007/978-3-531-90622-5>
- Hoeckel, K., & Schwartz, R. (2010). *Lernen für die Arbeitswelt. OECD-Studien zur Berufsbildung in Deutschland* [Learning for the world of work. OECD studies regarding vocational education and training in Germany]. OECD. <https://www.oecd.org/berlin/45924455.pdf>
- International Labor Organization (ILO). (2012). *Overview of apprenticeship systems and issues*. ILO. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/genericdocument/wcms_190188.pdf
- Mayring, P. (2014). *Qualitative content analysis: Theoretical foundation, basic procedure and software solution*. https://www.psychopen.eu/fileadmin/user_upload/books/mayring/ssoar-2014-mayring-Qualitative_content_analysis_theoretical_foundation.pdf
- McGrath, S., Mulder, M., Papier, J., & Stuart, R. (Eds.) (2019). *Handbook of vocational education and training. Developments in the changing world of work*. Springer International Publishing.
- Payer, H. (2008). Netzwerk, Kooperation, Organisation – Gemeinsamkeiten und Unterschiede [Network, cooperation, organisation - similarities and differences]. In S. Bauer-Wolf, H. Payer, & G. Scheer (Eds.), *Erfolgreich durch Netzwerkkompetenz – Handbuch für Regionalentwicklung* [Successful through network competence - Handbook for Regional Development] (pp. 5 – 22). Springer.
- Schreier, M. (2014). Ways of doing qualitative content analysis: Disentangling Terms and Terminologies. *Forum: Qualitative Social Research*, 15 (1). <https://dx.doi.org/10.17169/fqs-15.1.2043>

Biographical notes

Maren Steinert M.A. is a research associate at the University Bremen. She works at the Institute Technology and Education (ITB) in the Project MP-INVET, which is part of the “IBBF” funding line.

Struck, P. (2020). How to support young adults individually in career choice? - The model of knowledge in the career choice process (KCCP). In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 285–291). <https://doi.org/10.5281/zenodo.4007690>

How to Support Young Adults Individually in Career Choice? - The Model of Knowledge in the Career Choice Process (KCCP)

Struck, Philipp

University of Rostock/Institute for Vocational Education (ibp), philipp.struck@uni-rostock.de

Abstract

In the social-cognitive career theory (SCCT), Lent et al. (1994; 2002) postulate an influence on behaviour in the career choice process through self-efficacy. If relationships between self-efficacy and career choice activities as well as knowledge can be confirmed, this results in possibilities of educational intervention for practical implementation in public or private educational institutions in order to be able to support young people in their career choice process. Therefore, in a self-conducted, earlier study (cited: Struck & Ciesla, 2019), we made a theoretical and empirical further development of the model of knowledge in the career choice process (KCCP), which construction is also based on the theoretical model assumptions of the SCCT by Lent et al. (1994; 2002). In difference to the SCCT, the KCCP model, can explain five different, relevant dimensions of knowledge. Thus, the KCCP model deals with the question how self-efficacy and outcome expectations are related to behaviour in the career choice process and to knowledge. The findings should simplify a successful school-to-work transition for young adults and are intended to point out new aspects of their competence development. In conclusion, various approaches are discussed how young adults can be individually supported in the career choice process, for example by teachers, parents and career counsellors. These include greater individualization of the career orientation opportunities in guiding and facilitating targeted self-reflection (Kalisch, 2017), in the use of peer education in the career choice process (Struck, 2018), and in the utilization of sources of self-efficacy (Bandura, 1997).

Keywords

career development; self-efficacy; individual support; self-reflection

1 Introduction

The importance of the first choice of a vocational education and training after the end of school poses a particular challenge for young adults from several perspectives and uniformly offered vocational orientation measures are not equally effective for all young people. Therefore, the offers must be more individualized in the future. At present, it appears that the vocational orientation measures on offer have different meanings and effects for young people. There is no intervention that is equally beneficial to all young people. Overall, an attempt must be made to individualize the vocational orientation offerings more strongly in order to better differentiate between the interests of young people.



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One of the main goals of career orientation (in Germany) is a successful school-to-work transition for young adults. Therefore, different career orientation opportunities also try to expand knowledge; likewise, knowledge about different occupations, self-knowledge as well as conceptual knowledge, conditional knowledge and planning competence. A high level of different dimensions of knowledge, like these, seems to be a good and necessary prerequisite for the desired successful school-to-work transition. The special necessity of suitable, individual offers and programs for individual vocational orientation (in Germany) is also illustrated by a relatively stable rate of dissolved vocational education and training contracts of approx. 20-25%, which can be attributed to very individual (such as career choice related or personal) reasons (BMBF, 2018).

Another reason that shows the importance of individual and targeted offers in vocational orientation are the findings of current studies (Shell, 2015; Schnitzler & Granato, 2016; Struck, 2017a; Statistisches Bundesamt, 2016; 2018), which have identified a trend towards increased educational aspirations in Germany in recent years. As a result, vocational education and training places in Germany remain vacant. Increased educational aspirations are reflected in two phenomena: These include in general the desire to a continuative school attendance and, in particular, an increasing trend toward a high school degree and university education. Young school leavers are more likely to end up at university, whereas vocational education and training seems to have lost some of its appeal by comparison. This is because (more and more) young adults make a conscious and active decision to attend a high school and have not applied for a vocational education and training place before. Some other young people, contrary, choose a high school attendance because they have not yet known which vocational education and training, they wanted to learn. They made their choice rather out of embarrassment, in the form of a short-term decision. For them, a continuative school attendance seems to be a kind of stopgap solution, but at the same time, it gives them a kind of moratorium which prolongs their period of consideration. That makes it evident that the personal choice of a vocational education and training confronts young people with their first major (life) decision (Struck, 2019). This also implies that if young adults do not even aim to start vocational education and training immediately after leaving school, it is important to determine whether and to what extent vocational orientation must be geared to these changed conditions. Especially since the "lifelong occupation" is becoming less relevant. Consequently, the focus seems to be on promoting coping strategies for different (diverse, individual) life situations. In addition, opportunities and possibilities need to be developed for making the career choice process more individual and target group-differentiated through recurring reflection exercises.

The article deals with various approaches how young adults can be individually supported in the career choice process. The arguments and ideas are mainly based on Bandura's (1997) assumptions to the sources of self-efficacy and on the relationship between self-efficacy (and outcome expectations) and the behavior in the career choice process and knowledge, which can be theoretically disused and empirically analyzed by the model of knowledge in the career choice process (KCCP).

2 Theoretical background

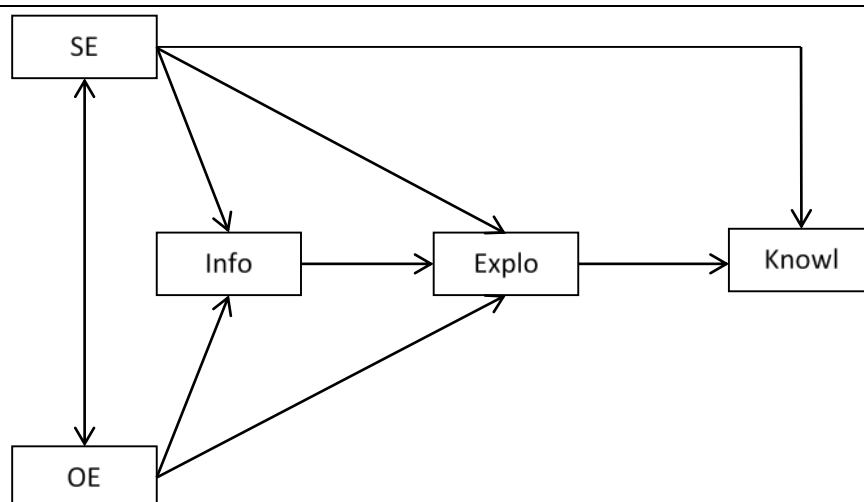
The construction of the model of knowledge in the career choice process (KCCP) by Struck (2016; 2017b) and its theoretical and empirical further development by Struck and Ciesla (2019) is based on the theoretical expectations and models of the social cognitive career theory (SCCT) by Lent et al. (1994; 2002). The SCCT argues that self-efficacy and outcome expectations influence the behavior during the career choice process. Bandura (1997) describes self-efficacy as the attitude of a person to straight his/her focus consistently and successfully on an activity. Accordingly, self-efficacy has also an effect on motivation as well as on effort and the perseverance required in problem solving processes. In the models of the social cognitive career

theory and in the KCCP model, self-efficacy is therefore contained as the major (or central) variable.

The KCCP model is invented on the model concept of the SCCT but will be modified. In the SCCT, the process variables of interests and goals (influenced by self-efficacy and outcome expectations) are seen as prerequisites for achieving performance or satisfaction (endogenous variables). Following this, the process variables of interests and goals, are deliberately changed and replaced by the career choice activities of information readiness and exploration, in order to represent the actions and activities in the career choice process as a prelude to explain a knowledge development. Information readiness can be seen as a motivational requirement and exploration as an activity to discover the self and the environment. The two career choice activities are important conditions and regarded as suitable to illustrate the readiness of the active engagement with the occupation choice. Knowledge, respectively different dimensions of knowledge, result from the increased conviction in one's own abilities and as a result of intensive career choice activities and is therefore suitable as an endogenous variable in the model (Struck, 2016; 2017b; Struck & Ciesla, 2019).

Figure 1

The model of knowledge in the career choice process (KCCP)



Note. SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge.

As shown in figure 1, the two effectiveness beliefs (self-efficacy and outcome expectations) and the career choice activities (information readiness and exploration) will explain knowledge. So that the KCCP model describes the acquisition of knowledge as a result of improved efficacy beliefs and intense career choice activities.

3 Methods and results

Following the theoretical development of the model and its first empirical verification by Struck (2016; 2017b), we (Struck & Ciesla, 2019) expanded the model and tested its further development. This consisted in the variation of the endogenous variable knowledge. In the first model analyses, we (Struck, 2016; 2017b) used therefore a scale by Seifert and Eder (1985) which includes knowledge about the favored occupation; in the further development (Struck & Ciesla, 2019), four additional forms of knowledge were tested as endogenous variables in the path model. These are the dimensions of knowledge from the study of Lipowski et al. (2015): Self-knowledge, conceptual knowledge, knowledge of condition and planning competence. The whole questionnaire of Struck and Ciesla (2019) recorded nine scales with 63 items and were

used in a self-assessment process. Five scales were part of the concept to measure the career choice competence (*Berufswahlkompetenz*) by Ratschinski (2008; 2012): Self-efficacy by Fouad et al. (1997), outcome expectations by Fouad et al. (1997), information readiness by Seifert and Stangl (1986), exploration by Kracke (1997) and knowledge about the favored occupation by Seifert and Eder (1985).

The research question in the second study (Struck & Ciesla, 2019) was to examine whether the already identified relationships between effectiveness beliefs and career choice activities could also be transferred to further (four) dimensions of career choice relevant knowledge; and whether the model with its direct and indirect relationships could be confirmed a second time (model review).

The empirical verification of the model was carried out by path analysis on a cross-sectional data set of 493 young adults in grades 7-12 from comprehensive schools and high schools in Germany (mean age: 15.6 years, 51.7% female). The KCCP model was tested five times, with the five different dimensions of knowledge as the endogenous variables in the path models. The analysis confirmed all the five models and found an acceptable proportion of explained variance of the five endogenous variables. The best fit to the data is shown by the model with the endogenous variable of planning competence ($\chi^2=0.82$, $df=2$, $p=.66$, $RMSEA=0.000$, $CFI=1.00$, $r^2=.20$), the highest proportion of explained variance reaches the endogenous variable of self-knowledge ($\chi^2=6.81$, $df=2$, $p=.03$, $RMSEA=0.070$, $CFI=0.99$, $r^2=.37$). The results underlined the expressiveness of the model: Between 20% and 37% of the variance of the endogenous variables had been explained. The development and compilation of the model of knowledge in the career choice process had been theoretically comprehensible and empirically provable. The meaning for the career choice process is crucial because the KCCP model, with its individual direct and indirect relationship expectations between the different variables of the effectiveness beliefs and the career choice activities, had explained all-important forms of knowledge, relevant in the career choice process (Struck & Ciesla, 2019).

The extension and transferability of the model contexts to four further (additional) knowledge dimensions within the results of the model fit of the five models and the proportion of explained variance of the five endogenous variables along direct and indirect effects in the model, had been confirmed by the analysis. These results also pointed out, that the endogenous variable can vary over the five dimensions of knowledge in the career choice process. This increases the meaning, importance and content expressiveness of the KCCP model in general and the successful extension and transfer of the model contexts to other forms of knowledge, which are relevant in the career choice process, increase as well the significance of the KCCP model in terms of content for the practice of vocational counselors, teachers and parents.

4 Conclusion and conceivable consequences

The designed and confirmed model of knowledge in the career choice process describes different forms of knowledge because of improved efficacy beliefs and intense career choice activities. In this way, knowledge (in all five forms) is the result of increased beliefs in their personal abilities and the result of intensive career choice activities. The path model analysis had confirmed the special role of self-efficacy, which determines the level of readiness and activity to cope with challenges in the career choice process and as well as five dimensions of knowledge. Self-efficacy has an effect on the level of the activities and knowledge in the career choice process: It seems, that young adults are more active in their career choice process when they feel confident about their abilities and as a result of their activities, they achieve a higher level of different forms of knowledge (Struck & Ciesla, 2019).

For the practice of career guidance and counseling, these results mean that intervention should aim at strengthening the self-efficacy. Therefore, concrete pedagogical intervention possibilities, options and ideas for increasing self-efficacy will be discussed. In the sense of these

conclusions, further optimization potential for individual vocational orientation should be considered and taken into account.

After the determination of the self-efficacy, young adults can be encouraged and supported individually. If teachers, parents or career counselors try to increase the knowledge (and the activities) to support young adults in the career choice process, they can use the sources of self-efficacy by Bandura (1997). The first source (past performance and learning experiences) is the most effective possibility to increase the self-efficacy. Young adults should gather their own experience and knowledge in different vocational and career decision tasks to get the experience of being successful using their own abilities. This can take place through experiences of success in professional activities and can contribute to the expansion of professional interests, for example through an internship. At the same time, feelings of success in the selection of activities and professions that match one's own strengths and interests also strengthen self-efficacy. In adolescence, the selection can, relate for example to the choice of an internship or holiday jobs. Furthermore, teachers and parents can show positive role models with similar, important characteristics (for example background, gender and age) to improve self-efficacy (second source of self-efficacy: vicarious experiences/representative experiences and observations of role models or positive models). The role model demonstrates that another adolescent has been successful in this task before, like the career choice decision or the school-to-work transition. Friends and peers who have successfully completed the career choice process are suitable. In addition, verbal persuasion (third source of self-efficacy) can help young adults and could be practiced by teachers and parents. The third source includes also social encouragement and linguistic persuasion, such as promoting courage, thereby instilling confidence and conviction in the young adult's skills, as well as positive feedback and praise after successes and the achievement of intermediate objectives in the choice of career. In general: Improved efficacy beliefs are helpful in contributing to education and the school-to-work transition of young adults, as they allow individuals to make independent and profound career decisions (Struck & Ciesla, 2019). The general aim is for young adults to feel confident that they can successfully shape their career choice process and not exclude certain occupations or vocational education and training activities for themselves based on false or insufficient self-efficacy, or be vocationally undecided about their career at the end of their school years.

Moreover, for the second and third source, peers, peer education and peer feedback are useful. People in the same age (peers) can be better modeled and understood, their credibility is higher, and they are more authentic in problem solving. Peer education approaches within schools should be used for individual vocational orientation, young adults from higher classes can tell younger adults about their experiences, their approach and their knowledge. As authentic role models (second source of self-efficacy), they can credibly convey confidence and trust (third source of self-efficacy) in the career choice process. The same applies to a systematic preparation and follow-up of the internships (practical trainings) by the pupils themselves, in the form of peer education (e.g. organizing a separate vocational education and training fair at school where each young adult presents their internship company and the tested occupation). Peers speak "the same language" and do not gloss over potential disadvantages or negative (vocational) experiences. The use of peer education at school and a mentor program in which young adults in the first or second year of their apprenticeship, girls and boys in leaving classes help with the transition, promises to be an effective individual vocational orientation measure to an information and knowledge transfer before the school-to-work transition. Especially because one's own situation can be discussed authentically among peers and similar concerns exist. In addition, the person who reports on his or her own successes has an additional personal learning success (first source of self-efficacy) (Struck, 2018).

Furthermore, reflection exercises for young adults should be more strongly integrated into the career choice process and vocational orientation in the future. Exercises and tasks for

reflecting on the vocational trails that have been carried out and on one's own strengths, abilities and interests, consolidate and strengthen experiences, knowledge and self-concept. Reflection thus enables support in the sense of the first source of self-efficacy. The special importance of reflection methods in the career choice process had also be empirically proven (Sommer & Rennert, 2020). Overall, more time and guidance for goal-oriented self-reflection in the career choice process is called for, which young people urgently need in order to be able to achieve a (better) convergence and coordination of individual interests, wishes and abilities with the needs and requirements of the working. It seems problematic that young adults often have little experience in the areas of self-perception, self-reflection and self-definition. Here there is a chance that teachers or career counsellors, for example, can help to optimize the assessment of one's own strengths and abilities, in the sense of the socialization process and the developmental task (shaping the educational and professional biography). The content objectives of concrete programs (e.g. Kalisch, 2017) include self-exploration and self-reflection in the individual phases of career choice (i.e. repeated examination of oneself) as well as embedding in school-based career guidance and counselling, in the sense of systematic interlocking with other measures. The offers are to be carried out repeatedly in several successive class levels by the teachers or career counsellors. The aim is to enable young people to take responsibility for their career choice process and to make a well-founded career choice decision. This is to be made possible through an intensive and continuous examination of themselves, the development of a (vocational) self-concept, a diverse comparison of self-perceptions and perceptions of others as well as self-experimentation and self-experience in different contexts (Kalisch, 2017).

The suggestions presented here for improved individual vocational orientation take into account the findings of Bandura (1997) on the support of self-efficacy by its sources. Struck and Ciesla (2019) were able to prove the empirical connection between self-efficacy and knowledge relevant in the career choice process. Further research and practical developments will (have to) gain additional importance in the next years in order to verify the suggestions and results presented.

References

- Bandura, A. (1997). *Self-efficacy. The exercise of control*. Freeman.
- Bundesministerium für Bildung und Forschung (Eds.) (2018). *Berufsbildungsbericht 2018*.
- Fouad, N. A., Smith, P. L., & Enochs, L. (1997). Reliability and validity evidence for the middle school self-efficacy scale. *Measurement and Evaluation in Counseling and Development*, 30(1), 17–31.
- Kalisch, C. (2017). *Entwicklung einer Potenzialanalyse für allgemeinbildende Schulen in Mecklenburg-Vorpommern: Rahmenbedingungen, Konzeption und Vorgehensweise*. Lecture at the annual conference of the section of vocational education and training and business education in Stuttgart, 26.09.2017, www.ibp.uni-rostock.de/fileadmin/uni-rostock/Alle_PHF/IBP/Kalisch-Sept2017_Potenzialanalyse-M-V-web.pdf
- Kracke, B. (1997). Parental behaviors and adolescents' career exploration. *The Career Development Quarterly*, 45(4), 341–350.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45, 79–122.
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown and Associates (Eds.), *Career choice and development* (pp. 255–311). Jossey-Bass.
- Lipowski, K., Kaak, S., Kracke, B., & Holstein, J. (2015). *Handbuch Schulische Berufsorientierung. Praxisorientierte Unterstützung für den Übergang Schule - Beruf*. Thüringer Institut für Lehrerfortbildung, Lehrplanentwicklung und Medien.
- Ratschinski, G. (2008). Berufswahlkompetenz. In M. Koch & P. Straßer (Eds.), *In der Tat kompetent. Zum Verständnis von Kompetenz und Tätigkeit in der beruflichen Benachteiligtenförderung* (pp. 73–90). wbv.

- Ratschinski, G. (2012). Berufswahlkompetenz. Versuch einer zeitgemäßen Operationalisierung der Berufswahlreife. In G. Ratschinski & A. Steuber (Eds.), *Ausbildungsreife. Kontroversen, Alternativen und Förderansätze* (pp. 135–156). Springer VS.
- Schnitzler, A., & Granato M. (2016). Duale Ausbildung oder weiter zur Schule? Bildungspräferenzen von Jugendlichen der 9. Klasse und wie sie sich ändern. *Berufsbildung in Wissenschaft und Praxis*, 3, 10–14.
- Seifert, K. H., & Eder, F. (1985). Der Fragebogen zur Laufbahnentwicklung (Deutschsprachige Adaptation des Career Development Inventory). *Zeitschrift für Differentielle und Diagnostische Psychologie*, 6(2), 65–77.
- Seifert, K. H., & Stangl, W. (1986). Der Fragebogen Einstellungen zur Berufswahl und beruflichen Arbeit. *Diagnostica*, 32(2), 153–164.
- Shell Deutschland Holding (Eds.) (2015). *Jugend 2015. Eine pragmatische Generation im Aufbruch*. Frankfurt a.M.
- Sommer, J., & Rennert, C. (2020). *Endbericht der wissenschaftlichen Begleitung zur Interventionsstudie Potenzialanalyse (ISPA)*. Bundesinstitut für Berufsbildung.
- Statistisches Bundesamt (Ed.) (2016). *Schulen auf einen Blick*.
- Statistisches Bundesamt (Ed.) (2018). *Bildung und Kultur. Schnellmeldungsergebnisse der Hochschulstatistik zu Studierenden und Studienanfänger/-innen*.
- Struck, P. (2016). *Das Wissensmodell im Berufswahlprozess: Eine empirische Untersuchung zur Bedeutung von Selbstwirksamkeit und Ergebniserwartung für die Berufswahlaktivitäten und das Wissen über den Wunschberuf bei Jugendlichen vor dem Übergang Schule-Beruf*. Detmold: Eusl.
- Struck, P. (2017a). Zwischen „Da kam so raus, dass ich handwerklich sehr begabt bin.“ und „Ich wollte noch ein bisschen Schule genießen.“ *Evaluation des BMBF-Programms zur „Förderung der Berufsorientierung in überbetrieblichen und vergleichbaren Berufsbildungsstätten“*. [www.berufsorientierungsprogramm.de/files/BOP_Sonderbericht Nr3_Qualitative%20Interviews.pdf](http://www.berufsorientierungsprogramm.de/files/BOP_Sonderbericht_Nr3_Qualitative%20Interviews.pdf)
- Struck, P. (2017b). The model of knowledge in the career choice process: Empirical research on the importance of self-efficacy and outcome expectations on career choice activities and knowledge about the occupation favored by young adults before the school-to-work transition. In F. Kaiser & S. Krugmann (Eds.), *Social Dimension and Participation in Vocational Education and Training* (pp. 214–221). Rostocker Schriften der Berufspädagogik – Rostocker Papers of Vocational Education.
- Struck, P. (2018). Was gestiegene Bildungsaspirationen bei Jugendlichen für die Berufsorientierung bedeuten. In M. Frieze (Ed.), *Arbeitslehre und Berufsorientierung modernisieren. Analysen und Konzepte im Wandel von Arbeit, Beruf und Lebenswelt* (pp. 169–180). wbv.
- Struck, P. (2019). Gestiegene Bildungsaspirationen und die Folgen für gewerblich-technische Ausbildungsberufe. In M. Becker, M. Frenz, K. Jenewein, & M. Schenk (Eds.), *Digitalisierung und Fachkräftesicherung. Herausforderungen für die gewerblich-technischen Wissenschaften und ihre Didaktiken* (pp. 361–370). wbv.
- Struck, P., & Ciesla, C. (2019). The model of knowledge in the career choice process – a theoretical and empirical further development. In F. Marhuenda, & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.158–163).

Biographical notes

Dr **Philipp Struck** is a research assistant at the Institute of Vocational Education at the University of Rostock, Germany. His research interests focus on school-to-work transition, special education and social education within the field of vocational education and further vocational education.

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Challenges of Skilled Refugees' Access to Their Prior Vocation in Sweden

Teräs, Marianne

Stockholm University/Department of Education, marianne.teras@edu.su.se

Osman, Ali

Stockholm University/Department of Education, ali.osman@edu.su.se

Eliasson, Eva

Stockholm University/Department of Education, eva.eliasson@edu.su.se

Abstract

The position of refugees at different levels in the labour market has become the subject of heated academic and political debate in Sweden as well as in other EU countries. The debate generally revolves around factors that affect the macro level structure such as employment of refugees and their descendants, economic costs and the benefits of migration and integration. The position of underrepresented groups in the labour market is explained as a consequence of either discrimination or lack of relevant social capital, language skills, job search strategies and job skills, to name a few. This paper has two parts. First, we introduce the project, Integration and inclusion of migrants in and through their vocation and work. Then we explore literature and identify factors that can promote or hinder skilled refugees' access to their original vocation in Sweden. The systematic review points to several factors as central, such as networks, language and knowledge of cultural practices.

Keywords

skilled migrants; vocation; integration; access to vocation

1 Introduction to the project, Integration and inclusion of migrants in and through their vocation and work

The aim of this paper is twofold: first, to introduce the theoretical background and the rationale of the project, and second, to present the status of research *vis a vis* factors that facilitate or impede refugees' access to their vocations in Sweden. The paper is structured accordingly — we will first briefly describe the project, then describe the Swedish research in the area and finally, discuss this research in relation to relevant international research.

The position of refugees in the Swedish labour market has been, and still is, a subject of academic and political debate. Sweden is not unique. This debate is on-going in all EU member states and beyond the borders of the EU member states. In addition, there is a common theme in this debate: refugees are depicted as unable or are marginalised in the labour market (e.g., Dahlstedt, 2011; Joyce, 2015; Petersson, 2014). However, there is an increasing number of refugees who have accessed their prior vocations in Sweden. This category of refugees is not



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the focus of the debate; rather, research and political debate tend to focus on those who have difficulties accessing the Swedish labour market. Our project focuses on “successful refugees”. That is, refugees who have re-entered their vocations in Sweden, and the pertinent question is: what have they done differently to access their vocations when many with similar backgrounds (education and training) have failed? The objective of the research project is, hence, to identify mechanisms that can contribute to the integration of skilled refugees into their vocations in Sweden. By skilled refugees we mean people who are not labour-market migrants and who have vocational skills from their countries of origin. We are interested in the perspectives of refugees and of their employers.

1.1 Community of practice and integration as conceptual resources

The theoretical framework of the project is grounded in the socio-cultural perspective, according to which we mediate the world through language, artefacts and practices. Vocational knowledge is considered embedded in vocational communities of practice. By vocational practices, we mean interaction and communication at the workplace as well as the local rules, norms, tools and technology used in a vocation. “Community of practice” is Lave and Wenger’s (1991, p. 98) concept, “a set of relations among persons, activity, and world that “is an intrinsic condition for the existence of knowledge”. Here, the community of practice refers to the relations, knowledge and activity of a vocation in a workplace. Participation in a community of practice is consequently a process of becoming and being an accepted member of the community of practice (Lave & Wenger, 1991). “Becoming” is a process of accessing, while “being” is a process of achieving a legitimate participant status. In both processes, it is about acquisition of different types of cultural skills and competences as well as acceptance from the community of practice. To understand the processes of becoming and being a legitimate participant in a community of practice, we adopt a socio-cultural perspective that departs from the notion that we interpret and describe the world in different ways and exchange experiences (Säljö, 2015).

It is important to stress that “legitimate peripheral participation”, according to Lave and Wenger (1991), is a position an individual occupies when they are a novice in the vocation in relation to “old-timers”, who are considered experts. The majority of refugees, irrespective of their experience, are at the periphery of their communities of practice when they arrive in Sweden. When the individual finds employment, the appropriation process of becoming and being starts — learning cultural tools, vocational language, artefacts and local rules (Säljö, 2015). In this process, skilled migrants’ participation in vocational practices, including professional communication, is important for learning. The use of vocational knowledge both acknowledges and legitimises a vocation (Lave & Wenger, 1991).

The concept of community of practice and the ideas it presents has its critics; for example, Cairns (2011) stated that the concept does not fit well with the realities of modern workplaces where participating in and learning practices is insufficient — one also needs to cross the boundaries of different practices and transform practices. Refugees’ struggles are about crossing boundaries and integrating the knowledge and skills acquired outside Sweden into the different communities of practice in Sweden.

The concept of integration has been debated over the years. Some define it narrowly, to mean that migrants must conform to the norms and values of the dominant societal majority. This view has been sharply criticised by Penninx and Garcés-Mascarena (2016). They argue for a broader definition of integration, in which migrants are engaged in multiple fields or systems. Penninx and Garcés-Mascarena define integration as an open, non-normative “process of becoming an accepted part of society” (2016, p. 14). Accordingly, in this study, we perceive integration as participation in the different life domains of the host society, focusing on the integration of migrants into their vocations in the Swedish labour market.

The research design is a comparative case study and data collection methods include interviews with refugees and employers and observations at workplaces. The study focuses specifically on three vocational areas: the health care sector, the construction sector, and the food sector.

There is critical research on the participation of refugees in the Swedish labour market, as the literature review below will point out. These studies can be reduced to the following themes: a) finding employment or not; b) factors that facilitate or impede refugees' access to their vocations; c) measures to promote access to employment and d) employers' perspectives. It is important to point out that there is a conceptual confusion in the use of the notion "immigrant". In Sweden, anybody who has moved to Sweden from another country, whether they came to Sweden as a labour immigrant, a refugee or as an asylum seeker, are regarded immigrants. In this short paper, we use the notion a refugee because we focus on people who have entered Sweden as refugees or asylum seekers in 2000-2020 and who have been awarded permanent residency. In addition, we use the notion of a migrant to highlight the broader phenomenon of migration.

1.2 The general employment status of refugees

There are many studies that show that the employment rate among foreign-born people in Sweden varies among people from different countries (Mulinari & Neergaard, 2005; Osman & Andersson, 2011; Petersson, 2014; Schierup et al., 2006). Refugees from Latin America and migrants from the EU have approximately the same employment rate as native-born people. Individuals from Asia and Africa on the other hand, have lower employment rates than the native-born Swedes, while individuals from the rest of Europe are somewhere in the middle. For example, refugees from the former Yugoslavia, after ten years in the country, show a significantly higher rate of employment than refugees from Somalia (Petersson, 2014). In addition, this pattern is constant even for those people who have lived in Sweden for years. In other words, for some refugees, the country of one's birth is an important factor in getting a job. Furthermore, employed refugees are often appointed to positions below that which their qualifications should reasonably entitle them to (Andersson & Fejes, 2010; Andersson & Osman, 2008; Bengtsson & Mickwitz, 2019). There are various explanations for this.

One explanation is the refugees' lack of relevant networks. A study by the Swedish Higher Education Authority (UKÄ, 2019) showed that foreign-born people's lack of social networks constrained their ability to find work on par with their educational level. This lack of relevant networks is essential and can be partly a consequence of the fact that refugees have a shorter history in the Swedish labour market than a person born in Sweden (e.g., Joyce, 2015; Mulinari & Neergaard, 2005; Osman, 2012; Vesterberg, 2015).

Another common explanation identifies the sociocultural dimensions of vocation and skills — in other words, the difficulties transferring refugees' skills into a new context — as an obstacle to employment. This is particularly critical for non-European refugees who have acquired their skills, qualifications and competences in developing countries. Potential employers treat the qualifications of this category of jobseekers as irrelevant or inferior to local or EU qualifications and experiences (Andersson & Osman, 2008).

Finally, discrimination and racism have been identified as a major obstacle for non-European refugees. Butorac (2014) stressed intersectional factors — besides language, gender and race, Johansson and Sliwa (2016) examined gender, class and nationality. In other words, previous studies have focused on different types of deficits. These deficits, or a combination of these deficits, such as language, poor networks and discrimination, are said to lead to different types of social ills such as residential segregation of migrants and their descendants and the ethnification of certain niches in the labour market (Andersson & Osman, 2008).

We now shift to the literature review to see what facilitates or impedes the access of refugees to their vocations. We will limit our findings and exclude, for example, European citizens' migration to Sweden.

2 Measures to facilitate or impede refugees' access to their vocation

In collecting relevant literature, we used databases such as ERIC, Scopus, EBSCO and Science Direct. We employed the following search terms (the frequency of resulting hits is shown in parenthesis): migrant*¹ labor market integration Swed* (168); Skill* migrant* labor market integration Swed* (15); migrant* validation Sweden (23); migrant* fast track Sweden (3); migrant* labor market measures Sweden (23). These search terms were located in "key words"; articles were published between 2000 and 2020 and were peer reviewed. In addition, we did several manual searches based on relevance for the review. The research team read 232 article abstracts and removed duplicates. In the final selection, we included 37 articles based on the relevance of the review question: "What factors facilitate or impede refugees' access to their vocations in Sweden?"

Generally, it takes about five to seven years for refugees to establish themselves in the Swedish labour market (e.g., Joyce, 2015). To facilitate and reduce this time, Sweden has implemented several programmes such as the establishment programme, various introduction programmes and the Fast Track programme. The aim of the Fast Track programme is to help newly arrived skilled migrants to enter the labour market faster (Vågen et al., 2019). Thus, the programme contributes both to matching employers' labour needs and to faster access for refugees to their prior vocations. A limitation of the programme is that it targets only those vocations and sectors where there is a shortage of employees. In the evaluation of the Fast Track programme by the Swedish Public Employment Service (Vågen et al., 2019), which also hosts the programme, statistics showed that about 50% of programme participants were employed 19-21 months after the start of the programme. The rate was lower (40%) in higher-level professions where a license was required such as medical doctors. An underlying assumption beyond the programme was that the cooperation between the Employment Service, the labour market, authorities and educational organisers nationally, thus facilitating continuous dialogue between the different sections of the labour market, was key to success (Arbetsförmedlingen, 2017; Vågen et al., 2019).

Validation is an important measure in all national programmes such as Fast Track. Andersson and Fejes (2010) raised the question of transferring knowledge and skills between different contexts. Diedrich (2014) stressed that migrants' prior skills were difficult to categorise into a stable, standardised occupational classification system and that the validation process was arbitrary and inflexible. He called for a more open assessment that could capture the heterogeneity among skilled migrants. The Fast Track evaluation also called for clarification of the process of matching people and vocations (Arbetsförmedlingen, 2017). Participants in a study by Rodin et al. (2017) perceived another obstacle in the validation process to be the complexity and lengthy administrative procedures, also described by Bucken-Knapp et al. (2019). They pointed out that Fast Track participants with academic backgrounds said that their failure to access their former professions gave them a feeling of loss. Rodin et al. (2017) stated that skilled refugees were a group with cultural capital advantage but seemed to struggle with how to operationalise it in their new context.

2.1 Language skills and cultural competence

In the evaluation of Fast Track, one of the challenges mentioned was the migrants' weak language proficiency despite the activities to strengthen skills in the Swedish language (Vågen et

¹ * means that it included different forms of search words

al., 2019). Rodin et al. (2017), who interviewed participants in the Fast Track programme, claimed that despite their appreciation for language training, the migrants perceived the training to be insufficiently linked to vocation-specific language. Bucken-Knapp et al. (2019) explored how Syrian refugees experienced the Swedish introduction programme, their findings suggesting that the migrants, mostly the well-educated, were critical of the quality of language lessons. The lack of teacher-driven lessons, mixed groups, lots of self-study and arbitrary assessment of participants' language skills were criticised. A study by Andersson and Fejes (2010) that looked at validation of vocational competence produced similar findings about migrants' experiences of arbitrary assessment. Migrants claimed that validators of vocational competence had various arbitrary assumptions about the language level needed for employment, something that affected their assessment (Osman & Andersson, 2011). However, the importance of mastering a vocational language was an opinion shared among the validators interviewed by the researchers. Andersson and Fejes (2010) said that migrants who lacked the terms and concepts of the vocational language risked having their competence remain invisible.

Another important aspect is cultural competence. Teaching participants about Swedish society is integral to many introduction programmes and is something that has the potential to gradually change participants' values. For example, findings from a study based on a questionnaire survey conducted with participants in the Fast Track programme for teachers in Sweden, suggested a significant development towards more participation-oriented beliefs about learning (Economou & Hajer, 2019). The opportunity to learn cultural competence was identified as an outcome of vocational practice (Rodin et al., 2017). Besides cultural competence and lack of language skills, familiarity with the context was stressed as an explanation for the lower employment rate among refugees (Dehghanpour Farashah & Blomquist, 2020).

2.2 Employers' perspectives

There are significant differences among firms that recruit non-Western refugees, as Daunfeldt et al. (2019) found in their study of Swedish labour market statistics. According to their results, companies in service sectors such as hospitality, transport, and healthcare are much more likely to hire unemployed non-Western migrants than companies in high-tech and manufacturing industries. Furthermore, firms with non-Western managers recruit more than four times as many unemployed non-Western migrants than firms that have no managers with non-Western origins. The researchers explained this by highlighting the importance of social networks or that employers prefer hiring individuals who are demographically similar to themselves (Osman & Thunborg, 2019).

3 Discussion

Several different ways are used to explain poor participation or the difficulties refugees face when accessing their prior vocations in Sweden. The deficit model is typical, and implies that refugees have weak language skills, and lack the relevant cultural capital, networks and cultural competence. Many international studies support findings that weak language skills limit the employment prospects of refugees. For instance, researchers in sociolinguistics have stressed the importance of migrants' linguistic proficiency, and that the degree of language proficiency can either widen or limit migrants' employment opportunities (Johansson & Śliwa, 2016; Musgrave & Bradshaw, 2014). But they also pointed out that language proficiency in the host community does not automatically lead to social inclusion (Johansson & Śliwa, 2016; Piller, 2014). There are also studies suggesting that the focus on migrants' language deficiencies can itself create a feeling of exclusion (Butorac, 2014; Major et al., 2014; Piller & Takahashi, 2011). Roberts' (2013) study showed that a lower employment rate among migrants could be the consequence of a lack, not only of language knowledge, but also cultural skills and familiarity with the context. An Australian study by Major et al. (2014), especially relevant for this study,

highlighted the central role language plays in the social inclusion and exclusion of migrants in workplaces. For example, both self-imposed exclusion due to lack of confidence in using English and active marginalisation by colleagues and customers were identified as critical factors in the work context. In line with our study, the researchers emphasise that social inclusion is not solely about getting a job, it is also about feelings of connectedness, acceptance and opportunities for development and advancement in working life. In this respect, interpersonal relationships at the workplace play a crucial role and language learning and social inclusion are dialectically related (Major, et al., 2014; Piller, 2014).

Unlike the studies focusing on deficits, Ganassin and Johnstone Young (2020) focused on success factors in a British study of skilled refugees who had re-entered their prior vocations. Many of the factors they describe were found in the Swedish research too, like language proficiency and cultural competence, but the researchers also stressed the importance of individual motivation and resilience, and the ability to build social and professional networks. Ganassin and Johnstone Young (2020) use the concept of intercultural communication and interaction, meaning that factors contributing to migrants' successful access to their prior professions were, for example, curiosity and openness to another culture and an ability to interpret and evaluate other perspectives and practices.

An important aspect is the employers' view. Dehghanpour Farashah and Blomquist's (2020) findings suggested that migrants' employment and career outcomes were not merely influenced by their human capital and qualifications but also by employers' values and cultural expectations. The researchers concluded that for the managers, migrants' commitment to the host country's way of life was more important than their job skills, educational level and language proficiency. This indicates that socio-cultural competences are important for employment. For an individual, the ability to interpret and evaluate perspectives and practices in a workplace and act on the basis of this knowledge can be a real door-opener. This is in line with the concept of intercultural communication (Ganassin & Johnstone Young, 2020) and Lave and Wenger's (1991) concept of becoming part of a community of practice. But talk of adaptation can lead to the assumption that migrants are forced to abandon their cultures and traditions to fit in and gain employment in their new societies. To avoid such a conclusion, one need only compare migrants with anyone entering new employment, where the keys to success are the same as mentioned above: observe, interpret and act accordingly. According to Daunfeldt et al. (2019), when firms already have non-European employees, they are more likely to hire non-European persons, which makes the entrance of the first employees even more important. If they are accepted as participants in the community of practice, they can function as door-openers for others and contribute to the development of a more inclusive workplace.

When we compare the Swedish with international studies it is apparent that, regardless of context, studies identify similar factors that impede the access of refugees to the work sectors in which the RDI have prior competence. Factors that make it more difficult to gain employment in a prior vocation are lack of competences, difficulties with transferring vocations and vocational knowledge between different societies, difficulties with matching, difficulties with validation process and long administrative processes. Some studies highlight criticism of language training.

These impeding factors can be turned around and highlighted as promoting factors. Good language skills, socio-cultural competence, networks in the new context and resilience may facilitate access to employment, despite a jobseeker having lower qualifications. Furthermore, quality in language training and validation processes as well as co-operation between different agencies, such as employment services, education organisers and employers may benefit migrants' access to their vocations. Thus, accessing one's previous vocation is a complex interplay between the individual, the collective and societal processes. In the coming study, we will examine both those factors which impede and those factors which facilitate the successful

inclusion of refugees in the professions that suit their prior knowledges, experiences and competences.

References

- Andersson, P., & Fejes, A. (2010). Mobility of knowledge as a recognition challenge: experiences from Sweden. *International Journal of Lifelong Education*, 29(2), 201–218. <https://doi.org/10.1080/02601371003616624>
- Andersson, P., & Osman, A. (2008). Recognition of prior learning as a practice for differential inclusion and exclusion of immigrants in Sweden. *Adult Education Quarterly*, 59(1), 42–60. <https://doi.org/10.1177/0741713608325173>
- Arbetsförmedlingen. (2017). *Arbetsförmedlingens nulägesbedömning av arbetet med snabbspår* [Evaluation of the fast track by the Swedish Public Employment Service]. <https://mb.cision.com/Public/1326/2409931/bec3391dd1b8dc6a.pdf>
- Bengtsson, A., & Mickwitz, L. (2019). *Att bli "svensk lärare" – En undersökning av Snabbspåret för nyanlända lärare och förskollärare* [To become a "Swedish teacher" - A study about the fast track for newly arrived teachers and kindergarten teachers]. Institutet för arbetsmarknads- och utbildningspolitisk utvärdering. (Report no. 2019:31). <https://www.ifau.se/sv/Forskning/Publikationer/Rapporter/2019/att-bli-svensk-larare--en-undersokning-av-snabbsparet-for-nyanlanda-larare-och-forskollarare/>
- Bucken-Knapp, G., Fakih, Z., & Spehar, A. (2019). Talking about integration: The voices of Syrian refugees taking part in introduction programmes for integration into Swedish society. *International Migration*, 57(2), 221–234.
- Butorac, D. (2014). 'Like the fish not in water': How language and race mediate the social and economic inclusion of women migrants to Australia. *Australian Review of Applied Linguistics*, 37(3), 234–248.
- Cairns, L. (2011). Learning in the workplace: Communities of practices and beyond. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The SAGE handbook of workplace learning* (pp. 73–85). Sage.
- Dahlstedt, I. (2011). Occupational match. *Journal of International Migration & Integration*, 12(3), 349–367. <https://doi.org/10.1007/s12134-010-0172-2>
- Daunfeldt, S.-O., Johansson, D., & Seerar Westerberg, H. (2019). Which firms provide jobs for unemployed non-Western immigrants? *Service Industries Journal*, 39(9/10), 762–778. <https://doi.org/10.1080/02642069.2018.1534961>
- Dehghanpour Farashah, A., & Blomquist, T. (2020). Exploring employer attitude towards migrant workers: Evidence from managers across Europe. *Evidence-based HRM: A Global Forum for Empirical Scholarship*, 8(1), 18–37. <https://doi.org/10.1108/EBHRM-04-2019-0040>
- Diedrich, A. (2014). Classifying difference in organizing, or how to create monsters. *Equality, Diversity & Inclusion*, 33(7), 614–632. <https://doi.org/10.1108/EDI-02-2012-0007>
- Economou, C., & Hajer, M. (2019). Integrating Syrian refugee teachers into Swedish educational labour market: Reflections on a fast track design. *Education Inquiry*, 10(4), 385–403. <https://doi.org/10.1080/20004508.2019.1579625>
- Ganassin, S., & Johnstone Young, T. (2020). From surviving to thriving: 'Success stories' of highly skilled refugees in the UK. *Language and Intercultural Communication*, 20(2), 125–140. <https://doi.org/10.1080/14708477.2020.1731520>
- Johansson, M., & Śliwa, M. (2016). 'It is English and there is no alternative': Intersectionality, language and social/organizational differentiation of Polish migrants in the UK. *Gender, Work & Organization*, 23(3), 296–309.
- Joyce, P. (2015). *Integrationspolitik och arbetsmarknad: En översikt av integrationsåtgärder i Sverige 1998-2014* [Integration policy and labour market: A review of integration measures in Sweden 1998-2014] (Report No. 2015:3). Delegationen för Migrationsstudier. <https://www.delmi.se/publikationer-seminarier#!/integrationspolitik-och-arbetsmarknad-1>
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

- Major, G., Terraschke, A., Major, E., & Setijadi, C. (2014). Working it out: Migrants' perspectives of social inclusion in the workplace. *Australian Review of Applied Linguistics*, 37(3), 249–261.
- Mulinari, D., & Neergaard, A. (2005). 'Black skull' consciousness: Narratives of the new Swedish working class. *Race & Class*, 46(2), 55–72.
- Musgrave, S., & Bradshaw, J. (2014). Language and social inclusion: Unexplored aspects of intercultural communication. *Australian Review of Applied Linguistics*, 37(3), 198–212.
- Osman, A. (2012). In search of green pastures: The onward immigration of Somali-Swedes to Britain. *Nordic Journal of Migration Research*, 2(2), 133–140. <https://doi.org/10.2478/v10202-011-0035-8>
- Osman, A., & Andersson, P. (2011). Precarious accreditation? Inclusion of immigrants in precarious labor market positions. In A. Thörnquist & Å.-K. Engstrand (Eds.), *Precarious employment in perspective: Old and new challenges to working conditions in Sweden* (pp. 263–285). Peter Lang.
- Osman, A., & Thunborg, C. (2019). The challenge of recruiting underrepresented groups: Exploring organizational recruitment practices in Sweden. *Nordic Journal of Working Life Studies*, 9(1), 3–18. <https://doi.org/10.18291/njwls.v9i1.113085>
- Penninx, R., & Garcés-Mascareñas, B. (2016). The concept of integration as an analytical tool and as a policy concept. In B. Garcés-Mascareñas & R. Penninx (Eds.), *Integration processes and policies in Europe* (pp. 11–29). Springer International Publishing.
- Petersson, S. (2014). *Utrikes födda på arbetsmarknaden: En forskningsöversikt* [Foreignborn in the labour market: A research review] (Report No. 2014:1). <https://ezp.sub.su.se/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edsswe&AN=edsswe.oai.DiVA.org.su.118387&site=eds-live&scope=site>
- Piller, I. (2014). Linguistic diversity and social inclusion in Australia [Editorial]. *Australian Review of Applied Linguistics*, 37(3), 190–197.
- Piller, I., & Takahashi, K. (2011). Linguistic diversity and social inclusion. *International Journal of Bilingual Education and Bilingualism*, 14(4), 371–381.
- Roberts, C. (2013). The gatekeeping of Babel: Job interviews and the linguistic penalty. In A. Duchene, M. G. Moyer, & C. Roberts (Eds.), *Language, migration and social Inequalities: A critical socio-linguistic perspective on institutions and work* (pp. 81–94). Channel View Publications.
- Rodin, L., Rodin, A., & Brunke, S. (2017). Language training and well-being for qualified migrants in Sweden. *International Journal of Migration, Health and Social Care*, 13(2), 220–233. <https://doi.org/10.1108/ijmhsc-11-2014-0043>
- Schierup, C.-U., Hansen, P., & Castles, S. (2006). *Migration, citizenship, and the European welfare state: A European dilemma*. Oxford University Press.
- Säljö, R. (2015). *Lärande: En introduktion till perspektiv och metaforer* [Learning: An introduction to perspectives and metaphors]. Gleerup.
- UKÄ. (2019). *Framtidens behov av högskoleutbildade: Genomgång av 15 bristyrken inom offentlig sektor fram till 2035* [The future need for higher educated: Review of 15 shortage vocations in the public sector until 2035] (Report No. 2019:23). <https://www.uka.se/download/18.3fcfbadf16dfa1b80b93f93/1572863119373/rapport-2019-11-05-framtidens-behov-av-h%C3%B6gskoleutbildade.pdf>
- Vesterberg, V. (2015). Learning to be Swedish: Governing migrants in labour-market projects. *Studies in Continuing Education*, 37(3), 302–316. <https://doi.org/10.1080/0158037X.2015.1043987>
- Vågen, A., Cvitic, I., Hällund, A., Lindbäck, M., & Petersson, S. (2019). *Arbetsförmedlingens nulägesbedömning av arbetet med snabbspår* [The Swedish Public Employment Service's current assessment of the work with fast tracks]. Arbetsförmedlingen. <https://mb.cision.com/Public/1326/2741772/a9e52a874025498c.pdf>

Biographical notes

Dr **Marianne Teräs** is an Associate Professor at the Department of Education, Stockholm University, Sweden. Before joining Stockholm University (2016) she worked as a Researcher and a Lecturer at the University of Helsinki. Her research mainly focuses on vocational and

professional learning, immigration and interculturality. She is currently leading a research project called 'Integration and Inclusion of Migrants in and through Vocation and Work'.

Dr **Ali Osman** is an Associated Professor at the Department of Education, Stockholm University, Sweden. His research interests are migration recognition of prior learning and labour market issues transition from education to working life.

Dr **Eva Eliasson** is a Senior Lecturer in Educational Science at the Department of Education, Stockholm University. Her research interests mainly concern vocational and teacher knowledge, especially in health care educations, and the interplay between power relations and vocational knowledge. Her actual research concerns how migrants in Sweden get access to their prior vocation.

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