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Lower Secondary Students' Well-Being Profiles: Stability, Transitions, and Connections with Teacher–Student, and Student–Student Relationships

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Abstract

Background Classroom relationships are known to be one of the most important yet complex predictors of student well-being. However, this complexity is frequently not considered, and it remains unclear whether students with different well-being profiles and their transitions are impacted differently by teacher-student and student–student relationships.

Objective This study aims to examine secondary school students' well-being profiles, their transitions over time, and their connection to teacher-student and student–student relationships.

Methods Participants included 757 Swiss secondary school students from grade 7 (47.8% female; M_{age} = 13.12, SD_{age} = .60) to grade 8 (44.6% female; M_{age} = 13.92, SD_{age} = .81). Latent profile analysis was conducted to classify students based on a multidimensional construct of student well-being, encompassing positive and negative emotions and cognitions toward school. To examine profile stability and transitions over time, latent transition analysis was used, and relationships with teacher-student closeness and conflict as well as student–student cohesion were analyzed.

Results Four well-being profiles emerged: flourishing, perfectionist, worried, and ambivalent. Profiles varied in the composition of well-being dimensions, with school worries prevalent across all profiles. Students with high positive emotions transitioned to profiles with lower well-being, while those with high negative emotions remained in less favorable profiles. Teacher-student closeness and student–student cohesion supported favorable transitions, whereas teacher-student conflict hindered positive changes.

Conclusions The identification of four distinct well-being profiles highlights individual differences in well-being and the interplay of positive and negative emotions. Teachers may play a pivotal role in preventing transitions to less favorable profiles, emphasizing the importance of fostering supportive classroom relationships.

Keywords Student well-being · Teacher–student relationships · Student–student relationships · Longitudinal · Latent transition analysis · Secondary school

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Introduction

In the secondary school environment, students are confronted with developmental and educational challenges, including heightened academic demands, concerns about grades and future trajectories, and the necessity of forming new relationships with teachers and peers (Goldstein et al., 2015; Rice et al., 2011). In these environments, students' well-being is likely to decrease (Gunnell et al., 2013; Pietarinen et al., 2014). Although the importance of student well-being is widely acknowledged (e.g., OECD, 2023; UNESCO, 2016), most studies do not adequately distinguish between well-being within the school environment and general well-being despite theoretical evidence suggesting these may not be identical constructs (Hascher, 2004). Moreover, there is a notable absence of research examining the long-term development of student well-being during adolescence from a multidimensional, person-centered perspective. While variable-centered approaches concentrate on overall trends, person-centered approaches facilitate a more detailed comprehension of individual variations in student well-being, providing valuable supplementary insights that are essential for the design of effective interventions tailored to specific needs.

An individual's well-being is closely associated with the quality of social relationships (Umberson & Montez, 2010). In examining students' well-being and its development, it is essential to consider the immediate social environment, as students frequently interact with teachers and peers within the school context at the micro level (Bronfenbrenner, 1977). Positive relationships, defined by close relationships to teachers and a high level of cohesion among classmates, have been linked to enhanced well-being, whereas conflictual teacher–student relationships and low peer cohesion may be associated with detrimental effects on students' well-being (e.g., Schwab & Rossmann, 2020). The established correlation between student well-being and relationships with teachers and classmates necessitates further exploration to acknowledge that students with varying well-being patterns may be differentially impacted by their social relationships in school. Thus, it is essential to gain a deeper understanding of individual differences in students' long-term well-being trajectories during adolescence and to explore how these trajectories are associated with teacher–student and student–student relationships. The current study aims to address these gaps by identifying distinct student well-being profiles among Swiss seventh graders (i.e., the first year of lower secondary school), examining the stability of these profiles across one academic year, and investigating how stability and transitions in student well-being profiles are related to teacher–student relationships (i.e., conflict and closeness) and student–student relationships (i.e., cohesion). By employing a person-centered approach, our findings contribute to the literature on the multidimensional construct of student well-being, providing a nuanced perspective on students' well-being trajectories and their connection to social relationships in school. A comprehensive understanding of student well-being and its contributors is crucial for equipping adolescents with the competencies needed to navigate the complexities of the twenty-first century.

Multidimensional Construct of Student Well-Being

Student well-being represents a *jingle-jangle* term (Porter, 2023). Despite the numerous definitions and conceptualizations, there is a general consensus that enjoyment, happiness, and the absence of distress are fundamental components and that well-being is a multidi-

mensional construct with an emphasis on social and emotional aspects (e.g., Hascher, 2003; Masters, 2004; Soutter et al., 2014; Tov, 2018).

To investigate well-being within the educational context, it is necessary to adopt a school-specific approach, recognizing the context-dependent nature of well-being (Becker, 1991; Hascher, 2004). The psychological or general subjective well-being may differ substantially from a student's well-being within the school setting (e.g., Long & Huebner, 2014; Weber & Huebner, 2015). Furthermore, student well-being can be conceptualized as either a state, reflecting temporary fluctuations influenced by situational factors, or a trait, representing a more stable, enduring characteristic shaped by long-term influences. In the context of longitudinal student well-being development, it may be more appropriate to conceptualize it as a trait, as this perspective allows for the examination of stable patterns and predictors over time (Dalbert, 2013). Student well-being as a trait can be conceived as the predominance of positive emotions and cognitions toward school life and the entire school context over negative ones (Hascher, 2003). In line with previous research (e.g., Pollard & Lee, 2003) and acknowledging the intricate and multifaceted nature of student well-being, Hascher (2003) proposed a multidimensional model that addresses the complexity of students' trait well-being within the school environment. Accordingly, student well-being can be characterized by a predominance of three positive dimensions (i.e., positive attitudes toward school, enjoyment in school, positive academic self-concept) over three negative dimensions (i.e., worries in school, physical complaints in school, and social problems in school). Hascher's (2003) multidimensional model enables an examination of diverse patterns in student well-being.

Stability and Change of Students' Well-Being

Student well-being tends to decline over the school years (Gunnell et al., 2013; Pietarinen et al., 2014; Virtanen et al., 2019). This decline is particularly evident during periods of transition, such as the shift from primary to secondary school (Engels et al., 2017; Wang et al., 2015), with the lowest levels observed at the end of compulsory education (Tomyn & Cummins, 2011). This may be attributed to individual developmental changes, as early adolescence is characterized by significant biological shifts, including puberty, along with heightened self-awareness and an increased desire for autonomy and connection (Eccles & Roeser, 2009). Alternatively, these developments may be attributed to external changes occurring at various ecological levels, including the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem (Bronfenbrenner, 1977). The transition from primary to secondary school requires students to move from a familiar, close-knit environment to a larger, more complex setting marked by increased competition, heightened academic demands, and shifts in social relationships (Anderson et al., 2000; Hanewald, 2013).

In Switzerland, the transition to grade 7 in secondary school is soon followed by the need to make significant life decisions in grade 8, such as selecting a profession, securing an apprenticeship position, or determining which school to attend at the upper secondary level. These decisions are contingent upon not only the individual students' characteristics but also their academic performance and the institutional constraints (school type at the lower secondary level), which may lead to increased worries in school (Morinaj & Hascher, 2022). The proposed decline in student well-being may vary across its dimensions. Previous stud-

ies have indicated that secondary school students tend to exhibit lower scores on positive student well-being dimensions and higher scores on negative dimensions (Hascher, 2003, 2007; Morinaj & Hascher, 2022). In a more recent study, Marker et al. (2024) observed a decline in positive attitudes, enjoyment in school, and academic self-concept across grades 6 to 10, accompanied by an increase in school-related worries. No significant changes were noted in physical complaints and social problems.

Furthermore, it is important to note that not all students may experience changes in their well-being at the secondary school level. A person-centered approach, as employed in previous studies, generally indicates that a subset of students encounters considerable challenges in navigating the social, emotional, organizational, and academic demands that arise following the transition to secondary school. Busseri et al. (2009) examined student well-being with the subjective well-being components according to Diener (1984) (positive affect, negative affect, life satisfaction) and identified five distinct cluster profiles, characterized by varying combinations of the well-being indicators. By operationalizing student well-being as psychological well-being (school enjoyment, future educational aspirations, self-esteem, school burnout, externalizing problems, and internalizing problems), Virtanen et al. (2019) identified six well-being profiles. Tuominen-Soini and Salmela-Aro (2014) operationalized student well-being as school engagement and burnout (i.e., exhaustion, cynicism, inadequacy), and identified four groups of students in upper secondary school, ranging from engaged and high-achieving students to less engaged students with lower academic achievement, and finally to burned-out students, who exhibited stress and exhaustion. In the context of Switzerland, Morinaj and Held (2023) investigated secondary school students' latent profile membership over grades 7 to 9 by applying the student well-being measurement according to Hascher (2004). Four distinct profiles were identified. The first profile exhibited high values in all three positive dimensions and medium–low values in all three negative dimensions. The second profile was characterized by medium–high values in the positive dimensions, medium levels of worries in school, and low values of physical complaints and social problems in school. The third profile was defined by the presence of medium values across all three positive and negative dimensions of well-being. The fourth profile exhibited high values in all three positive dimensions, accompanied by high levels of worries in school and physical complaints.

With regard to the stability and change of student well-being profiles, several longitudinal studies offer valuable insights. Virtanen et al. (2019) found that students with high well-being levels typically remain in the same profile upon transitioning from grade 6 to grade 7 and that students more frequently transition to a profile with higher well-being scores than the opposite. These findings suggest that transitions may not be inherently negative experiences but rather represent critical events that can also positively influence students' school well-being, particularly in the short term, such as during the initial grade following the transition (Virtanen et al., 2019). Tuominen-Soini and Salmela-Aro (2014) identified especially engaged students to stay in the engaged group and for engaged–exhausted students to move into a more disengaged group. Widlund et al. (2021) identified four distinct trajectory profiles and also revealed that the majority of students exhibited a positive shift in their trajectories following their transition into upper secondary education. In the context of Switzerland, the examination of the stability and changes in the student well-being profiles indicated a decline in enjoyment in school and an increase in students' negative well-being dimensions

(Morinaj & Held, 2023). These findings underscore the value of person-centered approaches in capturing individual patterns of change and stability in student well-being over time.

Connection of Student Well-Being and Teacher–Student Relationships

The relationships that students form with teachers in the classroom are considered to be complex yet important, particularly during pivotal developmental phases like adolescence. They have been consistently associated as potential determinants of successful behavioral outcomes (Baker et al., 2008), educational outcomes (Cornelius-White, 2007; Roorda et al., 2017), and emotional outcomes (Jennings & Greenberg, 2009; Roeser et al., 2000). According to the Self-Determination Theory (SDT), positive relationships are fundamental to human development, as they fulfill a basic psychological need for relatedness (Ryan & Deci, 2000). The theory posits that students are motivated and inclined toward self-realization and self-growth when their three basic psychological needs—autonomy, competence, and relatedness—are fulfilled (Baumeister & Leary, 1995; Ryan & Deci, 2017). Being in a school environment that does not fulfill students' individual needs has been shown to be associated with adverse behavioral and motivational outcomes and a decline in students' well-being (Eccles & Midgley, 1989; Eccles & Roeser, 2011; Eccles et al., 1991). The observed decline in student well-being in previous studies may be related to the influence of teacher–student relationships on the development of autonomy, competence, and relatedness (Holfve-Sabel, 2014; Olivier et al., 2021; Zimmer-Gembeck et al., 2006). The teacher–student relationship can be assessed by examining the students' perceptions of its both positive and negative aspects (Hamre & Pianta, 2001; Koomen & Jellesma, 2015; Pianta et al., 2003), providing a more comprehensive understanding of the dynamics of classroom relationships and their associations with student well-being, particularly when student–student relationships are also considered (Endedijk et al., 2021; Roza et al., 2021). In a dyadic teacher–student relationship, closeness denotes a sense of warmth and security, including the ease with which students seek support from teachers. In contrast, conflict is defined as the degree of negativity, resistance, and lack of rapport about a relationship with the teacher. A high-quality teacher–student relationship is thus characterized by both increased closeness and minimal conflict (Koomen & Jellesma, 2015; Sabol & Pianta, 2012; Verschueren & Koomen, 2012) and has been linked to higher psychological (Tennant et al., 2015) and physical well-being (Hoferichter & Raufelder, 2022). Even though teacher–student relationships are usually more personal and supportive at the primary school level (Sabol & Pianta, 2012) due to the increased number of different teachers and a corresponding reduction in interaction time (Eccles & Roeser, 2009), teacher–student relationships may still play an important role as a potential buffer (Cohen & Wills, 1985) against negative feelings especially in secondary school (Hamre & Pianta, 2001; Skinner et al., 2008; Verschueren & Koomen, 2012).

In greater detail, high-quality teacher–student relationships have been associated with enhanced enjoyment and reduced anxiety (Mainhard et al., 2018), improved socioemotional functioning (Sabol & Pianta, 2012), and better social skills (Endedijk et al., 2021; Hughes & Chen, 2011). The findings of Markus et al. (2022) indicated that positive attitudes toward school were related to a positive relationship with the teacher at the primary school level. In the context of Switzerland, Morinaj and Hascher (2019) demonstrated that alienation from teachers (characterized by a poor quality of teacher–student relationship) was associated with nearly every well-being dimension over grades 7–8. Conflict, in particular, has

been demonstrated to be negatively associated with positive and positively associated with negative dimensions of student well-being (Hascher, 2003). Teacher–student relationships and student well-being may also be reciprocally related, such that students with lower well-being are more likely to experience difficulties in forming positive relationships with teachers, which in turn is associated with increased conflict and further declines in well-being (Doumen et al., 2008; Miller-Lewis et al., 2014; Zhang & Sun, 2011). The application of a person-centered approach by Virtanen et al. (2019) showed that lower levels of teacher support were associated with an increased likelihood of students transitioning to a profile characterized by lower levels of well-being in lower secondary school. Thus, the quality of teacher–student relationships emerges as a key correlate of student well-being, particularly during adolescence, with potential implications for well-being trajectories.

Connection of Student Well-Being and Student–Student Relationships

Student–student relationships are presumed to fulfill the essential needs for belongingness (Baumeister & Leary, 1995; Kiefer et al., 2015) and relatedness (Ryan & Deci, 2000), both of which are fundamental for human development and well-being. The transition from primary to (usually larger) secondary school environments results in a reshuffling of adolescent peer relationships (Farmer et al., 2015). Peer relationships play an integral role in adolescents' fulfillment of fundamental needs (LaFontana & Cillessen, 2010), particularly during their secondary school years, as they contribute to students' identity formation (Ragelienė, 2016). Therefore, students become more conscious of how they are perceived by their peers and the broader community (Blakemore & Mills, 2014; Brown & Larson, 2009; Rubin et al., 2006). At the secondary school level, relationships with other students may even be of greater importance for student well-being than teacher–student relationships, given the heightened need for autonomy and independence of adolescent students (Erikson, 1968; Rubin et al., 2006). Furthermore, closeness to the classroom teacher may be diminished as a result of the increased number of teachers with whom students interact (Buhrmester & Furman, 1987; Hargreaves, 2000; Lynch & Chicchetti, 1997).

In contrast to the relationships with teachers, student–student relationships tend to be more reciprocal and less hierarchical (Bukowski et al., 2011, 2018; De Wit et al., 2011; Rubin et al., 2006). The quality of student–student relationships can be defined by the students' self-report of cohesion within the classroom (Santos et al., 2014). As posited by Schiefer and van der Noll (2017), cohesion, understood as a multidimensional construct, reflects the quality of collective unity within a group, with social relations as its core element. In the classroom context, cohesion represents the shared sense of belonging, collaboration, and supportive connections among classmates (Osterman, 2000; Schiefer & van der Noll, 2017).

Prior research has consistently indicated that student–student relationships are associated with higher levels of student well-being (Graham et al., 2016; Hoferichter et al., 2021; Schmidt et al., 2019). Specifically, positive and supportive student–student relationships have been associated with higher levels of school satisfaction (Verkuyten & Thijs, 2002), positive attitudes toward school, and increased enjoyment (Thapa et al., 2013; Zullig et al., 2011). Conversely, feelings of rejection and exclusion have been linked to negative emotions (Holt et al., 2018; Kornienko & Santos, 2014; Östberg, 2003). Furthermore, peer acceptance might exert long-term effects on student well-being, as it may also serve as a pre-

dictor of future difficulties in peer adjustment (King, 2015; Klima & Repetti, 2008). Morinaj and Hascher (2019) reported that students who exhibited higher levels of alienation from their classmates at the first measurement point displayed lower levels of attitudes toward school and more social problems at the subsequent measurement point. In their study using a person-centered approach, Virtanen et al. (2019) found support by peers to be the most robust predictor (among support from teachers and parents) for students to change from a less optimal to the highest well-being profile and vice versa. Taken together, the literature points to student–student relationships, particularly classroom cohesion, as a central factor shaping well-being and its development throughout secondary school.

The Present Study

The aim of the present study was to examine patterns of student well-being and their development over the first two years of secondary school, as well as their associations with teacher–student and student–student relationships. Specifically, we conducted a person-centered, longitudinal analysis to:

Identify distinct student well-being profiles (i.e., patterns of positive and negative dimensions) at the beginning of secondary school (grade 7);
Investigate the stability of these profiles across grades 7 and 8; and
Explore how stability and change in profile membership relate to teacher–student relationships (i.e., closeness and conflict) and student–student relationships (i.e., cohesion).

H1 *Grounded in SDT (Ryan & Deci, 2000) and previous person-centered studies (e.g., Morinaj & Held, 2023; Virtanen et al., 2019), we expected to find at least four distinct student well-being profiles characterized by varying combinations of positive and negative dimensions. We assumed to find one profile with high scores on the positive and low scores on the negative dimensions, another profile with low scores on the positive and high scores on the negative dimensions, a profile with medium to high values in all positive and negative well-being dimensions, and other profiles with varying combinations of the different positive and negative dimensions, for instance high values on the three positive dimensions and high worries in school accompanied or not by physical complaints.*

H2 *In line with previous longitudinal research suggesting moderate stability of well-being profiles in adolescence (Cummins et al., 2002; Tuominen-Soini & Salmela-Aro, 2014), we hypothesized that profile membership would be relatively stable across time, with transitions more often occurring toward less favorable profiles than toward more favorable ones (Morinaj & Held, 2023; Roeser et al., 1999).*

H3 *Based on theoretical and empirical work emphasizing the importance of social relationships in school contexts (De Wit et al., 2011; Virtanen, 2019), we hypothesized that transitions toward more favorable profiles would be associated with higher-quality teacher–student and student–student relationships, while transitions toward less favorable profiles would be associated with lower-quality relationships. Furthermore, we assumed student–student relationships to be the highest predictor of changes in profile memberships*

(Virtanen et al., 2019), given the heightened importance of peer relationships during adolescence (LaFontana & Cillessen, 2010; Ragelienė, 2016; Rubin et al., 2006).

The person-centered longitudinal design was selected to test H1–H3. Latent profile analysis (LPA) and latent transition analysis (LTA) were used to identify well-being profiles and examine their stability over time, while the Bolck-Croon-Hagenaars latent transition analysis (BCH-LTA) was applied to test associations with classroom relationships.

Method

Design

The study employs a 3-year longitudinal cohort-sequential design to investigate student well-being in secondary schools in three German-speaking cantons in Switzerland (2022–2024). The data was drawn from the longitudinal research project Well-being in School in Switzerland (WESIR) investigating, among other constructs, the well-being, teacher–student, and student–student relationships of lower secondary school students in Switzerland. This design allowed us to identify distinct well-being profiles and assess their stability and change over time, as well as their associations with teacher–student and student–student relationships.

Context, Participants, and Procedure

The Swiss education system comprises eight years of primary education: Two years of kindergarten (ages 4–6) and six years of primary school (grades 1–6, ages 7–12). Subsequently, students transition to lower secondary school (grades 7–9, ages 13–15) (EDK, 2023). Given that the responsibility for the curricula lies with the different cantons, it is possible to transition to a more academic-oriented track, contingent on performance in grade 7 or 8 (BKD, 2022; DBK, 2015). Otherwise, students, after compulsory education, may choose between general education programs and vocational education and training at the upper secondary level (EDK, 2023).

44 classes in 17 schools from three German-speaking cantons in Switzerland were recruited through the participation of school principals, who extended invitations to interested teachers to take part in the study. Participation was entirely voluntary; informed consent forms were obtained from the students' parents (9% of the original sample did not obtain research permit). Participants were assured that their responses would remain confidential. In the present study, we used data from measurement point 1 (t_1) at grade 7 (winter to spring of 2022) and measurement point 2 (t_2) at grade 8 (winter to spring of 2023). Students completed an online self-report questionnaire during the regular school hours. Trained research assistants conducted data collection in schools during regular school hours. Given the length of the questionnaire, students completed two distinct segments of the survey, with a minimum of one hour and a maximum of one week between. Students' characteristics (such as age and gender) and student well-being were assessed in the first part of the survey, with 18.4% (t_1) and 23.4% (t_2) of missing data. The teacher–student and student–student relationships were measured in the second part of the survey, resulting in 23.4% (t_1) and

29.5% (t_2) of missing data. Students with missing data on all scales of interest across both measurement points were excluded, resulting in a total of $N = 757$ students (see Table 1). We conducted Little's (1988) missing completely at random (MCAR) test, which yielded non-significant results at both measurement points [t_1: $X^2(56) = 63.17$, p = .238; t_2: $X^2(43) = 45.00$, p = .389], indicating that the missing data at each time point adhered to the MCAR assumption. Accordingly, we employed full information maximum likelihood (FIML) estimation, which is widely recommended for handling missing data because it retains the full sample and provides unbiased parameter estimates under the assumption of data missing at random (Enders, 2010; Little & Rubin, 2014).

The sample size was determined by the available data from the longitudinal research project (WESIR). Although no a priori power analysis was conducted, the final sample sizes are consistent with or exceed those used in similar person-centered research applying LPA and LTA (e.g., Morinaj & Held, 2023; Virtanen et al., 2019). Given the structure of our models and the number of latent profiles identified, the sample size was considered sufficient to yield stable and interpretable profile solutions and transitions (e.g., Spurk et al., 2020).

Measures

Student Well-Being

Student well-being was assessed using the Student Well-being Questionnaire (Hascher, 2007), which encompasses six dimensions: (1) positive attitudes toward school (3 items, e.g., "I like to go to school."), (2) enjoyment in school (3 items, e.g., "Have you experienced joy because of teachers' friendliness in the past few weeks?"), (3) positive academic self-concept (3 items, e.g., "I don't have problems mastering school tasks."), (4) worries in school (3 items, e.g., "Have you been worried about your school grades in the past few weeks?"), (5) physical complaints in school (4 items, e.g., "Have you had a severe headache in school in the past few weeks?"), and (6) social problems in school (3 items, e.g., "Have you had problems with your classmates in the past few weeks?"). Students responded on a 6-point Likert scale ranging from 1 (never/disagree) to 6 (very often/agree).

The internal consistency reliability (McDonald's Omega (ω)) of the different StudWB dimensions ranged from 0.71 to 0.83 (t_1) and 0.80 to 0.85 (t_2).

Teacher–Student Relationships

Teacher–student relationship was assessed using 18 items from the Teacher-Student Relationship Scale (Koomen & Jellesma, 2015), encompassing both dimensions of closeness (8 items) and conflict (10 items). The scale evaluates students' perceptions of their closeness and conflict with their teacher. Students were instructed to refer to their classroom teacher

Table 1 Sample description by measurement points and measurement scale

Sample description	t_1				t_2			
	N	% f	*M*	*SD*	*N*	% f	*M*	*SD*
Student well-being	757	47.8	13.12	0.60	720	44.6	13.92	0.81
Teacher–student relationship	709	47.8	13.12	0.60	653	44.6	13.92	0.81
Student–student relationship	709	47.8	13.12	0.60	653	44.6	13.92	0.81

t_1 measurement point 1, t_2 measurement point 2. f. female, *M* mean, *SD* standard deviation

or the teacher with whom they had attended the greatest number of lessons. Closeness in teacher–student relationship was measured with items such as, "When I feel uncomfortable, I go to my teacher for help and comfort," "I feel relaxed with my teacher," and "I think I have a good relationship with my teacher." Conflict in teacher–student relationship included items like, "My teacher treats me unfairly," "I feel my teacher doesn't trust me," and "I can be very angry with my teacher." Ratings were provided on a 5-point Likert scale ranging from 1 (no, that is not true) to 5 (yes, that is true).

The internal consistency reliability (McDonald's Omega (ω)) for the Teacher–Student Relationship Scale was 0.90 at both time points (t_1, t_2) for closeness, and 0.94 (t_1) and 0.92 (t_2) for conflict.

Student–Student Relationships

The Student–Student Relationship Scale, based on the Hessian Reference Framework for School Quality [Hessischer Referenzrahmen Schulqualität] (HRS, 2012), was employed to evaluate student–student relationships. This scale measured the cohesion of student–student relationships in class with 6 items, such as, "In my class, most of the students get along very well with each other," "In my class, we make sure that nobody is left alone with their problems," and "In my class, I have several good friends." Students responded on a 4-point Likert scale ranging from 1 (not at all true) to 4 (very true).

The reliability (McDonald's Omega (ω)) of the Student–Student Relationship Scale was 0.83 (t_1) and 0.84 (t_2).

Data Analysis Strategy

Preliminary Analysis

Preliminary statistical analyses deemed essential as a precondition for the ensuing main analyses were conducted using SPSS version 28 (Muthén & Muthén, 1998–2017).

First, we calculated descriptive statistics, examined multivariate normality, assessed multicollinearity, computed intercorrelations among the study variables, and evaluated internal consistency reliabilities.

Second, we assessed the intraclass correlation coefficients (ICC) for study variables to determine the amount of within-person and between-person variance comparing the school classes. Reliability is considered poor when the ICC values fall below 5 (Portney & Watkins, 2000).

Third, we examined the structural validity of each measurement through confirmatory factor analysis (CFA) and conducted tests for measurement invariance to ascertain that the indicators were measuring the same underlying latent construct at both measurement points and across all participants. Configural invariance ensures that the underlying variable structure remains stable over time. Metric invariance, achieved by constraining factor loadings, examines whether the relative significance of the items used to measure the study variables remains consistent across time (Newsom, 2015). To assess scalar invariance, constraints on item intercepts are imposed, allowing for the evaluation of the longitudinal stability of item intercepts across the corresponding factors (Meredith & Teresi, 2006). To assess the changes in model fit we used robust statistics for testing measurement invariance ΔCFI, and

ΔRMSEA values. A change of≤.01 in CFI and a change of≤.015 in RMSEA indicates that the assumption of invariance holds and that the more restrictive model does not fit significantly worse than the less stringent model (Chen, 2007).

Main Analysis

Given the increased complexity of our models, which result from the inclusion of multiple dimensions of student well-being, we opted to use factor scores for the LPA (e.g., Kam et al., 2016; Morin et al., 2016). In order to compute these factor scores, the effects coding method (Little et al., 2006) was employed, which preserves the original scaling of the indicator items and ensures that the factor scores remain unstandardized. This approach allows for a more interpretable analysis, as the factor scores retain their meaningful metric and can be directly compared to the original scale of the items.

We utilized six factor scores of the student well-being dimensions to estimate LPA-models for each measurement point and estimate profile solutions for two to ten profiles. To conclude the number of profiles we used a combination of fit indices including the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the sample-size adjusted Bayesian information criterion (SABIC), the Vuong–Lo–Mendell–Rubin likelihood ratio test (pVLMR), and Lo–Mendell–Rubin adjusted likelihood ratio test (pLMR). Since AIC, BIC, and SABIC may persist in declining without attaining a minimum value, these information criteria were supplemented by elbow plots (Morin et al., 2016) to illustrate the gains associated with additional profiles. Furthermore, we evaluated the classification quality (entropy value > 0.70), profile sizes, and the meaningfulness of the latent classes in the solution in relation to the theory and previous research.

We used LTA, a longitudinal extension of the LPA, to examine the stability and transition between profiles over the two measurement points (Collins & Lanza, 2010). To evaluate the similarity of the profiles over time, we initially estimated a multiple-group configural model for the identified profile solution. Following this, we constrained the within-profile means on the student well-being dimensions to be equal across the two measurement points to estimate a structural model. To assess the dispersion similarity model, we constrained the within-profile variability of the student well-being dimensions to be equal across the two measurement points. Finally, we estimated a model of distributional similarity by constraining the sizes (class probabilities) of the latent profiles to be equal across the two measurement points. We assessed model fit by comparing the current model with the previous one using AIC, BIC, SABIC, and consistent Akaike information criterion (CAIC) indices (Ciarrochi et al., 2017; Morin & Litalien, 2017; Sandrin et al., 2020). Profile similarity is considered supported if at least two of these indicators show a decrease, suggesting an improved model fit (Morin et al., 2016). We transformed the most similar model from the longitudinal LPA into a random intercept latent transition analysis (RI-LTA) model by incorporating the estimation of transition probabilities between profiles at adjacent time points (Muthén & Asparouhov, 2022).

Finally, we followed the BCH-LTA approach (Asparouhov & Muthén, 2021) to investigate whether stability and change of the student well-being profiles is linked to teacher–student and student–student relationships. The BCH approach is employed within the context of LTA to assess the influence of auxiliary variables on transitions between latent profiles over time. In our analysis, we included teacher–student relationships (i.e., closeness and

conflict) and student–student relationships (i.e., cohesion) at t_1 in the mixture model to investigate their effect on profile transitions. This enabled a pairwise comparison of the means and an investigation of the influence of classroom relationships on the stability and shifts in student well-being profiles over time.

Author X takes responsibility for the integrity of the data and the accuracy of the data analysis.

Results

Preliminary Analysis

Descriptive statistics (mean, standard deviation, and correlation matrix of the variables of interest) are presented in the Supplementary Table 1. The interrelationships between the variables were theoretically consistent.

Multivariate normality tests indicated deviations from normality; therefore, all models were estimated using MLR with robust standard errors and FIML (Yuan & Bentler, 2008). VIF values ranged from 1.14 to 1.87, suggesting no issues with multicollinearity (Hair et al., 2010).

The ICCs for the student well-being dimensions ranged from 0.04 to 0.14 (t_1) and from 0.06 to 0.11 (t_2). For closeness in teacher–student relationship, the ICCs were 0.10 (t_1) and 0.14 (t_2), while for conflict, the ICCs were 0.14 (t_1) and 0.09 (t_2). The ICCs for cohesion in the student–student relationship were 0.16 (t_1) and 0.19 (t_2). Therefore, ICC values below 0.5 suggest that there were no substantial differences between the school classes in our sample (Portney & Watkins, 2000).

In comparison to other models, the six-factor model of student well-being (Hascher, 2007), the two-factor model of teacher–student relationship (Koomen & Jellesma, 2015), and the one-factor model of student–student relationship (HRS, 2012) exhibited a good model fit (see Table 2). Accordingly, we employed the six-dimensional model for the subsequent analysis of the data.

Measurement invariance was established at the metric level for all scales, which is considered acceptable for ensuring the comparability of constructs across groups (see in the Supplementary Table 2).

Table 2 Model fit statistics of the CFAs testing competing models in terms of the factor structure of student well-being, teacher–student relationship, student–student relationships

CFA Models	χ^2	df	CFI	TLI	SRMR	RMSEA
Student well-being						
Six-factor model	296	137	.970	.963	.039	.039
Two-factor model	1781	151	.697	.656	.097	.120
One-factor model	3092	152	.453	.384	.141	.160
Teacher–student relationships						
Two-factor model	897	134	.915	.902	.090	.090
One-factor model	3624	135	.609	.557	.215	.191
Student–student relationships						
One-factor model	49.8	9	.971	.952	.031	.080

χ^2 = Chi-Square, *df* degrees of freedom, *CFI* comparative fit index, *TLI* Tucker-Lewis Index, *SRMR* standardized root mean square residual, *RMSEA* root mean squared error of approximation

Student Well-Being Profiles

Using factor scores, we tested LPA-models with up to ten profiles for both measurement points (see Table 3). The results indicated a decrease in AIC, BIC, and SABIC values as additional latent profiles were added, with the plotted data (see Fig. 1 in the Supplementary Materials) revealing a leveling off at four to five profiles. This pattern thus supported a solution comprising four or five profiles. In addition to the fit indices, we considered the interpretability and sizes of the profile solutions. We omitted redundant profiles, which did not add additional information, and profiles that represented an insufficiently large part of the sample (Dahling et al., 2017; Spurk et al., 2020). The relatively modest size of the supplementary profile 5 (10.5% at t_1; 8% at t_2) and its resemblance to profile 3 across the four profile solutions, in combination with the fit indices and parsimony, led to the decision for a four-profile solution.

Furthermore, we conducted longitudinal tests of profile similarity to examine potential changes in the four profile structures over time (see Table 4). Comparisons of the configural, structural, and dispersion similarity models revealed a decline in the BIC and CAIC values, thereby supporting the distributional similarity of the four-profile solution over time (Morin et al., 2016). Accordingly, the distributional similarity model was employed for subsequent profile interpretation and RI-LTA analysis (Morin & Litalien, 2017).

We proceeded to extend the retained distributional model to the LTA. The final model yielded a reasonably high level of classification accuracy, with an entropy value of 0.88 and average posterior probabilities of class membership in the dominant profile varying from 0.91 to 0.96 at t_1 and from 0.93 to 0.97 at t_2 (see Table 5). This high entropy value and average posterior probabilities above.90 indicate strong profile separation and reliable classification.

The mean values of the student well-being dimensions are reported in Table 6 and the profiles from the final solution of distributional similarity are illustrated in Fig. 1. When naming the profiles, we considered both the composition of the student well-being dimensions and the theoretical and empirical assumptions that may be used to summarize the characteristics of the profiles. In the first profile, the *flourishing* profile (11.89–11.33%), students demonstrated the highest values across all the positive well-being dimensions and the lowest values across all negative well-being dimensions. Students in the second profile, the so-called *perfectionist* profile (37.91–19.09%), exhibited nearly identical high values in the positive well-being dimensions but accompanied by the second highest values in all the negative well-being dimensions among all the profiles. In the third profile, students can be ascribed to a *worried* profile (30.01–40.54%), as they are characterized by medium values in the two positive well-being dimensions of positive attitudes toward school and enjoyment in school, and the lowest values in the positive well-being dimension of positive academic self-concept. Regarding the negative well-being dimensions, students in the *worried* profile demonstrated the highest values across all negative well-being dimensions, with worries in school having a higher value than all the positive well-being dimensions in this profile. In the fourth profile, the *ambivalent* profile (20.19–29.04%), students exhibited, in comparison to the other profiles, medium to low values across all well-being dimensions. In more detail, the students in this profile exhibited the second lowest values in the well-being dimension of positive academic self-concept and the lowest values in the well-being dimension of positive attitudes toward school and enjoyment in school. The values regarding the negative

Table 3 Information criteria values for different profile solutions

Measurement point	Classes	AIC	BIC	SABIC	VLMR	*p*	Entropy	Group sizes
t_1	1	13,437.724	13,495.015	13,456.905	–	–		875
	2	12,459.096	12,549.807	12,489.467	992.628	0.000	0.844	611, 264
	3	11,892.743	12,016.872	11,934.302	580.354	0.000	0.809	284, 397, 195
	4	**11,593.631**	**11,751.180**	**11,646.380**	**313.112**	**0.103**	**0.827**	**153, 330, 245, 147**
	5	11,312.607	11,503.576	11,376.545	295.023	0.400	0.845	93, 100, 125, 232, 325
	6	11,126.648	11,351.036	11,201.775	199.959	0.014	0.862	280, 177, 26, 193, 69, 130
	7	10,979.535	11,237.343	11,065.851	161.113	0.619	0.866	26, 177, 115, 272, 62, 191, 32
	8	10,847.953	11,139.180	10,945.458	145.582	0.298	0.869	95, 24, 20, 277, 104, 133, 194, 28
	9	10,748.653	11,073.300	10,857.347	113.300	0.630	0.876	156, 25, 56, 176, 52, 268, 95, 20, 27
	10	10,660.275	11,018.340	10,780.159	102.377	0.260		267, 176, 24, 15, 133, 85, 15, 48, 88, 24
t_2	1	14,277.120	14,334.410	14,296.301	–	–		875
	2	13,167.977	13,258.687	13,198.347	1123.143	0.000	0.886	216, 659
	3	12,663.458	12,787.588	12,705.018	518.519	0.001	0.833	208, 493, 174
	4	**12,236.809**	**12,394.359**	**12,289.558**	**440.649**	**0.025**	**0.840**	**367, 212, 205, 91**
	5	11,996.209	12,187.178	12,060.147	254.600	0.251	0.839	122, 292, 244, 147, 70
	6	11,834.219	12,058.607	11,909.346	175.991	0.047	0.836	220, 122, 211, 67, 68, 188
	7	11,649.120	11,906.928	11,735.437	199.098	0.103	0.856	63, 88, 75, 224, 163, 220, 43
	8	11,541.957	11,833.185	11,639.463	121.163	0.533	0.861	61, 221, 218, 87, 61, 163, 31, 32
	9	11,456.953	11,781.600	11,565.648	99.004	0.402	0.852	42, 57, 110, 67, 195, 22, 171, 29, 181
	10	11,358.152	11,716.219	11,478.036	112.801	0.215	0.866	40, 111, 60, 184, 18, 194, 167, 29, 67, 7

t_1=measurement point 1; t_2=measurement point 2. *AIC* Akaike information criterion, *BIC* Bayesian information criterion, *SABIC* sample-size adjusted Bayesian information criterion, *VLMR* Vuong-Lo-Mendell-Rubin likelihood ratio test

p=p-value

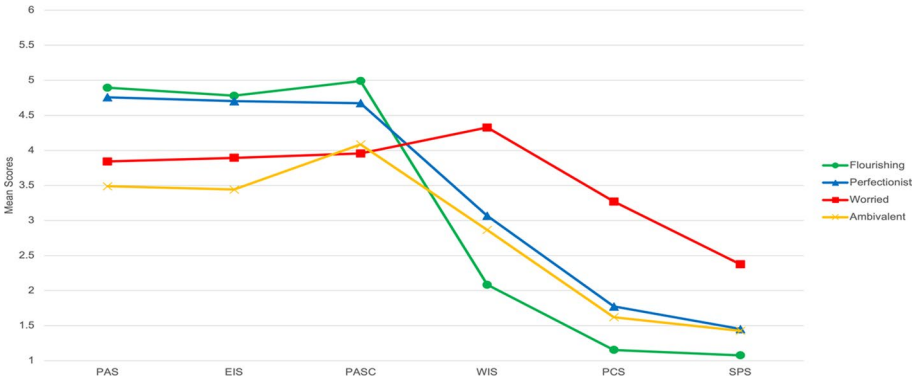

Fig. 1 Mean scores of student well-being dimensions in the four latent profiles. *PAS* positive attitudes toward school, *EIS* enjoyment in school, *PASC* positive academic self-concept, *WIS* worries in school, *PCS* physical complaints in school, *SPS* social problems in school

Table 4 Longitudinal tests of profile similarity

Similarity test	AIC	BIC	SABIC	CAIC	Free parameters	Loglikelihood
Configural	22,298.09	22,785.06	22,461.13	22,887.06	102	− 11,047.04
Structural	22,446.64	22,819.03	22,571.32	22,897.03	78	− 11,145.32
Dispersional	22,465.86	22,723.66	22,552.17	22,777.66	54	− 11,939.86
Distributional	22,476.61	22,720.10	22,558.13	22,771.10	51	− 11,187.31

AIC Akaike information criterion, *BIC* Bayesian information criterion, *SABIC* sample-size adjusted Bayesian information criterion, *CAIC* consistent Akaike information criterion

Table 5 Classification probabilities for the most likely latent profile membership (Column) by latent profile (Row)

t_1 measurement point 1; t_2 measurement point 2. Rows represent the latent class assigned during model estimation; columns represent the most likely class membership. Higher diagonal values indicate stronger classification accuracy

Latent profile	1	2	3	4
t_1				
1	.96	.03	.00	.01
2	.02	.92	.02	.04
3	.00	.03	.95	.03
4	.01	.06	.03	.91
t_2				
1	.97	.02	.00	.02
2	.02	.90	.03	.05
3	.00	.02	.94	.03
4	.01	.03	.03	.93

well-being dimensions were comparable to those observed among students in the *perfectionist* profile, yet slightly lower (Supplementary Fig. 1).

Overall, our analysis yielded no definitive indications of either positive or adverse profiles of student well-being. Instead, the data revealed profiles that were, on the whole, more favorable when higher values were observed on the positive dimensions and lower values on the negative dimensions. This included profiles such as the *flourishing* and the *perfectionist* profile. In contrast, students in the *worried* and *ambivalent* profile exhibited less

Table 6 Means and standard deviations of the student well-being dimensions per latent profile

Student well-being dimensions	1. Flourishing		2. Perfectionist		3. Worried		4. Ambivalent	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PAS	4.93	0.30	4.82	0.20	3.84	0.69	3.55	0.40
EIS	4.81	0.27	4.76	0.16	3.90	0.63	3.51	0.46
PASC	5.01	0.34	4.70	0.39	3.94	0.58	4.13	0.53
WIS	2.11	0.34	3.04	0..75	4.38	0.83	2.87	0.62
PCS	1.12	0.01	1.77	0.24	3.29	1.02	1.63	0.16
SPS	1.07	0.00	1.47	0.12	2.37	0.93	1.43	0.10

M mean, *SD* standard deviation, PAS positive attitudes toward school, *EIS* enjoyment in school, *PASC* positive academic self-concept, *WIS* worries in school, *PCS* physical complaints in school, *SPS* social problems in school

Table 7 Laten transition probabilities between profiles at t_1 and t_2

Latent transitions from t_1 to t_2	1. Flourishing	2. Perfectionist	3. Worried	4. Ambivalent
1. Flourishing	.54	.29	.00	.17
2. Perfectionist	.12	.38	.30	.20
3. Worried	.00	.04	.88	.08
4. Ambivalent	.02	.00	.14	.84

t_1 = measurement point 1; t_2 = measurement point 2

favorable patterns of student well-being, as indicated by lower scores on the positive dimensions and higher scores on the negative dimensions.

Stability and Change of the Student Well-Being Profiles

The estimated transition probabilities between the two measurement points are presented in Table 7. Students initially classified in the *flourishing* and *perfectionist* profiles—both characterized by high values in positive well-being dimensions—demonstrate a tendency to transition into profiles with lower values in positive well-being dimensions and higher values in negative well-being dimensions. It is, however, noteworthy that 12% of students in the *perfectionist* profile transition to the more favorable *flourishing* profile from the t_1 to t_2. In contrast, profile membership among students in the *worried* and *ambivalent* profiles, which are typified by lower values in the positive well-being dimensions and higher values in the negative well-being dimensions, remained relatively stable across both measurement points. Nevertheless, 14% of the students in the *ambivalent* profile transitioned to the *worried* profile.

Profile Connections with Teacher–Student and Student–Student Relationships

The mean differences of closeness, conflict and cohesion among the student well-being profiles are presented in Table 8 and Table 9. Students in the *ambivalent* profile demonstrated

Table 8 Means of closeness, conflict and cohesion of the student well-being profiles

Student well-being profiles	Closeness		Conflict		Cohesion	
	M	*SD*	*M*	*SD*	*M*	*SD*
1. Flourishing	3.74	0.09	1.55	0.10	3.41	0.05
2. Perfectionist	3.18	0.06	2.27	0.07	2.94	0.04
3. Worried	3.00	0.07	1.98	0.06	2.99	0.04
4. Ambivalent	3.85	0.07	1.77	0..07	3.45	0.05

M mean, *SD* standard deviation

Table 9 Mean differences in closeness, conflict, and cohesion between student well-being profiles and transitions

Profile comparison	Mean Difference	*SE* Difference	Z-Value	*p*
Closeness				
Flourishing vs. Perfectionist	.57	.11	5.32	<.001
Flourishing vs. Worried	.74	.11	6.58	<.001
Flourishing vs. Ambivalent	− .11	.11	− .95	>.05
Perfectionist vs. Worried	.18	.09	2.02	<.01
Perfectionist vs. Ambivalent	− .67	.09	− 7.39	<.001
Worried vs. Ambivalent	− .84	.09	− 9.07	<.001
Conflict				
Flourishing vs. Perfectionist	− .71	.12	6.01	<.001
Flourishing vs. Worried	− .43	.12	3.61	<.001
Flourishing vs. Ambivalent	− .22	.12	1.75	>.05
Perfectionist vs. Worried	.29	.09	− 3.15	<.01
Perfectionist vs. Ambivalent	.50	.10	− 5.08	<.001
Worried vs. Ambivalent	.21	.10	− 2.16	<.001
Cohesion				
Flourishing vs. Perfectionist	.47	.06	7.52	<.001
Flourishing vs. Worried	.42	.06	6.94	<.001
Flourishing vs. Ambivalent	− .04	.07	− .61	>.05
Perfectionist vs. Worried	−.05	.05	− .87	>.05
Perfectionist vs. Ambivalent	− .51	.06	− 8.21	<.001
Worried vs. Ambivalent	− .46	.06	− 7.61	<.001

SE standard error. Values represent mean differences (pairwise comparisons) across the different transition types

the highest level of closeness ($M=3.85$) and also the highest level in cohesion ($M=3.45$) among all profiles. With regard to conflict, the values were lower in the *flourishing* profile ($M=1.55$) and were accompanied by almost as high mean values in closeness ($M=3.74$) and cohesion ($M=3.41$) as in the *ambivalent* profile. Students in the *perfectionist* profile exhibited lower levels of closeness ($M=3.18$) and the highest level of conflict ($M=2.27$) and cohesion ($M=2.94$) among all the profiles. Students in the *worried* profile can be described by the lowest levels of closeness ($M=3.00$) and slightly lower levels of conflict ($M=1.98$) respectively higher levels of cohesion ($M=2.99$) than the students in the *perfectionist* profile.

The transition from the *flourishing* profile to the *perfectionist* and *worried* profile, both characterised by lower positive and higher negative student well-being dimensions, was significantly associated with lower levels of closeness, higher levels of conflict and lower

levels of cohesion. Transitioning from the *perfectionist* profile to the *worried* profile was significantly related to a reduction in the levels of closeness and conflict. Students in the *perfectionist* profile who transited to the *ambivalent* profile reported significantly higher levels of closeness and cohesion, accompanied by a significant reduction in conflict. The comparison between the *worried* and the *ambivalent* profiles revealed, that students with a lower level of closeness and cohesion and a higher level of conflict are significantly more likely to remain in the *worried* profile.

Discussion

We aimed to investigate student well-being profiles among 7th and 8th graders in Switzerland, a period marked by critical developmental changes and a pivotal point in the educational trajectory. Furthermore, we examined whether the identified profiles remained stable throughout the first two years of secondary school and how the stability and transition in the students' well-being profiles were related to teacher–student (e.g., closeness, conflict) and student–student (e.g., cohesion) relationships. Our study contributes to the existing research on student well-being and relationships in the classroom in three key aspects. Firstly, the study employs a multidimensional and school-specific approach to student well-being. Secondly, it includes both teacher–student and student–student relationships. Thirdly, the study employs a person-centered methodology and longitudinal design, which enables linking students' well-being profiles as well as transitions between them to their relationships within the classroom.

Student Well-Being Profiles Among Secondary School Students

As we hypothesized (H1), our findings regarding the characterization of the four identified profiles were consistent with those of previous studies, which also identified distinct patterns of student well-being. These profiles encompassed students who predominantly experienced positive emotions, who displayed a combination of positive and negative emotions, as well as profiles of students who experienced negative emotions to a greater extent than positive emotions (e.g., Tuominen-Soini & Salmela-Aro, 2014; Virtanen et al., 2019; Widlund et al., 2021).

Furthermore, our findings regarding profile patterns closely align with those of a previous study (Morinaj & Held, 2023) that employed the same instrument for measuring student well-being (Hascher, 2007) in the Swiss context. However, in their study, a substantial proportion of students (47.13–48.35%) were characterized by a combination of high values in all three positive dimensions and medium to low values in three negative student well-being dimensions (Morinaj & Held, 2023). Although in our study, students in all profiles experienced medium–high scores on the positive dimensions, the majority of students in grade 7 (67.92%), at t_1, were identified as falling within the *perfectionist* or *worried* profile. Both profiles were characterized by medium–high values in the positive well-being dimensions, as well as medium–high values in the negative student well-being dimensions, particularly high worries in school. At t_2, the majority of the students in grade 8 (69.58%) fell within the *worried* or *ambivalent* profile, which are both typified by low scores across all well-being dimensions.

It is possible that the characteristics of our sample, which included students from cantons in Switzerland in which it is possible to transit to a higher academic track after grade 7 (BKD, 2022; DBK, 2015), resulted in elevated pressure to perform and heightened concerns about academic performance. This was accompanied by increased physical complaints, which may be explained by the transactional model of stress and coping proposed by Lazarus and Folkman (1984). For the students, high-performance pressure could be perceived as a source of stress and anxiety. Stress may contribute to or extend the development of somatic symptoms, such as headaches, stomach aches, and fatigue (McEwen, 1998; Murberg & Bru, 2004). Such symptoms are frequently documented as physical complaints in academic settings and may be attributable to an apparent discrepancy between environmental demands and the individual's capacity to cope with these demands. Moreover, global changes could not only present an additional challenge to students' general well-being, but also engender uncertainty about future opportunities and career paths, which could in turn give rise to negative emotions within the school context (e.g., Fehkührer et al., 2023). This may also explain why positive student well-being values remain relatively high, but concerns are on the rise among the students.

Stability of and Transitions in the Student Well-Being Profiles During Seventh and Eighth Grade

The findings of our study revealed two principal trends with regard to the stability and transition of student well-being profiles, which align with our initial hypothesis (H2).

First, the results of our study indicate that a greater number of students are transitioning to a profile that exhibits comparatively lower values on the positive dimensions and higher values on the negative student well-being dimensions. This finding indicated an overall decrease in student well-being over time, which is consistent with the findings of previous studies that have examined student well-being over time (e.g., Gunnell et al., 2013; Pietarinen et al., 2014).

Second, profile membership among students in the *worried* and *ambivalent* profiles, which are typified by lower values in the positive well-being dimensions and higher values in the negative well-being dimensions, remained relatively stable across both measurement points in our study. These findings are consistent with prior research indicating a relative stability in profile memberships over time (e.g., Tuominen-Soini & Salmela-Aro, 2014). In contrast, our study revealed that the profile membership among students in the *flourishing* and *perfectionist* profiles tends to be less stable. The high stability of profiles with higher values on the negative student well-being dimensions may be indicative of a persistence of negative perceptions and attitudes toward school over time (Morinaj & Held, 2023). Moreover, students in the *flourishing* and *perfectionist* profiles may also exhibit high aspirations regarding academic performance. These students may initially possess a strong desire to perform well and may be intrinsically motivated to do so. However, should the expectations not be met, students' motivation may shift from intrinsic to extrinsic (Deci & Ryan, 1985), resulting in a student well-being profile characterized by lower positive and higher negative values on the various dimensions (e.g., Kuusi et al., 2024; Widlund et al., 2021).

One might posit that secondary school may prove a less optimal fit for students' fundamental needs than primary school, as postulated by the stage-environment fit theory (Eccles & Midgley, 1989; Eccles & Roeser, 2011). In particular, students who have had a positive

experience at the primary level and initially have positive emotions about the secondary level may not maintain these feelings over time. However, it remains an open question as to how students' well-being will continue to evolve over the third year of secondary school. Prior studies have indicated that it may stabilize again by the end of secondary school (e.g., Marker et al., 2024).

Student Well-Being Profiles' Relations to Teacher–Student Relationships

The profile differences in teacher–student relationships observed in our study were consistent with our hypotheses (H3). A high-quality teacher–student relationship, was found to be associated with higher scores on the positive student well-being dimensions and lower scores on negative student well-being dimensions, as evidenced among students in the *flourishing* profile.

However, students in the *ambivalent* profile, who exhibited medium levels across all student well-being dimensions and particularly low values of positive attitudes toward school and enjoyment in school, reported the highest level of closeness among all the profiles. Nevertheless, they were also more likely to experience conflict than students in the *flourishing* profile. This suggests that the ambivalent pattern of student well-being observed in these students may extend to their relationship with the teacher. Ambiguity and uncertainty in the relationship with the teacher may influence the well-being pattern of students in this profile, as they might lack satisfaction with basic needs related to relatedness (Ryan & Deci, 2000). This is further substantiated by the fact that students in the *worried* profile, characterized by the highest values across all negative well-being dimensions, report the lowest levels of closeness and the highest levels of conflict.

Students in the *perfectionist* profile demonstrated slightly higher levels of closeness yet reported the highest level of conflict among all student well-being profiles. This raises the question of why students would enter into a relationship with their teacher in the first place. Students in this profile may prioritize academic goals oriented toward performance, viewing teachers as the arbiters of their academic grades (Elliot & McGregor, 2001). Instances of conflict emerge when satisfactory performance is not achieved (Ames, 1992; Bandura, 1993). Conversely, teachers may establish expectations based on mastery-oriented goals, emphasizing the development of skills relevant to students' future endeavors, which may not directly align with immediate academic requirements. Moreover, teacher expectations may play a crucial role in influencing student behavior and well-being. The concept of Pygmalion effect (Rosenthal & Jacobson, 1968) posits that students tend to perform in ways that align with teachers' expectations. In the case of students in the *perfectionist* profile, teachers may hold high expectations of their students, thereby inadvertently contributing to elevated levels on the negative student well-being dimensions, particularly when students perceive that they are unable to meet these expectations.

Student Well-Being Profiles' Relations to Student–Student Relationships

The influence of teachers' expectations or, in general, of students' dependency on their teacher might also explain why, contrary to our hypothesis (H3), student–student relationships were not the highest predictor of changes in profile memberships, but rather, closeness in teacher–student relationships was the most significant factor. However, as we hypoth-

esized our findings regarding student–student relationship generally aligned with those observed in the teacher–student relationship with regard to the dimensions of closeness.

In greater detail, students in the *ambivalent* profile, which reported the highest level of closeness, also reported the highest level of cohesion, followed by students in the *flourishing* profile.

The high level of cohesion and closeness observed in the *ambivalent* profile may be attributed to enhanced social skills, which in turn could enable the establishment and maintenance of positive relationships, even when students experience negative emotions toward school (e.g., Bierman, 2004). It is also conceivable that students in this profile attempt to compensate for negative emotions associated with school by fostering more positive relationships within the school environment.

However, there was one exception to the expected pattern: students in the *worried* profile, who reported the lowest level of closeness, did not report the lowest level of cohesion; instead, students with a perfectionist profile did so. Students with a *perfectionist* profile may engage in social comparison, establishing high standards for themselves and experiencing feelings of isolation or dissatisfaction when they perceive themselves as falling short. This may result in a sense of disconnection from their peer group, reducing their sense of cohesion (e.g., Shafran et al., 2002). Additionally, social comparison can lead to interpersonal tension or competition, particularly if they view their peers as rivals rather than collaborators, further diminishing their overall sense of cohesion (e.g., Hewitt & Flett, 1991).

Social relationships proved to be relevant resources for a favorable well-being trajectory. Hence our study offers new insights into how changes in students' well-being profiles are linked to their relationships within the classroom. The shift from a profile characterized by higher levels on the positive and lower levels on the negative dimensions to one with lower values on the positive and higher values on negative dimensions appears to be associated with decreased closeness and cohesion, as well as increased conflict in teacher–student and student–student relationships.

Limitations, Future Directions, and Implications for Praxis

While our study provides valuable insights into the nature and stability of well-being profiles among adolescent students, particularly during a critical educational transition, it is important to acknowledge several limitations that may affect the generalizability and interpretation of our findings.

Firstly, while there is a widespread recognition of the importance of student well-being, there is still a lack of consensus regarding its definition and operationalization. This makes comparison between studies an extremely challenging endeavor. It is therefore imperative that research in this field strive toward a more unified and comparable definition of student well-being.

Secondly, the research approach we have selected, namely LPA and LTA, introduces a further level of complexity when comparing results across different studies. The identification of latent profiles and the determination of the number of profiles are based on a combination of statistical fit indices and qualitative or theory-driven assumptions, which inherently introduces some level of subjectivity. As such, the profiles identified may vary depending on factors such as sample size, sample composition, and the specific assumptions made during profile determination. Although our study identified four distinct well-being

profiles, similar to another study (Morinaj & Held, 2023) using the same six-dimensional well-being measure, the structural differences between our profiles and those in the previous study, though minor, highlight the potential for variability in profile solutions. This suggests that profile solutions may not always be replicable across different samples or contexts, and further studies with diverse datasets are needed to assess the robustness and generalizability of the identified profiles.

Thirdly, the designation of profiles introduces another potential source of variability and interpretation. Although the profiles in our study were named according to the attributes that most accurately reflected their characteristics, in accordance with theoretical and empirical assumptions, different researchers might choose alternative names for the same profiles. Consequently, when comparing profiles across studies, it is imperative to exercise caution and to prioritize the distinct patterns of well-being associated with each profile, rather than the specific labels utilized. Furthermore, it is crucial to underscore that the profiles are delineated in relation to one another. Our study does not encompass a singular "high well-being" profile; rather, it encompasses a spectrum of profiles, some of which may be more favorable than others, depending on the relative comparison between them. One potential avenue for facilitating research on student well-being is to integrate variable-centered and person-centered approaches. By combining the complementary strengths of these two approaches, it may be possible to gain a more coherent and complete understanding of the patterns of student well-being development (Laursen & Hoff, 2006).

Fourthly, It is important to note that while the BCH approach is valuable for examining transitions between profiles and comparing means across profiles, it is not without limitations. One potential concern is the assumption of measurement invariance across profiles, which could impact the accuracy of comparing means. Although we accounted for this by testing measurement invariance, future studies may benefit from exploring alternative approaches that could account for profile-specific differences in measurement scales or latent variable relationships. Additionally, the BCH method's reliance on cross-sectional data across time points means that it may not fully capture the dynamic and evolving nature of well-being profiles. Longitudinal studies incorporating more frequent measurements could provide a more nuanced understanding of how student well-being profiles evolve over time and the factors that drive these changes.

Fifthly, individual characteristics such as age, gender, migration background, and socioeconomic status were not considered in our analysis. These factors are known to influence student well-being and could have provided further insights into the variability of student well-being profiles. The inclusion of individual demographic factors in future studies could enhance our understanding of how these characteristics interact with student well-being profiles and influence the stability and transitions between them.

Finally, we focused exclusively on the relationship between students and their classroom teacher, or the teacher with whom they spent the most time. While this approach provides important insights into teacher-student dynamics, future studies could consider examining relationships with multiple teachers across different subjects, as these varied interactions may provide a more nuanced understanding of how different teacher-student relationships influence student well-being.

In terms of practical implications, it would appear crucial to be mindful of the discrepancies in well-being and to consider these factors within the educational setting. Although profiles characterized by higher scores on negative dimensions of student well-being may

relatively stable, making substantial changes can prove challenging. Interventions derived from positive psychology may offer valuable strategies to facilitate changes. For example, the implementation of practices designed to reduce worries in school, promote self-acceptance, and enhance resilience could prove beneficial in improving students' well-being. It is of the utmost importance for educators to recognize the pivotal role that teacher–student relationships play in shaping student well-being, and to understand the significance of fostering mutually positive and supportive interactions with and between students, viewing themselves as agents of change. Providing teachers with training to understand the influence of these relationships and equipping them with evidence-based strategies to build trust and support can significantly enhance student outcomes. Furthermore, educators should recognize that students' well-being can vary considerably based on their gender, cultural background, and socio-economic status. Consequently, interventions and relationship-building practices must be adapted to accommodate this diversity, ensuring that support strategies are inclusive and equitable. By integrating these approaches into classroom practices, schools can create an environment that promotes both emotional well-being and academic success.

Conclusion

The recent observation of a decline in student well-being, particularly during the adolescent period, gives rise to considerable concern. Although these changes may be indicative of broader societal shifts and evolving experiences among young people, it is imperative to gain a more profound comprehension of their underlying causes and the individual consequences for student well-being. The identification of four distinct student well-being profiles underscores the importance of recognizing individual differences in the composition of well-being dimensions and highlights the complex interplay between positive and negative emotions in shaping students' well-being. While all students reported positive emotions and cognitions toward school, they also experienced varying levels of negative emotions and cognitions, with worries in school being particularly prevalent across all profiles. Students who reported high levels of negative emotions were more likely to remain in less favorable profiles of student well-being over time. Conversely, those exhibiting higher levels of positive emotions were more likely to transition to profiles with lower positive emotions over time. Teachers may serve a pivotal role in facilitating positive transitions among student profiles of well-being. By cultivating a warm and supportive environment, and exemplifying positive social interactions in the classroom, teachers may facilitate a shift toward a more favorable student well-being profile. In light of these insights, differentiated interventions tailored to specific student profiles may prove beneficial in enhancing student well-being, particularly during the formative years of adolescence. By identifying students who are at risk of experiencing negative well-being trajectories, teachers can better equip themselves to provide tailored support and interventions. One such intervention could be to foster a positive academic self-concept in their students.

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Declarations

Competing Interests The authors have no competing interests to declare that are relevant to the content of this article.

Ethical Approval All procedures performed involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Ethical approval was granted by the ethics committee at the University of XXX prior to data collection (Ethics Application Nr. 2021-08-00005, August 2021).

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References

Ames, C. (1992). Achievement goals and the classroom motivational climate. In D. H. Schunk & J. L. Meece (Eds.), *Student perceptions in the classroom* (pp. 327–348). Lawrence Erlbaum Associates Inc.

Anderson, L. W., Jacobs, J., Schramm, S., & Splittgerber, F. (2000). School transitions: Beginning of the end or a new beginning? *International Journal of Educational Research, 33*(4), 325–339. https://doi.org/10.1016/S0883-0355(00)00020-3

Asparouhov, T., & Muthén, B. (2021). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model. *Mplus web. Notes, No. 21. Version 11*.

Baker, J. A., Grant, S., & Morlock, L. (2008). The teacher-student relationship as a developmental context for children with internalizing or externalizing behavior problems. *School Psychology Quarterly, 23*(1), 3–15. https://doi.org/10.1037/1045-3830.23.1.3

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117–148. https://doi.org/10.1207/s15326985ep2802_3

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Becker, P. (1991). Theoretische grundlagen [Theoretical basics]. In A. Abele & P. Becker (Eds.), *Wohlbefinden Theorie-Empirie-Diagnostik* (pp. 13–49). Juventa.

Bierman, K. L. (2004). *Peer rejection: Developmental processes and intervention strategies*. Guilford Press.

BKD (2022). *Lehrplan für die Volksschule des Kantons Bern. Gesamtausgabe. Erziehungsdirektion des Kantons Bern*. Retrieved July 17, 2024, from be.lehrplan.ch.

Blakemore, S. J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology, 65*(1), 187–207. https://doi.org/10.1146/annurev-psych-010213-115202

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*(7), 513–531. https://doi.org/10.1037/0003-066X.32.7.513

Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Contextual influences on adolescent development* (3rd ed., pp. 74–103). Wiley.

Buhrmester, D., & Furman, W. (1987). The development of companionship and intimacy. *Child Development, 58*(4), 1101–1113. https://doi.org/10.2307/1130550

Bukowski, W. M., Buhrmester, D., & Underwood, M. K. (2011). Peer relations as a developmental context. In M. K. Underwood & L. H. Rosen (Eds.), *Social development: Relationships in infancy, childhood, and adolescence* (pp. 153–179). The Guilford Press.

Bukowski, W. M., Laursen, B., & Rubin, K. H. (2018). Peer relations: Past, present, and promise. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (2nd ed., pp. 3–20). The Guilford Press.

Busseri, M. A., Sadava, S., Molnar, D., & DeCourville, N. (2009). A person-centered approach to subjective well-being. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 10*(2), 161–181. https://doi.org/10.1007/s10902-007-9072-3

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Ciarrochi, J., Morin, A. J., Sahdra, B. K., Litalien, D., & Parker, P. D. (2017). A longitudinal person-centered perspective on youth social support: Relations with psychological wellbeing. *Developmental Psychology, 53*(6), 1154–1169. https://doi.org/10.1037/dev0000315

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Collins, L. M., & Lanza, S. T. (2010). *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences*. Wiley.

Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research, 77*(1), 113–143. https://doi.org/10.3102/003465430298563

Cummins, R. A., Gullone, E., & Lau, A. L. D. (2002). A model of subjective well-being homeostasis: The role of personality. In E. Gullone & R. A. Cummins (Eds.), *The universality of subjective wellbeing indicators* (pp. 7–46). Kluwer Academic Publishers.

Dahling, J. J., Gabriel, A. S., & MacGowan, R. (2017). Understanding typologies of feedback environment perceptions: A latent profile investigation. *Journal of Vocational Behavior, 101*, 133–148. https://doi.org/10.1016/j.jvb.2017.05.007

Dalbert, C. (2013). Die Bedeutung schulischen Gerechtigkeitserlebens für das subjektive Wohlbefinden in der Schule [The meaning of justice experiences for subjective well-being at school]. In C. Dalbert (Ed.), *Gerechtigkeit in der Schule* (pp. 127–143). Springer.

DBK (2015). *Lehrplan für die Volksschule. Gesamtausgabe. Departement für Bildung und Kultur des Kantons Solothurn*. Retrieved July 17, 2024, from so.lehrplan.ch.

De Wit, D. J., Karioja, K., Rye, B. J., & Shain, M. (2011). Perceptions of declining classmate and teacher support following the transition to high school: Potential correlates of increasing student mental health difficulties. *Psychology in the Schools, 48*(6), 556–572. https://doi.org/10.1002/pits.20576

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Doumen, S., Verschueren, K., Buyse, E., Germeijs, V., Luyckx, K., & Soenens, B. (2008). Reciprocal relations between teacher-child conflict and aggressive behavior in kindergarten: A three-wave longitudinal study. *Journal of Clinical Child and Adolescent Psychology, 37*(3), 588–599. https://doi.org/10.1080/15374410802148079

Eccles, J. S., Lord, S., & Midgley, C. (1991). What are we doing to early adolescents? The impact of educational contexts on early adolescents. *American Journal of Education, 99*(4), 521–542. https://doi.org/10.1086/443996

Eccles, J. S., & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In C. Ames & R. Ames (Eds.), *Research on motivation in education* (pp. 139–186). Academic Press.

Eccles, J. S., & Roeser, R. W. (2009). Schools, academic motivation, and stage-environment fit. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology Individual bases of adolescent development* (3rd ed., pp. 404–434). Wiley.

Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence, 21*(1), 225–241. https://doi.org/10.1111/j.1532-7795.2010.00725.x

EDK (2023). *Lower secondary level. IDES information and documentation centre*. Retrieved July 17, 2024, from https://www.edk.ch/en/education-system-ch/compulsory/lower-secondary?set_language=en.

Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519. https://doi.org/10.1037/0022-3514.80.3.501

Endedijk, H. M., Breeman, L. D., van Lissa, C. J., Hendrickx, M. M. H. G., den Boer, L., & Mainhard, T. (2021). The teacher's invisible hand: A meta-analysis of the relevance of teacher-student relationship quality for peer relationships and the contribution of student behavior. *Review of Educational Research, 92*(3), 370–412. https://doi.org/10.3102/00346543211051428

Enders, C. K. (2010). *Applied missing data analysis*. The Guilford Press.

Engels, M. C., Colpin, H., Van Leeuwen, K., Bijttebier, P., Den Noortgate, W. V., Claes, S., Goossens, L., & Verschueren, K. (2017). School engagement trajectories in adolescence: The role of peer likeability and popularity. *Journal of School Psychology, 64*, 61–75. https://doi.org/10.1016/j.jsp.2017.04.006

Erikson, E. H. (1968). *Identity, youth and crisis*. Norton.

Farmer, T. W., Irvin, M. J., Motoca, L. M., Leung, M.-C., Hutchins, B. C., Brooks, D. S., & Hall, C. M. (2015). Externalizing and internalizing behavior problems, peer affiliations, and bullying involvement across the transition to middle school. *Journal of Emotional and Behavioral Disorders, 23*(1), 3–16. https://doi.org/10.1177/1063426613491286

Fehkührer, S., Humer, E., Kaltschik, S., Pieh, C., Probst, T., Diestler, G., & Jesser, A. (2023). Young people and the future: School students' concerns and hopes for the future after one year of COVID-19 in Austria—findings of a mixed-methods pilot study. *Healthcare, 11*(16), 1–19. https://doi.org/10.3390/healthcare11162242

Goldstein, S., Boxer, P., & Rudolph, E. (2015). Middle school transition stress: Links with academic performance, motivation, and school experiences. *Contemporary School Psychology, 19*(1), 21–29. https://doi.org/10.1007/s40688-014-0044-4

Graham, A., Powell, M. A., & Truscott, J. (2016). Facilitating student well-being: Relationships do matter. *Educational Research, 58*(4), 366–383. https://doi.org/10.1080/00131881.2016.1228841

Gunnell, K. E., Crocker, P. R. E., Wilson, P. M., Mack, D. E., & Zumbo, B. D. (2013). Psychological need satisfaction and thwarting: A test of basic psychological needs theory in physical activity contexts. *Psychology of Sport and Exercise, 14*(5), 599–607. https://doi.org/10.1016/j.psychsport.2013.03.007

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson Education.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638. https://doi.org/10.1111/1467-8624.00301

Hanewald, R. (2013). Transition between primary and secondary school: Why it is important and how it can be supported. *Australian Journal of Teacher Education, 38*(1), 62–74. https://doi.org/10.14221/ajte.2013v38n1.7

Hargreaves, A. (2000). Mixed emotions: Teachers' perceptions of their interactions with students. *Teaching and Teacher Education, 16*(8), 811–826. https://doi.org/10.1016/S0742-051X(00)00028-7

Hascher, T. (2003). Well-being in school: Why students need social support. In P. Mayring & C. von Rhöneck (Eds.), *Learning emotions–The influence of affective factors on classroom learning* (pp. 127–142). Lang.

Hascher, T. (2004). *Schule positiv erleben*. Haupt Verlag.

Hascher, T. (2007). Exploring students' well-being by taking a variety of looks into the classroom. *Hellenic Journal of Psychology, 4*, 331–349. https://doi.org/10.2304/eerj.2010.9.1.13

Hessischer Referenzrahmen Schulqualität (HRS) (2012). *Dokumentation der Fragebogen* [unveröffentlichte interne Skalendokumentation]. Institut für Qualitätsentwicklung.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*(3), 456–470. https://doi.org/10.1037/0022-3514.60.3.456

Hoferichter, F., Kulakow, S., & Hufenbach, M. C. (2021). Support from parents, peers, and teachers is differently associated with middle school students' well-being. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2021.758226

Hoferichter, F., & Raufelder, D. (2022). Kann erlebte Unterstützung durch Lehrkräfte schulische Erschöpfung und Stress bei Schülerinnen und Schülern abfedern? [Can perceived teacher support buffer school exhaustion and stress in students?]. *Zeitschrift Für Pädagogische Psychologie/german Journal of Educational Psychology, 36*(1–2), 101–114. https://doi.org/10.1024/1010-0652/a000322

Holfve-Sabel, M.-A. (2014). Learning, interaction and relationships as components of student wellbeing: Differences between classes from student and teacher perspective. *Social Indicators Research, 119*(3), 1535–1555. https://doi.org/10.1007/s11205-013-0557-7

Holt, L. J., Mattanah, J. F., & Long, M. W. (2018). Change in parental and peer relationship quality during emerging adulthood: Implications for academic, social, and emotional functioning. *Journal of Social and Personal Relationships, 35*(5), 743–769. https://doi.org/10.1177/0265407517697856

Hughes, J. N., & Chen, Q. (2011). Reciprocal effects of student-teacher and student-peer relatedness: Effects on academic self efficacy. *Journal of Applied Developmental Psychology, 32*(5), 278–287. https://doi.org/10.1016/j.appdev.2010.03.005

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research, 79*(1), 491–525. https://doi.org/10.3102/0034654308325693

Kam, C., Morin, A. J. S., Meyer, J. P., & Topolnytsky, L. (2016). Are commitment profiles stable and predictable? A latent transition analysis. *Journal of Management, 42*(6), 1462–1490. https://doi.org/10.1177/0149206313503010

Kiefer, S., Alley, K., & Ellerbrock, C. (2015). Teacher and peer support for young adolescents' motivation, engagement and school belonging. *RMLE Online, 38*(8), 1–18. https://doi.org/10.1080/19404476.2015.11641184

King, R. B. (2015). Sense of relatedness boosts engagement, achievement, and well-being: A latent growth model study. *Contemporary Educational Psychology, 42*, 26–38. https://doi.org/10.1016/j.cedpsych.2015.04.002

Klima, T., & Repetti, R. L. (2008). Children's peer relations and their psychological adjustment: Differences between close friendships and the larger peer group. *Merrill-Palmer Quarterly, 54*(2), 151–178. https://doi.org/10.1353/mpq.2008.0016

Koomen, H. M. Y., & Jellesma, F. C. (2015). Can closeness, conflict, and dependency be used to characterize students' perceptions of the affective relationship with their teacher? Testing a new child measure in middle childhood. *British Journal of Educational Psychology, 85*(4), 479–497. https://doi.org/10.1111/bjep.12094

Kornienko, O., & Santos, C. E. (2014). The effects of friendship network popularity on depressive symptoms during early adolescence: Moderation by fear of negative evaluation and gender. *Journal of Youth Adolescence, 43*(4), 541–553. https://doi.org/10.1007/s10964-013-9979-4

Kuusi, A., Tuominen, H., Widlund, A., Korhonen, J., & Niemivirta, M. (2024). Lower secondary students' perfectionistic profiles: Stability, transitions, and connections with well-being. *Learning and Individual Differences, 110*(102419), 1–12. https://doi.org/10.1016/j.lindif.2024.102419

LaFontana, K. M., & Cillessen, A. H. N. (2010). Developmental changes in the priority of perceived status in childhood and adolescence. *Social Development, 19*(1), 130–147. https://doi.org/10.1111/j.1467-9507.2008.00522.x

Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly, 52*(3), 377–389. https://doi.org/10.1353/mpq.2006.0029

Lazarus, R. S., & Folkman, S. (1984). *Stress: appraisal and coping*. Springer Publishing Company.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198–1202. https://doi.org/10.1080/01621459.1988.10478722

Little, R. J., & Rubin, D. B. (2014). *Statistical analysis with missing data*. Wiley.

Little, T. D., Slegers, D. W., & Card, N. A. (2006). A non-arbitrary method of identifying and scaling latent variables in SEM and MACS models. *Structural Equation Modeling, 13*(1), 59–72. https://doi.org/10.1207/s15328007sem1301_3

Long, R. F., & Huebner, E. S. (2014). Differential validity and global and domain-specific measures of life satisfaction in the context of schooling. *Child Indicators Research, 7*(3), 671–694. https://doi.org/10.1007/s12187-013-9231-5

Lynch, M., & Chicchetti, D. (1997). Children's relationships with adults and peers: An examination of elementary and junior high school students. *Journal of School Psychology, 35*(1), 81–99. https://doi.org/10.1016/S0022-4405(96)00031-3

Mainhard, T., Oudman, S., Hornstra, L., Bosker, R. J., & Goetz, T. (2018). Student emotions in class: The relative importance of teachers and their interpersonal relations with students. *Learning and Instruction, 53*(1), 109–119. https://doi.org/10.1016/j.learninstruc.2017.07.011

Marker, R., Kullmann, H., Zentarra, D., Geist, S., & Lütje-Klose, B. (2024). Schulisches Wohlbefinden von Schülerinnen der Sekundarstufe I in inklusiven Lerngruppen– Analysen zum Entwicklungsverlauf an der Laborschule Bielefeld. *Unterrichtswissenschaft*. https://doi.org/10.1007/s42010-024-00199-0

Markus, S., Rieser, S., & Schwab, S. (2022). The gender-specific role of social relationships for school well-being in primary school. *Zeitschrift Für Psychologie, 230*(3), 215–228. https://doi.org/10.1027/2151-2604/a000500

Masters, G. N. (2004). Conceptualising and researching student wellbeing. *Australian Council for Educational Research*, 1–6.

McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *The New England Journal of Medicine, 338*(3), 171–179. https://doi.org/10.1056/nejm199801153380307

Meredith, W., & Teresi, J. A. (2006). An essay on measurement and factorial invariance. *Medical Care, 44*(11), 69–77. https://doi.org/10.1097/01.mlr.0000245438.73837.89
Miller-Lewis, L., Sawyer, A., Searle, A., Mittinty, M., Sawyer, M., & Lynch, J. (2014). Student-teacher relationship trajectories and mental health problems in young children. *BMC Psychology, 2*(1), 1–18. https://doi.org/10.1186/s40359-014-0027-2
Morin, A. J. S., & Litalien, D. (2017). *Webnote: Longitudinal tests of profile similarity and latent transition analyses*. Substantive methodological synergy research laboratory.
Morin, A. J., Meyer, J. P., Creusier, J., & Biétry, F. (2016). Multiple-group analysis of similarity in latent profile solutions. *Organizational Research Methods, 19*(2), 231–254. https://doi.org/10.1177/1094428115621148
Morinaj, J., & Hascher, T. (2019). School alienation and student well-being: A cross-lagged longitudinal analysis. *European Journal of Psychology of Education, 34*(2), 273–294. https://doi.org/10.1007/s10212-018-0381-1
Morinaj, J., & Hascher, T. (2022). Wellbeing of primary and secondary school students in Switzerland: A longitudinal perspective. In R. McLellan, C. Faucher, & V. Simovska (Eds.), *Wellbeing and schooling cross cultural and cross disciplinary perspectives* (pp. 67–86). Springer.
Morinaj, J., & Held, T. (2023). Stability and change in student well-being: A three-wave longitudinal person-centered approach. *Personality and Individual Differences, 112015*, 1–6. https://doi.org/10.1016/j.paid.2022.112015
Murberg, T. A., & Bru, E. (2004). School-related stress and psychosomatic symptoms among Norwegian adolescents. *School Psychology International, 25*(3), 317–332. https://doi.org/10.1177/0143034304046904
Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus User's Guide* (8th ed). Muthén & Muthén.
Muthén, B., & Asparouhov, T. (2022). Latent transition analysis with random intercepts (RI-LTA). *Psychological Methods, 27*(1), 1–16. https://doi.org/10.1037/met0000370
Newsom, J. T. (2015). *Longitudinal structural equation modeling: A comprehensive introduction*. Routledge.
OECD (2023). *OECD Future of education and skills 2030. OECD learning compass 2030*. OECD Publishing. Retrieved July 17, 2024, from https://issuu.com/oecd.publishing/docs/e2030-learning_compass_2030-concept_notes?fr=xKAE9_zU1NQ.
Olivier, E., Galand, B., Morin, A. J. S., & Hospel, V. (2021). Need-supportive teaching and student engagement in the classroom: Comparing the additive, synergistic, and global contributions. *Learning and Instruction, 71*, Article 101389. https://doi.org/10.1016/j.learninstruc.2020.101389
Östberg, V. (2003). Children in classrooms: Peer status, status distribution and mental well-being. *Social Science and Medicine, 56*(1), 17–29. https://doi.org/10.1016/S0277-9536(1002)00006-00000
Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research, 70*(3), 323–367. https://doi.org/10.3102/00346543070003323
Pianta, R. C., Hamre, B., & Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds & G. E. Miller (Eds.), *Handbook of psychology: Vol 7, Educational psychology* (pp. 199–234). Wiley.
Pietarinen, J., Soini, T., & Pyhältö, K. (2014). Students' emotional and cognitive engagement as the determinants of well-being and achievement in school. *International Journal of Educational Research, 67*(3), 40–51. https://doi.org/10.1016/j.ijer.2014.05.001
Pollard, E. L., & Lee, P. D. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research, 61*(1), 59–78. https://doi.org/10.1023/A:1021284215801
Porter, T. (2023). Jingle-jangle fallacies in intellectual humility research. *The Journal of Positive Psychology, 18*(2), 221–223. https://doi.org/10.1080/17439760.2022.2154698
Portney, L. G., & Watkins, M. P. (2000). *Foundations of clinical research: Applications to practice* (2nd ed.). Prentice Hall Health.
Ragelienė, T. (2016). Links of adolescents identity development and relationship with peers: A systematic literature review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 25*(2), 97–105.
Rice, F., Frederickson, N., & Seymour, J. (2011). Assessing pupil concerns about transition to secondary school. *The British Journal of Educational Psychology, 81*(2), 244–263. https://doi.org/10.1348/000709910X519333
Roeser, R. W., Eccles, J. S., & Freedman-Doan, C. (1999). Academic functioning and mental health in adolescence: Patterns, progressions, and routes from childhood. *Journal of Adolescent Research, 14*(2), 135–174. https://doi.org/10.1177/0743558499142002
Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (2000). School as a context of early adolescents' academic and social-emotional development: A summary of research findings. *The Elementary School Journal, 100*(5), 443–471. https://doi.org/10.1086/499650
Roorda, D. L., Jak, S., Zee, M., Oort, F. J., Koomen, H. M. Y., & Dowdy, E. (2017). Affective teacher-student relationships and students' engagement and achievement: A meta-analytic update and test of the mediating role of engagement. *School Psychology Review, 46*(3), 239–261.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. Holt, Rinehart & Winston.

Roza, J. M. G., Frenzel, A. C., & Klassen, R. M. (2021). The teacher-class relationship A mixed-methods approach to validating a new scale. *Zeitschrift Für Pädagogische Psychologie, 36*(1–2), 1–18. https://doi.org/10.1024/1010-0652/a000328

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer Interactions, Relationships, and Groups. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology Social, emotional and personality development* (6th ed., pp. 571–645). Wiley.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory*. The Guilford Press.

Sabol, T. J., & Pianta, R. C. (2012). Recent trends in research on teacher-child relationships. *Attachment & Human Development, 14*(3), 213–231. https://doi.org/10.1080/14616734.2012.672262

Sandrin, E., Morin, A. J., Fernet, C., & Gillet, N. (2020). A longitudinal person-centered perspective on positive and negative affect at work. *The Journal of Psychology, 154*(7), 499–532. https://doi.org/10.1080/00223980.2020.1781033

Santos, A. J., Vaughn, B. E., Peceguina, I., Daniel, J. R., & Shin, N. (2014). Longitudinal stability of social competence indicators in a Portuguese sample: Q-sort profiles of social competence, measures of social engagement, and peer sociometric acceptance. *Developmental Psychology, 50*(3), 968–978. https://doi.org/10.1037/a0034344

Schiefer, D., & van der Noll, J. (2017). The essentials of social cohesion: A literature review. *Social Indicators Research, 132*(2), 579–603. https://doi.org/10.1007/s11205-016-1314-5

Schmidt, A., Dirk, J., & Schmiedek, F. (2019). The importance of peer relatedness at school for affective well-being in children: Between- and within-person associations. *Social Development, 28*(4), 873–892.

Schwab, S., & Rossmann, P. (2020). Peer integration, teacher-student relationships and the association with depressive symptoms in secondary school students with and without special needs. *Educational Studies, 46*(3), 302–315. https://doi.org/10.1080/03055698.2019.1584852

Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research and Therapy, 40*(7), 773–791. https://doi.org/10.1016/s0005-7967(01)00059-6

Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100*(4), 765–781. https://doi.org/10.1037/a0012840

Soutter, A. K., O'Steen, B., & Gilmore, A. (2014). The student well-being model: A conceptual framework for the development of student well-being indicators. *International Journal of Adolescence and Youth, 19*(4), 496–520. https://doi.org/10.1080/02673843.2012.754362

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and "how to" guide of its application within vocational behavior research. *Journal of Vocational Behavior, 120*(103445), 1–21. https://doi.org/10.1016/j.jvb.2020.103445

Tennant, J. E., Demaray, M. K., Malecki, C. K., Terry, M. N., Clary, M., & Elzinga, N. (2015). Students' ratings of teacher support and academic and social–emotional well-being. *School Psychology Quarterly, 30*(4), 494–512. https://doi.org/10.1037/spq0000106

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 257–385. https://doi.org/10.3102/0034654313483907

Tomyn, A. J., & Cummins, R. A. (2011). The subjective wellbeing of high-school students: Validating the personal wellbeing index—school children. *Social Indicators Research, 101*(3), 405–418. https://doi.org/10.1007/s11205-010-9668-6

Tov, W. (2018). Well-being concepts and components. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* (pp. 1–15). DEF Publishers.

Tuominen-Soini, H., & Salmela-Aro, K. (2014). Schoolwork engagement and burnout among Finnish high school students and young adults: Profiles, progressions, and educational outcomes. *Developmental Psychology, 50*(3), 649–662. https://doi.org/10.1037/a0033898

Umberson, D., & Montez, J. K. (2010). Social relationships and health: A flashpoint for health policy. *Journal of Health and Social Behavior, 51*, 54–66. https://doi.org/10.1177/0022146510383501

UNESCO. (2016). *UNESCO strategy on education for health and Well-being: Contributing to the sustainable development goals*. UNESCO.

Verkuyten, M., & Thijs, J. (2002). School satisfaction of elementary school children: The role of performance, peer relations, ethnicity and gender. *Social Indicators Research, 59*(2), 203–228. https://doi.org/10.1023/A:1016279602893

Verschueren, K., & Koomen, H. M. Y. (2012). Teacher–child relationships from an attachment perspective. *Attachment and Human DevelopmeNt, 14*(3), 205–211. https://doi.org/10.1080/14616734.2012.672260

Virtanen, T. E., Vasalampi, K., Torppa, M., Lerkkanen, M. K., & Nurmi, J. E. (2019). Changes in students' psychological well-being during transition from primary school to lower secondary school: A person-centered approach. *Learning and Individual Differences, 69*, 138–149. https://doi.org/10.1016/j.lindif.2018.12.001

Wang, M.-T., Chow, A., Hofkens, T., & Salmela-Aro, K. (2015). The trajectories of student emotional engagement and school burnout with academic and psychological development: Findings from Finnish adolescents. *Learning and Instruction, 36*, 57–65. https://doi.org/10.1016/j.learninstruc.2014.11.004

Weber, M., & Huebner, E. S. (2015). Early adolescents' personality and life satisfaction: A closer look at global vs. domain-specific satisfaction. *Personality and Individual Differences, 83*, 31–36. https://doi.org/10.1016/j.paid.2015.03.042

Widlund, A., Tuominen, H., & Korhonen, J. (2021). Development of school engagement and burnout across lower and upper secondary education: Trajectory profiles and educational outcomes. *Contemporary Educational Psychology, 66*, 101997. https://doi.org/10.1016/j.cedpsych.2021.101997

Yuan, K.-H., & Bentler, P. M. (2008). Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methodology, 30*(1), 165–200. https://doi.org/10.1111/0081-1750.00078

Zhang, X., & Sun, J. (2011). The reciprocal relations between teachers' perceptions of children's behavior problems and teacher–child relationships in the first preschool year. *The Journal of Genetic Psychology: Research and Theory on Human Development, 172*(2), 176–198. https://doi.org/10.1080/00221325.2010.528077

Zimmer-Gembeck, M. J., Chipuer, H. M., Hanisch, M., Creed, P. A., & McGregor, L. (2006). Relationships at school and stage-environment fit as resources for adolescent engagement and achievement. *Journal of Adolescence, 29*(6), 911–933. https://doi.org/10.1016/j.adolescence.2006.04.008

Zullig, K. J., Huebner, E. S., & Patton, J. M. (2011). Relationships among school climate domains and school satisfaction. *Psychology in the Schools, 48*(2), 133–145. https://doi.org/10.1002/pits.20532

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