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ORIGINAL ARTICLE

A look across the borders: Swiss vs. Italian future special education Teachers' perspectives on inclusive education

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Abstract
Teachers play a key role in the implementation of inclusive education. Many studies investigate cross-country differences in teacher perceptions of inclusive education, but there is a research gap in investigating the perspectives of special education teachers. This study examines attitudes, concerns, self-efficacy and intentions of Italian (n=180) and Swiss (n=221) special education teacher students (SETS). Despite many similarities, Italian SETS held more positive beliefs, had fewer concerns regarding workload, and had higher intentions to use inclusive practices than Swiss SETS. No differences were found in self-efficacy to use inclusive instructions, managing student behaviour, or collaboration. Apart from inclusive legislation and policies, which might account for more positive attitudes, fewer concerns, and higher intentions to use inclusive practices in Italian SETS, absence of differences in efficacy-beliefs point to the importance of adequate support systems and teacher training in both countries. More research investigating the roles and perspectives of special education teachers across different inclusive education systems is necessary.

KEYWORDS
attitudes, comparative study, inclusive education, measurement invariance, self-efficacy, special education teachers

Key Points

- In contrast to regular teachers, less is known about special education teachers' attitudes and beliefs toward inclusive education.
- Here, attitudes, concerns, self-efficacy, and intentions to use inclusive practices of Italian and Swiss special education teacher students (SETS) were compared.
- The two groups did not differ in self-efficacy beliefs, but Italian SETS had more positive beliefs, lower concerns, and higher intention to use inclusive practices. Likely reasons are the absence of special schools and the longer experience with inclusive education in Italy.
- Improving competencies through teacher education programs and providing adequate support systems to deal with student heterogeneity and teacher collaboration is recommended for both countries.

INTRODUCTION

Promoting inclusive schools and ensuring equal access to education for all children is central to current education reforms and advances, despite challenges in implementation (Opoku et al., 2020b; Sharma et al., 2012) and varying acceptance and application across educations systems (Miesera et al., 2019; Saloviita & Schaffus, 2016; Sharma et al., 2018).

Teachers play a crucial role in the implementation of inclusive education; for example, they need to provide individualized instruction and support, fostering acceptance, and collaborate with support staff to meet diverse student needs. Research questions in this area often focus on their attitudes or concerns about supporting inclusive education and using practices of inclusive teaching (Büssing et al., 2019; Sahli Lozano et al., 2022; Opoku et al., 2020b; Pijl & Minnaert, 2010; Sharma et al., 2008; Sharma & Desai, 2002). Guided by the Theory of Planned Behaviour (Ajzen, 1991), many studies demonstrated that teacher attitudes toward inclusive education and teacher self-efficacy to implement such practices are important predictors of intentions to teach in inclusive classrooms (Sahli Lozano et al., 2021b; Opoku et al., 2020a; Sharma & Jacobs, 2016; Sharma & Mannan, 2015). Cross-country comparative studies are particularly valuable as they identify differences in teacher perceptions, which, under consideration of social, political, economic, cultural, and historical contexts, can outline general principles to aid countries in implementing more inclusive education systems (Engelbrecht et al., 2013; Savolainen et al., 2012; Sharma et al., 2018; Yada et al., 2019).

Despite numerous studies comparing teacher perceptions of inclusive education across countries, a significant research gap remains regarding the role of special education teachers. Because of their specialized training and expertise, they are an essential resource for regular teachers in inclusive classrooms, and generally demonstrate a higher favorability toward inclusive education than regular teachers (Avramidis et al., 2019; Guillemot et al., 2022; Helldin et al., 2011; Kazanopoulos et al., 2022). Despite their important role, special education teachers remain relatively understudied, particularly in cross-country analyses. Examining their beliefs and perceived competencies across different educational systems can reveal valuable insights about opportunities and challenges of inclusive education. This study takes a first step by comparing the attitudes, concerns, self-efficacy, and intentions of special education teacher students (SETS) in the neighbouring countries of Switzerland and Italy, which have different histories regarding inclusive education. Italy has a longstanding history of inclusion dating back to the 1970s, with virtually all students included in regular schools (Ianes et al., 2020). This stands in contrast to Switzerland, where efforts have also been made across the last 20 years toward more inclusive education, but which maintains a relatively high number of students in separated settings relative to other European countries (European Agency Statistics on Inclusive Education, 2018). By comparing SETS from Italy and Switzerland, this study not only highlights cross-cultural differences but also illuminates how systemic variations in inclusive education development are associated with future educators' beliefs, concerns, and intentions. Identifying the country-specific similarities and differences in special education teachers' views is crucial because this sheds light on the beliefs and perceived challenges in implementing inclusive education across different contexts, allows to identify necessary resources to foster inclusion effectively, may inform more targeted and effective teacher preparation programs and guide policy decisions to better support special educators in their roles.

Inclusive education in Switzerland

Inclusion policies and history in the Swiss education system

In an international context, Switzerland's education system is one of the most selective. The 2015 PISA results show that 29% of Swiss students were in schools where all classes are grouped by ability, which was the third-highest in the OECD (OECD, 2017). While all students in the regular school system generally attend together until the sixth grade, they are subsequently segregated into different ability tracks based on academic performance (OECD, 2017). Switzerland maintains a highly specialized special school system (Hollenweger, 2016). Switzerland is federally organized, and all cantons offer both inclusive education and separate educational programs for students with special educational needs, though the extent varies. Special education teachers play a crucial role in both inclusive and separate settings, as they provide necessary support and instruction to students with special educational needs. However, in inclusive settings, this role may vary based on the structure of multiprofessional collaboration, ranging from exchange and division of labour with regular teachers to co-construction and team teaching (Luder, 2018).

Inclusive education options comprise low-threshold and high-threshold measures. Low-threshold measures are intended to be temporary and usually do not require an individual psychological or medical diagnosis or officially attested special educational needs. High-threshold measures (also called integrative special education) are intended for students with special education status due to more serious issues, usually assessed by school psychological services, with the need for prolonged and intense specialized support. Separative options include special classes within regular schools, where students with learning or behavioural difficulties are taught in smaller classes of up to 12 students, and special schools with more specialized support for students with disabilities (Kunz et al., 2021; Sahli Lozano et al., 2021a). Studies indicate that factors such as nationality or social background influence ability tracking and segregation into special classes and schools (Becker, 2010; Kronig, 2007; Lanners, 2021; Neuenschwander, 2013).

In Switzerland, a trend toward a more inclusive school system has emerged over the last 20 years. However, the integration of students with special educational needs in regular classes is regularly and controversially discussed in media and politics. From 2005 to 2020, educational segregation decreased from 5.3% to 3.2%, but this trend has stalled over the past decade (BFS 2021). While the number of students in special classes has steadily decreased, the number of students in special schools has slightly increased in recent years (BFS 2021). However, there are large regional disparities due to the country's federal structure. For example, today, some cantons have less than 1% of students separated in special classes and schools, while some other cantons increased the amount of special classes and schools during the last two decades (Lanners, 2021).

Teacher education and specialization in Switzerland

Education in special education is designed as a Master's degree program throughout Switzerland, consisting of 90–120 ECTS credits (European Credit Transfer System). To enrol, a diploma qualifying for teaching, speech therapy or psychomotor therapy is required. However, individuals with Bachelor's degrees in other related fields of study (such as psychology, social pedagogy, educational sciences) may also be considered for admission. They would need to fulfil additional requirements during their special education studies, including practical training in didactics (EDK, 2023).

According to Altmeyer et al. (2022), the Master's degree program has changed in the paradigm shift from separation to inclusion, with greater emphasis on aspects such as collaboration with other professionals and the use of differentiated teaching instructions.

The largest group of SETS are teachers, with more primary than secondary teachers completing a master's in special education. Since most of these students already hold a teaching certificate, many also have several years of teaching experience. They often pursue their studies part-time while continuing to work (Altmeyer et al., 2022; Zingg et al., 2024), and many of them already work as special education teachers. This is because there is a great shortage of trained special education teachers in Switzerland (Ziehbrunner et al., 2019).

Inclusive education in Italy

Inclusion policies and history in the Italian education system

In the Italian context, the initial laws on school integration in the 1970s established two fundamental cornerstones for implementing an inclusive educational system: the inclusion of students with disabilities in regular education and the universal right for all students to attend the same school within a unified setting (Ianes et al., 2020). Based on these developments, a significant change occurred in the following years with the abolition of special classes. As a result, students with different learning styles, disabilities and cognitive or physical impairments were integrated into regular elementary and secondary school classes. The implementation of Law No. 517 in 1977 (Norme sulla valutazione degli alunni e sull'abolizione degli esami di riparazione nonché altre norme di modifica dell'ordinamento Scolastico) introduced the central role of 'learning support teachers', who have specialized expertise in dealing with specific disabilities and learning disorders. Subsequently, the evolution of Italian educational policy gradually shifted from the mere 'placement' of students with disabilities into regular classes to a more structured 'integration' policy. This policy focused on preserving the right of students with disabilities to be fully integrated into regular schools while emphasizing the responsibility of public institutions to create an enabling environment to facilitate this integration. In Italy, virtually all children with a disability are educated in regular classes (European Agency Statistics on Inclusive Education, 2018).

Teacher education and specialization in Italy

As in Switzerland, there is a significant distinction between two primary categories of teachers across all levels of education: classroom/subject teachers and special education teachers. Special education teachers are specifically assigned to classes in which students with officially recognized disabilities are taught. By law, these two groups of teachers have different responsibilities but are considered equal in terms of their overall responsibility for all students within the class (Ianes et al., 2020). In 2011, an important milestone in the development of inclusive education was set with the introduction of the specialization course for special education teachers and the consequent transfer of responsibility to Universities (Aiello et al., 2019). The program includes 60 ECTS and focuses on didactics and special education. Students of this program have previously completed the same training as regular teachers. Compared to the past, special education training for special education teachers covers a broader spectrum and includes special education and teaching methods adapted to specific disabilities.

Teachers' perception of inclusive education

Teachers play a key role in the implementation of inclusive education. Unsurprisingly, much research targets teacher perceptions of inclusive education. A prominent theory in this research area is Ajzen's Theory of Planned Behaviour (TPB; 1991), which suggests that individual behaviour (such as advocating inclusion or using inclusive teaching practices) is best predicted by intentions to enact the behaviour. Behavioural intentions in turn are predicted by attitudes, subjective norms and perceived behavioural control. Research in inclusive education often targets these aspects in examining teacher attitudes and concerns regarding inclusive education, teacher self-efficacy in using inclusive practices and teacher intentions to teach in inclusive classrooms (Hellmich et al., 2019; Sahli Lozano et al., 2021b; Opoku et al., 2021; Sharma et al., 2018). Here, these terms are shortly described:

Attitudes and intentions

According to the tripartite model, attitudes consist of beliefs, feelings and behavioural dispositions toward an attitude object (Eagly & Chaiken, 1993). The behavioural disposition in this model corresponds to the behavioural intention component in the Theory of Planned Behaviour (TPB). Attitude research in inclusive education generally shows slightly positive teacher perceptions of inclusive education, with differences across countries and a positive trend during the last 20 years (Guillemot et al., 2022).

Concerns. Concerns represent negative outcome expectations toward specific behaviours or events and can be considered antecedents of attitudes (Sahli Lozano et al., 2022). Concerns encompass feelings, uncertainties and resistance in response to changing demands, such as implementing inclusive education (van den Berg and Berg & Ros, 1999; Yan & Deng, 2019). Teacher concerns correlate negatively with teacher attitudes and self-efficacy and have been shown to explain unique variance in inclusive intentions (Sahli Lozano et al., 2021b).

Self-efficacy

Finally, teacher self-efficacy can be defined as an individual's personal belief in their capacity to effectively enhance student learning outcomes, even in the face of difficult and challenging circumstances (Bandura, 1977; Tschannen-Moran & Hoy, 2001). Teacher self-efficacy plays a crucial role in inclusive education research, as teaching students with diverse abilities presents additional challenges for teachers (Pit-ten Cate and Glock 2019). In order to enhance teacher self-efficacy, Bandura's Social Cognitive Theory suggests focusing on four key areas: mastery experiences (e.g. through successful hands-on practice), vicarious experiences (e.g. by observing competent peers), verbal persuasion (e.g. through encouragement and constructive feedback) and cultivating positive physiological and emotional states (e.g. stress management and rewarding progress) (Bandura, 1997).

Variables affecting Teachers' perception of inclusive education

Various studies examined cross-national differences in (regular) teacher perceptions of inclusion (Engelbrecht et al., 2013; Sahli Lozano et al., 2024; Sharma et al., 2018). However, perceptions toward inclusion are also influenced by teacher characteristics such as education (e.g. having had specialized teacher training), teaching level (e.g. teaching younger children or adolescents), teaching experience or also by personal factors such as sex and age (Avramidis & Norwich, 2002; Guillemot et al., 2022; Pijl & Minnaert, 2011). When reporting on differences across teacher samples, it is important to consider potential differences in teacher characteristics.

Teachers' perception of inclusive education in Switzerland

Only a few studies exist on the perceptions of Swiss regular and special education teachers. In general, attitudes toward inclusive education were found to be neutral to moderately positive (Abegglen & Hessels, 2018; Kunz et al., 2010). However, there was also great variance in attitude scores, which was partially explained by differences in experience with inclusive education, school-environmental characteristics and whether teachers worked in inclusive settings or not (Abegglen & Hessels, 2018). In cross-national comparison studies, Swiss teachers were found to have significantly more negative attitudes regarding inclusive education, more concerns, lower self-efficacy in using inclusive practices and less willingness to teach in inclusive classrooms compared to Australian teachers (Sahli Lozano et al., 2021b). Furthermore, they generally exhibited more negative attitudes, lower self-efficacy beliefs and less inclusive intentions than their counterparts in Canada, Germany and Italy (Sahli Lozano et al., 2024). When comparing Swiss regular and special education teachers' attitudes, research indicated that special education teachers had significantly more positive attitudes toward inclusion than regular teachers (Abegglen et al., 2015; Demmer-Dieckmann, 2008).

Teachers' perceptions toward inclusive education in Italy

Due to its long inclusive tradition, several studies have investigated Italian teachers' attitudes toward inclusion in the last decades (e.g. Cornoldi et al., 1998; Saloviita & Consegnati, 2019; Zambotti and Demo 2011) and several cross-national comparison studies were conducted (Hecht et al., 2018; Sharma et al., 2018). Italian teachers generally showed very positive attitudes toward inclusive education, which might be explained by the long tradition of inclusive education in Italy (Sharma et al., 2018). For example, in a study by Saloviita and Consegnati (2019), 90% of the surveyed regular teachers affirmed that students with special educational needs should be integrated into regular classes. The most prevalent concerns of Italian teachers seemed to be a lack of systemic support and difficulties in collaboration (Devecchi et al., 2012). Concerning international comparison studies, Italian teachers were found to have more positive attitudes than Australian (Sharma et al., 2018), Austrian (Hecht et al., 2018) and Canadian, German and Swiss teachers (Sahli Lozano et al., 2024), but they held lower self-efficacy beliefs than Australian (Sharma et al., 2018) and Canadian teachers (Sahli Lozano et al., 2024). Compared to Italian regular and special education teachers, special education teachers have more positive attitudes toward inclusive education (Arcangeli et al., 2020; Balboni & Pedrabissi, 2000).

Research question and hypotheses

Italy and Switzerland have very different traditions regarding inclusive education. While in Italy, segregation of students with disabilities is almost inexistent, Switzerland still has a relatively large number of segregated students and less experience with inclusive education. Based on this fact and the research findings with regular teachers, we investigate whether similar differences in beliefs and intentions also exist with regard to more specialized SETS. Specifically, we expect that Italian SETS would display (1) more positive attitudes, (2) fewer concerns, (3) higher self-efficacy and (4) higher intentions toward inclusive education compared to Swiss SETS.

METHOD

Sample

The Swiss sample was a German speaking sample recruited from two cohorts of students completing a master's degree in special education (105 ECTS) at the [anonymized for peer review] University of Teacher Education in 2019 and 2022. For this purpose, students were asked to complete an anonymous online questionnaire in a total of four general lecture courses with students mixed across all study years. They were given the link and time to complete the questionnaire during the lectures. In total, 221 students filled out the questionnaire. The data is part of a publicly available dataset, including data from Swiss regular and special education teachers (Sahli Lozano et al. 2023a).

The Italian sample was recruited from a cohort of students completing a specialization course for support teachers at the university of [anonymized for peer review] (60 ECTS). The recruitment was conducted via email: participants received an invitation to fill out the questionnaire. The questionnaire was administered from the first week of October to the first week of December 2022. In total, 180 students filled out the questionnaire. Sample characteristics are shown in Table 1. Participation was voluntary and informed consent was given in the Swiss and Italian data collection procedures. The study was approved by the local institutional review board of the [anonymized for peer review] University of Teacher Education and the University of [anonymized for peer review].

Instruments

To assess teachers' attitudes, concerns, self-efficacy and intentions to include students with disabilities in their classroom, a questionnaire adapted from Sharma et al. (2018) was used. The questionnaire has been used internationally in different cultural contexts (Sharma & Jacobs, 2016). The survey also requested background information from participants. Existing German and Italian translations of the instrument

TABLE 1 Sample characteristics of Italian and Swiss special education teacher students.

Variable	Italian teachers		Swiss teachers	
	n	%	*n*	%
Total	180	100	221	100
Sex				
Female	146	81.1	200	90.5
Male	34	18.9	21	9.5
Age				
<25 years	0	0	24	10.9
25–30 years	18	10.0	79	35.8
31–35 years	23	12.8	31	14.0
36–40 years	59	32.8	48	21.7
41–50 years	59	32.8	26	11.8
>50 years	21	11.7	13	5.9
Teaching level				
Preschool	4	2.2	30	14.4
Primary	14	7.8	128	61.5
Secondary I	68	37.8	30	14.4
Secondary II	94	52.2	4	1.9
Other	0	0	16	7.7
Teaching experience				
<1 year	33	18.3	26	11.8
1–10 years	137	76.1	124	56.1
>10 years	10	5.6	71	32.1

Note: For the variable teaching level, there were 13 cases with missing data in the Swiss sample.

were used (German: Gebhardt et al., 2018; Italian: Sharma et al., 2018).

Attitudes

The Attitude to Inclusion Scale (AIS) assesses teachers' general attitudes toward the inclusion of students with disabilities (Sharma & Jacobs, 2016). It consists of two components (beliefs and feelings regarding inclusive education) which are measured by four items each. Sample items are 'I believe that all students, regardless of their ability, should be taught in regular classrooms' or 'I am excited to teach students with a range of abilities in my class'. Participants indicate their level of agreement using a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more positive attitudes toward inclusive education. The reliability of the AIS (composite score) in this study was Cronbach's alpha (α) 0.93 for the Swiss sample and 0.88 for the Italian sample.

Concerns

The short form of the Concerns about Inclusive Education Scale (Lozano et al., 2022) measures teachers' concerns about inclusive education. Like the full-length scale (Sharma & Desai, 2002), it consists of four components (concerns about resources, concerns about difficulties, concerns about academic standards and concerns about workloads), but which are measured by only 3 items each. Sample items are 'I will not have enough time to plan educational programs for students with disabilities' or 'My workload will increase'. Participants indicate their level of concern using a 4-point Likert scale (1 = not at all concerned, 2 = a little concerned, 3 = very concerned and 4 = extremely concerned). Reliability (composite score) in this study: $\alpha = 0.82$ (Swiss sample) and $\alpha = 0.79$ (Italian sample).

Self-efficacy

The short form of the Teachers' Self-efficacy in Inclusive Practices scale (Lozano et al. 2023b) measures teachers' self-efficacy for inclusive teaching. Like the full-length scale (Sharma et al., 2012), it consists of three components (self-efficacy in using inclusive instruction, self-efficacy in collaboration and self-efficacy in dealing with disruptive behaviours), which are measured by only three items each. Sample items are 'I am able to provide an alternate explanation for example when students are confused' or 'I can control disruptive behavior in the classroom'. Participants indicate their self-efficacy beliefs using a 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6). Higher scores indicate a higher sense of self-efficacy in teaching in inclusive classrooms. Reliability (composite score) in this study: $\alpha = 0.84$ (Swiss sample) and $\alpha = 0.83$ (Italian sample).

Intentions

The Intention to Teach in Inclusive Classroom Scale (ITICS) examines teacher intentions to use inclusive practices (Sharma & Jacobs, 2016). It consists of two components (intention to implement curriculum changes and intention to consult other professionals) which are measured by seven items. An example item is 'How likely will you change the curriculum to meet the learning needs of a student with learning difficulty enrolled in your class?'. Participants indicate the likelihood of enacting an inclusive practice using a 7-point Likert scale ranging from extremely unlikely (1) to extremely likely (7). Higher scores indicate a higher intention to use inclusive practices. Reliability (composite score) in this study: $\alpha = 0.70$ (Swiss sample) and $\alpha = 0.80$ (Italian sample).

Background information

Participants provided information about demographic and teaching-related variables, including their sex, age, teaching experience in years and teaching level (preschool, primary, lower secondary, upper secondary).

Data analysis

Procedure

The analyses included the following steps: (1) testing the proposed factor structure of each scale in the two samples (Italian and Swiss teachers) using confirmatory factor analyses (CFA), and in case of inadequate model fit, modification of the structural models (e.g. correlating error terms, deleting problematic items) to reach adequate model fit in both samples, or in case of problems with model convergence, performing additional exploratory factor analyses (EFA), (2) assessing configural, metric and scalar invariance using Multiple Group Confirmatory Factor Analysis (MGCFA), and (3) testing for differences in the latent means across the two samples.

Statistical analyses

Confirmatory factor analyses (CFA) were conducted in Mplus version 8.6 to evaluate the overall model fit of the proposed original factor solutions for each scale separately. Because of the non-normal distribution of the data, the maximum likelihood with robust standard errors (MLR) estimator was used to estimate the model parameters for the AIS, TEIP and ITICS scales. Because the CIES used a four-point Likert scale, data were treated as ordinal for the analysis of data of this scale and the weighted least squares means and variance adjusted (WLSMV) estimator was used. To evaluate the overall model fit, the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were used and conventions proposed by Hu and Bentler (1999) were followed: RMSEA <0.08, CFI>0.90 and SRMR <0.08 indicate acceptable model fit, while RMSEA <0.05, CFI>0.95 and SRMR <0.05 indicate very good model fit. If an acceptable model fit could not be achieved for both the Italian and Swiss samples, the measurement models were modified based on the modification indices provided by Mplus until an acceptable model fit was reached.

In a second step, MGCFAs were conducted to test measurement invariance (configural, metric, scalar) across samples, ensuring scales measure the same constructs consistently. Metric invariance allows comparison of relationships between latent constructs, while scalar invariance enables comparison of latent means. Invariance is tested by comparing model fit between restricted and less restricted models. For samples >300, Chen's (2007) criteria were used: ΔRMSEA <0.015, ΔCFI<0.010 and ΔSRMR <0.030 (configural to metric); ΔRMSEA <0.015, ΔCFI<0.010 and ΔSRMR <0.010 (metric to scalar). If full invariance wasn't achieved, partial invariance tests were conducted by freeing non-invariant items' factor loadings or intercepts. Partial invariance requires at least two equal items per construct across groups (Cieciuch & Davidov, 2015) and is considered sufficient for meaningful cross-group comparisons (Byrne et al., 1989; Steenkamp & Baumgartner, 1998).

In the third and final step and if at least partial scalar measurement invariance was established, the latent means on the respective scales between Italian and Swiss SETS were compared.

RESULTS

Descriptive results

The two samples differed in their background characteristics (Table 1). There were more male SETS in the Italian sample: χ^2 (1)=7.39, $p<0.01$; more older SETS in the Italian sample: χ^2 (5)=76.0, $p<0.001$; but with less teaching experience: χ^2 (4)=224.0, $p<0.001$; and more SETS in the lower and upper secondary school level in the Italian sample: χ^2 (2)=43.7, $p<0.001$. Manifest composite scores of the different scales/components for the Italian and Swiss samples and intercorrelations are shown in Table 2.

CFA's of the proposed factor structures of the scales in the Italian and Swiss sample

Regarding model fit criteria, models with the proposed factor structures of the four scales (AIS, CIES, TEIP and ITICS) yielded generally adequate fit in the Italian and Swiss samples. However, some issues were observed: in the Italian sample, the latent factors *Difficulties* and *Workload* correlated almost perfectly (0.99), leading to convergence issues. Therefore, separate analyses were performed for subsequent analyses: once with the items of the factor *Difficulties* removed and once with items of the factor *Workload* removed from the CIES. Further, for some items in the AIS and the ITICS scale, the Italian sample showed strong ceiling effects with kurtosis values >15 (items 1 and 2 in the AIS and items 3 and 4 in the ITICS). In the AIS scale, the two items belonged to the beliefs component and measured the belief that all students should be taught in regular classes and the belief that inclusion is beneficial for the social development of all students. Because these items likely indicate real differences between beliefs in the Italian and the Swiss SETS sample, we decided to retain these items in the subsequent analyses, as model fit was good for both the Italian and the Swiss sample. In the ITICS scale, the two problematic items measured how likely the respondents would consult with their colleagues to assist struggling students in their class or how likely they would undertake a professional development program to teach students with diverse learning needs well. Ceiling effects likely occurred because these items describe content obvious to special education teachers. Further, the two components of the ITICS scale were highly correlated in the Swiss sample (0.91) and an additional EFA with the Swiss data suggested only a single-factor solution (the two-factor solution did not converge). Similarly, a single-factor solution was suggested when discarding the two items with the ceiling effects in the Italian sample. Therefore, we decided to ignore the two items with the ceiling effects and to model a single-factor model with the remaining items. Because of an inacceptable high RMSEA in the Italian sample (=0.088), an additional item (item 5, consulting with a student with challenging behaviour) had to be removed. The four items that remained reached acceptable model fits for a one-factor solution in both samples and reflected diverse activities to include/support students with disabilities in the classroom (change curriculum, consult with parents, including students with disabilities in social activities, adapt assessments). The model fits of the scales for the Italian and Swiss samples are presented in Table 3.

TABLE 2 Manifest composite scores/correlations of Italian and Swiss special education teacher students.

		Composite scores		Correlations														
		IT M (SD)	**CH M (SD)**	**BEL**	**FEEL**	**RES**	**ACS**	**DIF**	**WL**	**INS**	**MB**	**COL**	**CUR**	**CONS**	**Sex**	**Age**	**TEX**	**TLV LV**
AIS	BEL	6.56 (0.58)	5.75 (1.20)	-	**0.55**	−0.03	−0.09	−0.12	**−0.21**	**0.16**	0.08	**0.22**	**0.46**	**0.24**	0.00	−0.09	−0.07	0.07
	FEEL	6.41 (0.74)	6.15 (0.78)	**0.48**	-	−0.03	−0.10	−0.06	−0.12	**0.28**	0.12	**0.32**	**0.35**	**0.28**	0.00	0.11	−0.04	0.07
CIES	RES	2.24 (0.73)	3.20 (0.63)	**−0.17**	−0.03	-	**0.31**	**0.31**	**0.30**	−0.09	−0.13	**−0.18**	−0.03	0.04	−0.05	−0.09	−0.06	0.12
	ACS	1.36 (0.54)	1.42 (0.49)	**−0.29**	**−0.41**	0.08	-	**0.42**	**0.41**	**−0.15**	−0.03	−0.10	**−0.28**	**−0.25**	−0.01	−0.04	0.01	**−0.18**
	DIF	1.68 (0.46)	2.16 (0.58)	**−0.45**	**−0.46**	0.12	**0.52**	-	**0.56**	**−0.23**	**−0.28**	**−0.25**	−0.14	−0.09	0.05	−0.12	−0.06	−0.05
	WL	1.55 (0.50)	2.62 (0.69)	**−0.29**	**−0.27**	**0.37**	**0.32**	**0.49**	-	**−0.21**	−0.13	**−0.19**	**−0.28**	**−0.19**	−0.05	−0.02	−0.02	0.00
TEIP	INS	4.88 (0.64)	5.08 (0.57)	**0.21**	**0.36**	0.00	**−0.33**	**−0.38**	**−0.22**	-	**0.39**	**0.56**	**0.39**	**0.36**	0.03	0.00	0.01	0.02
	MB	4.15 (0.70)	4.69 (0.81)	**0.25**	**0.25**	0.08	**−0.18**	**−0.46**	−0.06	**0.45**	-	**0.51**	**0.22**	**0.18**	−0.11	0.05	−0.04	0.15
	COL	5.00 (0.74)	5.03 (0.76)	**0.22**	**0.33**	0.04	**−0.37**	**−0.41**	**−0.28**	**0.42**	**0.42**	-	**0.30**	**0.29**	0.05	0.06	0.05	0.11
ITICS	CUR	5.93 (0.94)	6.02 (0.76)	**0.18**	**0.33**	0.04	**−0.30**	**−0.26**	**−0.22**	**0.34**	0.12	**0.32**	-	**0.57**	−0.14	−0.10	−0.02	−0.07
	CONS	6.52 (0.61)	6.30 (0.64)	**0.15**	**0.34**	−0.04	**−0.27**	**−0.29**	**−0.19**	**0.31**	**0.22**	**0.35**	**0.58**	-	−03	−0.08	−0.03	0.01
	Sex	-	-	−0.08	0.01	**0.15**	−0.06	−0.05	0.02	0.04	0.02	0.01	0.09	0.06	-	**0.14**	−0.07	**−0.24**
	Age	-	-	**0.22**	0.06	−0.12	−0.09	−0.12	**−0.22**	**0.15**	0.11	0.07	0.09	0.05	−0.05	-	**0.16**	0.03
	TEX	-	-	**0.19**	0.07	0.02	**−0.15**	**−0.15**	−0.13	**0.27**	**0.29**	**0.14**	0.04	0.04	0.03	**0.67**	-	0.00
	TLV	-	-	0.09	0.00	−0.08	−0.02	0.07	−0.09	0.05	−0.04	−0.01	0.03	0.01	**−0.28**	0.13	**0.14**	-

Note: Italian sample: $N = 180$. Swiss sample: $N = 221$. **Bold**: correlations significant at $p < 0.05$. Upper triangle of the correlation matrix = Intercorrelations of the Italian sample. Lower triangle of the correlation matrix = Intercorrelations of the Swiss sample. To calculate coefficients, Pearson (for two metric variables), Spearman rank (for one metric and one ordered variable or two ordered variables) and point-biserial (for one metric/ordered and one dichotomous variable) correlations were used.

Abbreviations: ACS, academic standards; BEL, beliefs; COL, collaboration; CONS, consult; CUR, change curriculum; DIF, difficulties; FEEL, feelings; INS, instructions; MB, managing Behaviour; RES, resources; TEX, teaching experience. TLV, teaching level; WL, workload.

TABLE 3 Confirmatory factor analyses of the modified scale factor structures.

					Model fit			
Scale	**Country**	χ^2	***Df***	***p***	**CFI**	**RMSEA**	**90% CI RMSEA**	**SRMR**
AIS	IT	18.5	19	0.49	1.000	0.000	[0.000, 0.063]	0.044
	CH	24.3	19	0.18	0.987	0.036	[0.000, 0.073]	0.048
CIES-WL*	IT	33.7	24	0.09	0.991	0.047	[0.000, 0.082]	0.044
	CH	38.5	24	0.03	0.985	0.053	[0.017, 0.083]	0.047
CIES-DIF*	IT	30.8	24	0.16	0.991	0.040	[0.000, 0.076]	0.042
	CH	25.6	24	0.38	0.998	0.018	[0.000, 0.059]	0.038
TEIP	IT	50.6	24	0.00	0.941	0.079	[0.048, 0.109]	0.060
	CH	21.7	24	0.60	1.000	0.000	[0.000, 0.050]	0.030
ITICS**	IT	1.92	2	0.38	1.00	0.000	[0.000, 0.146]	0.020
	CH	0.33	2	0.85	1.00	0.000	[0.000, 0.075]	0.007

Note: *For the CIES scale in the Italian teacher sample, the latent variable covariance matrix was not positive definite because of a near-perfect correlation of the latent variable's *difficulties* and *workload*. Therefore, two separate models were specified, one without the items / the latent variable *difficulties* (CIES-WL) and one without the items / the latent variable *workload* (CIES-DIF). CFI, comparative fit index; CI, confidence interval, RMSEA, root mean square error of approximation, SRMR, standardized root mean residual. Acceptable model fit if CFI ≥0.90 and RMSEA and SRMR ≤0.08. ** Items 3, 4 and 5 were removed from the ITICS scale and a one-component model was specified.

Measurement invariance of the scales across the Italian and Swiss sample

The measurement invariance MGCFAs demonstrated partial scalar invariance for all scales (Table 4). To reach the cut-off criteria for partial invariance, invariance restrictions on the intercepts of the following items had to be released: in the AIS, intercepts of item 3 and item 4 in the component *beliefs* and of item 9 and item 10 in the component *feelings*; in the CIES-SF, the intercept of item 13 in the component *resources*; in the TEIP-SF, intercepts of item 3 in the component *self-efficacy in using inclusive instruction* and item 15 in the component *self-efficacy in collaboration*; and in the ITICS, intercepts of item 1 and item 2.

Comparison of attitudes, concerns, self-efficacy and intention between Italian and Swiss SETS

Upon achieving partial scalar invariance in all scales, significant latent mean differences between the Italian and Swiss SETS were found for the *Beliefs* (μ=2.44, *SE*=1.01, p=0.016) component of the AIS, the *Resources* (μ=−1.27, *SE*=0.14, p<0.001), *Academic Standards* (μ=−0.40, *SE*=0.19, p=0.033), *Difficulties* (μ=−1.10, *SE*=0.16, p<0.001) and *Workload* (μ=−2.05, *SE*=0.20, p<0.001) components of the CIES-SF and the *Efficacy for Managing Behaviour* (μ=−0.743, *SE*=0.12, p<0.001) component of the TEIP-SF (see Figure 1). However, after adjusting for differences in sex, age, teaching experience and teaching level between the two samples, only the *Beliefs* (μ=1.47, *SE*=0.60, p=0.014) component of the AIS and the *Workload* (μ=−2.32, *SE*=1.08, p=0.032) component of the CIES remained significant, while a significant difference in the *Intentions* (ITICS, μ=2.45, *SE*=1.17, p=0.036) emerged. Italian SETS had, on average, more positive beliefs about inclusive education, were less concerned regarding additional workload due to inclusive education and had higher intentions to use inclusive practices.

DISCUSSION

This study compared attitudes, self-efficacy and concerns of SETS in Switzerland and Italy regarding inclusive education. Based on previous empirical findings (e.g. Sharma et al., 2018) and Italy's longer tradition of inclusion (Ianes et al., 2020), it was hypothesized that Italian SETS (1) would display more positive attitudes, (2) fewer concerns, (3) higher self-efficacy and (4) higher intentions to use inclusive practices compared to Swiss SETS.

Both groups displayed highly positive attitudes. A possible reason is that SETS in general are already sensitized to the topic of inclusion, heterogeneity and disability and have generally better attitudes compared to regular teachers (Guillemot et al., 2022). Better training and more specialized education in this area may explain more positive attitudes (Avramidis et al., 2019). On the other hand, SETS may also self-select themselves into the profession by having a higher intrinsic motivation for working with students with special needs and for inclusive education. Italian SETS showed more optimistic beliefs about inclusion than Swiss SETS, consistent with previous studies on Italian teachers' attitudes (Hecht et al., 2018; Sahli Lozano et al., 2024; Sharma et al., 2018). The lack of difference in feelings may be due to ceiling

TABLE 4 Measurement invariance across Italian / Swiss special education teacher students for the AIS, CIES, TEIP and ITICS.

	Model	χ^2 (df)	CFI	RMSEA	SRMR	VS	$\Delta\chi^2$ (Δdf)	ΔCFI	ΔRMSEA	ΔSRMR	Result
AIS	M1 (CI)	41.7 (38)	0.993	0.022	0.046	–	–	–	–	–	–
	M2 (MI)	64.1 (44)	0.960	0.048	0.143	M1	22.4 (6)	0.033	0.026	0.097	Reject
	M3 (PMI)	41.3 (42)	1.000	0.000	0.054	M1	−0.4 (4)	−0.007	−0.022	0.008	Accept
	M4 (SI)	103.7 (48)	0.889	0.076	0.140	M3	62.4 (6)	0.111	0.076	0.086	Reject
	M5 (PSI)	44.5 (44)	0.999	0.008	0.051	M3	3.2 (2)	0.001	0.008	−0.003	Accept
CIES-WL	M1 (CI)	72.5 (48)	0.988	0.051	0.046	–	–	–	–	–	–
	M2 (MI)	83.2 (54)	0.986	0.052	0.050	M1	10.8 (6)	0.002	0.001	0.004	Accept
	M3 (SI)	128.9 (78)	0.975	0.058	0.053	M2	45.6 (24)	0.011	0.006	0.003	Reject
	M4 (PSI)	110.7 (75)	0.982	0.049	0.053	M2	27.5 (21)	0.004	−0.003	0.003	Accept
CIES-DIF	M1 (CI)	56.2 (48)	0.996	0.029	0.040	–	–	–	–	–	–
	M2 (MI)	72.5 (54)	0.990	0.042	0.046	M1	16.3 (6)	0.006	0.013	0.006	Reject
	M3 (PMI)	64.6 (53)	0.994	0.033	0.043	M1	8.4 (5)	0.002	0.004	0.003	Accept
	M4 (SI)	118.5 (77)	0.978	0.052	0.047	M3	53.9 (24)	0.016	0.019	0.004	Reject
	M5 (PSI)	100.2 (74)	0.989	0.042	0.046	M3	35.6 (21)	0.008	0.009	0.003	Accept
TEIP-SF	M1 (CI)	73.9 (48)	0.974	0.053	0.046	–	–	–	–	–	Reject
	M2 (MI)	75.3 (54)	0.979	0.045	0.050	M1	1.4 (6)	0.005	−0.008	0.004	Accept
	M3 (SI)	110.7 (60)	0.950	0.066	0.065	M2	35.4 (6)	0.029	0.021	0.015	Reject
	M4 (PSI)	80.8 (58)	0.978	0.045	0.053	M2	5.5 (4)	0.000	0.001	0.003	Reject
ITICS	M1 (CI)	2.40 (4)	1.000	0.000	0.015	–	–	–	–	–	–
	M2 (MI)	24.8 (7)	0.879	0.114	0.151	M1	22.4 (3)	0.121	0.114	0.136	Reject
	M3 (PMI)	2.33 (5)	1.000	0.000	0.015	M1	−0.67 (1)	0.000	0.000	0.000	Accept
	M4 (SI)	54.3 (8)	0.686	0.171	0.067	M3	52.0 (3)	0.314	0.171	0.052	Reject
	M5 (PSI)	2.54 (6)	1.000	0.000	0.017	M3	0.21 (1)	0.000	0.000	0.002	Accept

Note: Cut-off criteria for demonstration of measurement invariance: ΔCFI ≤0.010, ΔRMSEA ≤0.015 and ΔSRMR ≤0.030/0.010 (metric invariance/scalar invariance).
Abbreviations: CIES-WL, CIES with factor Workload but without factor Difficulties. CIES-DIF, CIES with factor Difficulties but without factor Workload. CI, configural invariance; MI, metric invariance; SI, scalar invariance; PMI, partial metric invariance; PSI, partial scalar invariance. CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean residual. VS, reference model.

effects, as both groups displayed highly positive feelings, indicating strong intrinsic motivation. Italian SETS' more optimistic beliefs likely stem from Italy's longer experience with and policy of full inclusion.

Regarding concerns, differences emerged initially in all aspects, but remained significant only for workload after controlling for sample differences. Interestingly, concerns regarding insufficient resources were the greatest concerns in both samples, which corresponds to findings from studies with regular teachers (Jury et al., 2023), and which seems to be independent of the amount of and experience with inclusive education. Concerns regarding academic standards and difficulties were relatively low. However, Swiss SETS had significantly higher concerns regarding workload than the Italian SETS, which could indicate differences in the working conditions of special education teachers in both countries. A possible reason is that special education teachers in Switzerland often work in many different school classes due to the limited amount of special education resources provided to individual classes (Sahli Lozano & Gosteli, 2022). Compared to working in separative settings, this could mean more organizational and administrative work. Here, additional research with the investigation of actual workload (e.g. number of lessons per class/child with a disability, time for preparation and follow-up, etc.) could be helpful to examine these concerns more accurately.

Self-efficacy beliefs were found to be relatively high for both groups of SETS but were lowest regarding self-efficacy in managing challenging student behaviour. In a previous study with regular teachers, Swiss teachers were found to have higher self-efficacy beliefs in managing behaviour than their Italian counterparts (Sahli Lozano et al., 2024). In the current study focusing on SETS, differences in self-efficacy for managing behaviour also emerged initially. However, these differences were no longer significant after controlling for sample characteristics. The lack of significant differences in all self-efficacy components across the Swiss and Italian SETS indicates that both groups have a relatively similar self-efficacy profile. Since both groups receive special training, high values in both countries might not be surprising and may point to similar effects of the teacher training. This is despite the longer education in Switzerland (90–120 ECTS compared to 60 ECTS in Italy). However, more experience in inclusive education could compensate for this in

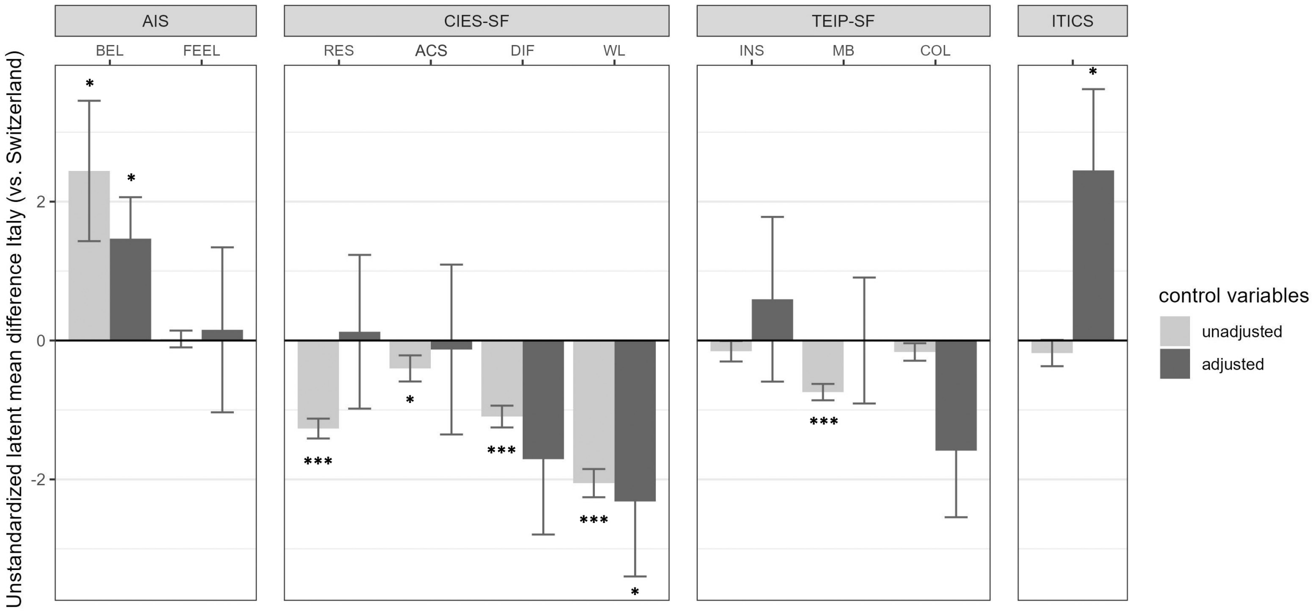

FIGURE 1 Latent mean differences between Italian and Swiss special education teacher students. Swiss SETS form the baseline. Control variables = sex, age, teaching experience, and school level. *$p<0.05$, **$p<0.01$, ***$p<0.001$.

Italy (for example, regular teachers are better prepared for dealing with inclusive education during their studies/their work).

Lastly, Italian SETS showed stronger intentions to implement inclusive practices. This likely stems from Italy's 50+ year history of full inclusion, making heterogeneous classes more normalized than in Switzerland, where separate settings remain an option. According to the Theory of Planned Behaviour (Ajzen, 1991), intentions are best predicted by attitudes, norms and self-efficacy. Accordingly, the higher intentions of Italian SETS may be attributed to their more positive beliefs and the more inclusive norms in Italy.

Similarities, differences and possible systemic influences

Research on special education teachers' views on inclusion is limited, especially across different education systems, despite their crucial role. Surprisingly, differences between Italian and Swiss SETS were smaller than expected, given Italy's full-inclusion policy. Both groups had similar feelings, self-efficacy beliefs and concerns regarding inclusive education. A possible reason is that special education teachers more general positive attitudes and beliefs might have levelled differences across the two countries. However, important differences were also observed. Besides more scepticism regarding inclusive education, with less positive beliefs and lower intentions to use inclusive practices, Swiss SETS reported higher concerns regarding workload compared to their Italian counterparts. Switzerland's education system has a well-established separative school system including special classes and schools. This structure, coupled with less established inclusive practices, may present Swiss special education teachers with higher demands and challenges. These may not only include barriers such as more negative attitudes toward inclusive education from regular teachers, but also aspects such as a stronger practice of ability tracking and related fears among parents that inclusion might negatively impact their own children's academic progress. On the other hand, Italian teachers operate within a long-established tradition of inclusive education, where sharing responsibility for all students, regardless of their special educational needs, is more commonplace. This likely contributes to more positive beliefs, lower perceived workload and higher intentions among Italian SETS. On the other hand, self-efficacy beliefs were less affected. For both groups of SETS, self-efficacy levels seemed comparable to or slightly higher than those found in studies with regular teachers (Sahli Lozano et al., 2024) and both Swiss and Italian SETS reported lowest self-efficacy in managing student behaviour. Bandura (1997) identifies aspects such as mastery and vicarious experiences as key to self-efficacy. Contrary to expectations and previous comparisons of Italian and Swiss regular teachers, Italian SETS did not display higher efficacy beliefs. Despite their different contexts, Italian and Swiss SETS might face similar challenges in inclusive classrooms, particularly in managing challenging student behaviour and collaborating effectively. For instance, in Italy, the role of special education teachers is often perceived as secondary to that of class teachers, even by the special education teachers themselves (Ianes et al., 2020). Such role conflicts exist also for Swiss SETS (Bauer et al., 2023). These findings highlight that inclusive legislation and policies alone are insufficient; there is a need for comprehensive support systems (e.g. administrative support, collaborative planning time, role definitions, professional development programs) and adequate teacher training to address these specific challenges.

Limitations of the study

Several limitations of the study must be considered. First, scale modifications for the AIS and ITICS scale were necessary, which may have affected construct validity. Second, these two scales also yielded high scores and ceiling effects in certain items, especially in the Italian sample. This potentially limits the ability to accurately measure and differentiate attitudes and intentions in individuals, and future studies should consider more sensitive measures when investigating samples of special education teachers. Third, there were significant sample composition differences in age and teaching level experience between Swiss and Italian participants. Although models were adjusted for these potential confounding variables, more balanced samples would have been preferable. Fourth, the relatively small sample sizes (221 Swiss and 180 Italian) may limit statistical power for detecting subtle cross-cultural differences. Fifth, as both samples were drawn from specific educational programs in single institutions, the generalizability of findings to broader teacher populations in each country may be limited. Sixth, the Swiss sample consisted of two cohorts of SETS: 2019 ($n=97$) and 2022 ($n=124$). Changing social norms and the significant impact of the COVID-19 pandemic may have influenced teacher attitudes toward inclusive education (Santilli, Valbusa and Ginevra 2024). Additional analyses comparing the two Swiss cohorts indicated no significant differences in attitudes, self-efficacy and intentions (concerns could not be tested due to the smaller sample size and the ordinal data structure), but cohort influences on the reported results cannot be completely excluded. Finally, this study relied on quantitative data only. Using mixed methods, for example additional qualitative interview studies with SETS across the two countries, could provide interesting insights into differences in teachers perceptions and beliefs. These factors should be considered when interpreting the results and their implications for teacher education and inclusive practices across cultural contexts.

Conclusion

Like in previous studies with regular teachers, Italian SETS were found to have more positive views regarding inclusive education: they share more positive beliefs, lower concerns and higher intentions to use inclusive practices. Reasons for these differences are probably reflected by the longer tradition in inclusive education. In contrast, no differences in self-efficacy beliefs were found. This indicates that besides inclusive legislation and policies, adequate support systems and teacher training are important. Future studies should more thoroughly investigate the perspectives of special education teachers across different education systems, using both psychometric scales and qualitative approaches such as in-depth interviews. Such research could further enhance our understanding of the factors that foster and hinder the implementation of more inclusive education systems.

CONFLICT OF INTEREST STATEMENT

The authors declare no potential conflicts of interest.

DATA AVAILABILITY STATEMENT

Data of the Swiss teacher sample is available at the SWISSUbase repository: Sahli Lozano, Caroline, Wüthrich, Sergej, Baumli, Nadja & Büchi, Jonas (2023). Daten von Berner und Deutschschweizer Lehrpersonen und sonderpädagogischen Fachpersonen zu Einstellungen, Bedenken und Selbstwirksamkeit gegenüber schulischer Inklusion (ISASI) (2019–2022) (1.0.0) [Datensatz]. FORS Datenservice. https://doi.org/10.48573/7zdp-nq67. Data from Italian teachers are available from the corresponding author upon request.

ETHICS STATEMENT

Ethics approval was not required.

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