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REVISED AND EXTENDED POLISH VERSION OF THE STUDENT SUBJECTIVE WELL-BEING QUESTIONNAIRE (SSWQ-PL-R)

PSYCHOMETRIC EVIDENCE FROM TWO STUDIES WITH ADOLESCENTS

Toruń 2025

Contents

Abstract

This study presents the development and psychometric validation of the Revised and Extended Polish Version of the Student Subjective Well-being Questionnaire (SSWQ-PL-R), designed to provide a comprehensive assessment of school well-being among Polish primary school students. Drawing on two independent samples (Study 1: $N = 525$; Study 2: $N = 702$), the study expanded the original SSWQ by incorporating new dimensions related to teacher-student relationships and peer relationships, guided by theoretical frameworks proposed by Konu and Rimpelä (2002) and Soutter et al. (2014). In Study 1, exploratory factor analysis (EFA) and exploratory graph analysis (EGA) were conducted to identify the factor structure of the model. In Study 2, confirmatory factor analysis (CFA) was performed to validate the four-factor solution identified in Study 1 and confirm the presence of a higher-order factor representing overall school well-being. Across both studies, the SSWQ-PL-R demonstrated high factorial validity, internal consistency, and strong convergent validity, supported by significant associations with school-related stress, emotional difficulties, and self-regulation. Therefore, the SSWQ-PL-R can be applied in research and/or in psychological and educational practice to provide important information in a broader assessment of students' psychosocial functioning in the school environment.

Keywords:

Student Subjective Well-being Questionnaire, school well-being, joy of learning, academic efficacy, teacher-student relationships, peer relationships, adolescents, psychometric validation.

1. Introduction

Well-being is a multifaceted construct that extends beyond positive emotions such as happiness or joy. This approach is reflected in Seligman's PERMA framework, which identifies five core dimensions of well-being: positive emotion, engagement, relationships, meaning, and accomplishment (Seligman et al., 2009). Each of these dimensions uniquely contributes to overall well-being, which includes not only pleasurable experiences but also deep engagement in activities, meaningful social connections, and a sense of purpose and achievement. In this context, well-being can be understood through two key psychological traditions: hedonistic and eudaimonic.

In line with the hedonistic perspective, well-being is defined as the experience of happiness, pleasure, and life satisfaction. In contrast, the eudaimonic tradition emphasizes living following one's true self (Ryan & Deci, 2001), which shifts the focus towards human potential, personal growth, and a sense of purpose (Nikel, 2024). All in all, well-being encompasses both feeling good and functioning well across emotional, psychological, and social domains (Kern et al., 2015). Thus, single indicators, such as life satisfaction or happiness, often do not reflect the holistic nature of well-being, as such measures can be susceptible to temporary mood fluctuations and primarily reflect the hedonistic dimension of well-being (Kern et al., 2015). Consequently, more comprehensive measurement approaches are recommended (Hossain et al., 2023; Soutter et al., 2014), and some researchers advocate for integrating both hedonic and eudaimonic perspectives in well-being assessment (Hossain et al., 2023; Ryff et al., 2021).

1.1. Overall Subjective Well-Being and School Well-Being

Students' overall subjective well-being is increasingly recognized as an important educational outcome (Hinton et al., 2024). However, the direct influence of schools on subjective well-being remains relatively weak (Govorova et al., 2020; Hinze et al., 2024), suggesting that well-being is shaped by broader factors beyond the school environment, such as family, community, and individual traits. Although schools alone may not have a strong direct impact on overall subjective well-being, targeted, evidence-based school interventions have been shown to be effective (Hinton et al., 2024). A systematic review by Tomé et al. (2021) found that the majority of identified interventions (84%, n=19) produced positive outcomes, particularly those adopting a whole-school approach involving students, teachers, and the broader school community. Also, programs integrating social-emotional learning, peer support, and mental health literacy yielded positive outcomes. It can therefore be assumed that schools play an important role in fostering students' mental well-being, and sustainable and evidence-based interventions are necessary to provide a lasting impact for students.

While overall subjective well-being encompasses broader socio-emotional factors, school well-being is uniquely tied to the educational setting and closely interconnected with overall well-being, with potential bidirectional influences (Morosanova et al., 2021). Hascher (2012) defines school well-being as an indicator of the quality of scholastic life. It encompasses emotional, social, physical, and academic components, such as positive affect toward school, the quality of relationships with peers and teachers, a sense of safety, and academic engagement (Konu & Rimpelä, 2002). Other dimensions relate to self-fulfillment and personal growth, which can be fostered through academic self-efficacy, success, and a sense of educational purpose (Renshaw et al., 2015). In consequence, school well-being should be considered the multidimensional concept that reflects a student's quality of life within the educational environment, including the opportunity and ability to build satisfying relationships, engage in learning with joy and depth, and develop a sense of purpose and self-efficacy that contributes to long-term academic goals and personal growth.

Additionally, it is also important to note that the term school well-being differs from related concepts such as school climate. The latter typically refers

to the overall quality and character of school life, encompassing aspects such as safety, interpersonal relationships, teaching and learning practices, and the institutional environment (Thapa et al., 2013). It is usually seen as a shared feature of the school, based on the common views of students, teachers, and staff. School well-being, on the other hand, focuses more narrowly on students' subjective experiences and psychological functioning within the school context, including emotional, social, and academic dimensions (Konu & Rimpelä, 2002). While distinct, the two constructs are interrelated: a positive school climate can support and promote student well-being, while high levels of student well-being can, in turn, contribute to a more positive school climate.

1.2. Theoretical Models of School Well-Being

One of the most widely cited models of school well-being was proposed by Konu and Rimpelä (2002). This model provides a comprehensive framework for understanding school well-being by encompassing four key domains: having, loving, being, and health. 'Having' refers to the material and physical conditions of the school, along with its organizational structure. 'Loving' represents social relationships, including interactions with peers and teachers, group dynamics, social support, and a sense of belonging. 'Being' involves opportunities for self-fulfillment, personal growth, learning, and engaging in meaningful activities. Finally, 'health' accounts for both physical and psychological well-being, emphasizing the impact of illness or mental health challenges.

Another model that provides a broad framework for understanding and assessing well-being in educational settings is the Student Well-being Model (SWBM), developed by Soutter et al. (2014). Based on a case study in a New Zealand secondary school, the model was developed using insights from policy analysis and qualitative research to reflect students' and teachers' perspectives on well-being. It identifies seven key domains: having, being, relating, feeling, thinking, functioning, and striving. The first three domains (having, being, and relating) represent assets, including external, interpersonal, and intrapersonal resources such as material conditions, sense of self and identity, and social relationships. The next category includes feelings and thinking, and represent cognitive and emotional evaluations of well-being, such as perceptions of life

satisfaction, emotional experiences, and critical reflection on one's environment. Lastly, functioning and striving domains form the broader category of actions, reflecting students' engagement in meaningful activities, goal-setting, motivation, and personal development.

In summary, the models of Konu et al. (2002) and Soutter et al. (2014) underscore the multifaceted and dynamic nature of school well-being, aligning with Bronfenbrenner's ecological perspective by emphasizing the interplay between students and their school environments. The broad scope of these models provides a theoretical framework for constructing school well-being profiles at both the individual and school levels, helping educators and policymakers identify areas that require improvement. Additionally, they offer a structured approach for evaluating different aspects of school life, ensuring that well-being is not only considered in terms of academic achievement but also in relation to students' subjective experiences, including their sense of belonging, perceived support, and emotional engagement. Simultaneously, while this broad conceptualization captures the multifaceted nature of school well-being, it also presents some challenges in measurement. This is because variables such as material resources, social support, emotional states, and personal aspirations are not only diverse but may be context-dependent, which poses a challenge to the development of standardized assessment tools. Nevertheless, these frameworks guide educators and policymakers in recognizing that well-being is more than academic achievement, indicating that it is shaped by an integrated set of social, emotional, psychological, and physical factors that call for multifaceted strategies to support students.

1.3. Psychological Constructs Linking the Learning Environment and School Well-Being

Understanding school well-being requires careful attention to the psychological mechanisms that shape students' experiences within the learning environment. A review of the literature highlights four key constructs that are particularly relevant in this context: self-regulation, academic resilience, academic buoyancy, and academic hardiness.

At the center of this framework is self-regulation, broadly defined as the capacity to manage one's emotions, thoughts, and behaviors in pursuit of long-

term goals (Baumeister et al., 2018). In educational settings, this ability manifests as self-regulated learning, which involves the strategic use of cognitive and emotional resources to support academic achievement (Zimmerman, 2000). Research has consistently shown that self-regulation plays a foundational role in students' academic functioning and well-being (Rodríguez et al., 2022).

Closely linked to self-regulation is the concept of academic resilience, defined as the ability to sustain academic performance in the face of adversity (Martin & Marsh, 2006). Empirical evidence suggests that students who demonstrate higher levels of self-regulation are also more likely to exhibit academic resilience (Nakhostin-Khayyat et al., 2024), reinforcing the idea that emotional and behavioral control underpins successful adaptation in challenging school contexts.

A related but distinct construct is academic buoyancy, which refers to students' everyday ability to cope effectively with common academic setbacks such as self-efficacy, poor grades, test anxiety, or time pressure (Martin, 2013; Yau et al., 2025). Unlike resilience, which often pertains to significant or chronic adversity, buoyancy reflects students' ongoing adaptability to routine school-related stress. Like resilience, it is positively associated with self-regulation (Chen et al., 2024; Mohd Rameli et al. 2024), and importantly, research has also demonstrated its direct relationship with school well-being (Miller et al., 2013).

The fourth construct, academic hardiness, integrates elements of challenge, commitment, and control in academic life. It describes a student's willingness to engage with complex tasks, remain committed to learning goals, and persevere despite stress (Zhou et al., 2025). Academic hardiness shares conceptual ground with both resilience and buoyancy but places greater emphasis on personality traits and attitudes. Its association with self-regulation – particularly in terms of goal orientation and persistence – has been well documented (Kamtsios & Karagiannopoulou, 2016). Moreover, academic hardiness appears to influence school well-being indirectly through mediators such as academic self-efficacy and self-belief.

Together, these constructs form an interconnected framework in which self-regulation emerges as a central mechanism linking the learning environment with school well-being. Their conceptual overlap and mutual associations suggest that they operate along similar developmental and psychological

pathways. As Rodríguez et al. (2022) note, both the presence and absence of self-regulatory strategies significantly impact students' academic and psychological well-being. Although some constructs, such as academic resilience, lack targeted systematic reviews in early adolescence, their relevance is supported by related findings and theoretical models. In sum, these insights have important implications for interventions aimed at fostering both personal strengths and supportive school environments.

1.4. Factors Impacting Well-Being

The primary school years constitute a critical period for the development of student well-being, marked by significant physical, cognitive, emotional, and social changes. At this stage, children gradually engage in more complex peer relationships, face growing academic challenges, and interact with teachers in increasingly structured ways. While these experiences contribute to their overall growth, the academic pressure, and school-related social stressors can also negatively impact students' well-being, leading to heightened anxiety and emotional distress (Pascoe et al., 2020). This, in turn, can trigger psychosomatic symptoms, for example such as headaches and stomach aches (Vaičiūnas & Šmigelskas, 2019).

   When examining the key factors that shape student well-being, particular emphasis is placed on the quality of teacher-student relationships. Supportive and nurturing interactions with teachers foster emotional security, academic motivation, and a sense of belonging. When teachers provide encouragement, set clear expectations, and demonstrate genuine care for students, children are more likely to develop positive self-concepts, stronger emotional regulation skills, and greater school engagement (Wentzel et al., 2012). Conversely, negative or conflictual teacher-student interactions can erode self-esteem, increase stress, and contribute to behavioral difficulties (Roorda et al., 2011). Additionally, research has shown that perceived school stress and teacher-student conflict are associated with increased aggression, rule-breaking behaviors, anxiety, and depressive symptoms, whereas positive teacher-student relationships help mitigate these risks and promote adjustment (Keane et al., 2022). Also, a respectful and inclusive classroom climate, in which students

feel valued and safe, further supports their social-emotional development and overall well-being (Eccles & Roeser, 2011).

Beyond teacher-student interactions, peer relationships and the broader school climate also play a crucial role in shaping school well-being. Positive peer interactions provide emotional support, facilitate social learning, and foster a sense of belonging (Osher et al., 2020). In contrast, peer victimization and bullying are linked to increased levels of anxiety, depression, and disengagement from academic activities (Hymel & Swearer, 2015). Schools that implement social-emotional learning programs, anti-bullying policies, and peer support initiatives have been shown to mitigate these risks and enhance student well-being (Yang et al., 2020). Additionally, participation in extracurricular activities, such as sports, arts, and school clubs, has been associated with a greater sense of accomplishment and social integration, further contributing to well-being (Christison, 2013).

While the school environment plays a central role in student well-being, family context, and socioeconomic status (SES) are also significant determinants of how children experience and adapt to school. Since family serves as the primary source of emotional security and resilience (Morosanova et al., 2021), strong family relationships, therefore, indirectly enhance school well-being by fostering emotional security and resilience. Moreover, parental involvement, consistent emotional support, and a stable home environment contribute to a sense of security, improve academic motivation, and help children develop coping strategies for managing school-related stress (Zimmer-Gembeck et al., 2023).

Conversely, families experiencing economic hardship, unstable living conditions, or chronic stress may struggle to provide the necessary resources for their children's education, including access to books, financial support for school activities, and emotional support (Grüning Parache et al., 2024). Limited access to these resources can affect school preparedness, hinder participation in academic and social activities, and increase feelings of exclusion among students from lower SES backgrounds. Research confirms these assumptions, indicating that low SES is associated with a higher risk of social exclusion and lower classroom status (Sweeting & Hunt, 2014). Moreover, chronic stress related to poverty and household instability has been linked

to neurodevelopmental changes that may negatively impact both academic performance and overall well-being (Raufelder et al., 2021).

In addition to environmental factors, individual traits and psychological resources also play a significant role in student well-being. Research indicates that personality traits such as emotional stability, conscientiousness, and openness to experience are positively associated with well-being, as they facilitate adaptive coping strategies and resilience (Sirgy, 2021). Moreover, self-efficacy, defined as the belief in one's ability to manage challenges effectively, is another crucial determinant of well-being. Students with higher self-efficacy tend to maintain a more positive outlook, persist in the face of difficulties, and experience lower levels of stress (Schunk & DiBenedetto, 2021). Also, self-regulation, understood as the ability to control emotions, behaviors, and cognitive processes, plays a fundamental role in both academic and social success. Students with strong self-regulation skills exhibit fewer behavioral problems, experience more positive peer and teacher interactions, and are perceived as more competent in both social and academic domains (Rodríguez et al., 2022). Consequently, self-regulation fosters emotional security and a sense of belonging, reinforcing overall well-being (Murray et al., 2015).

1.5. The Importance of Well-Being for Students' School Functioning

Research indicates that beyond its immediate psychological benefits, school well-being plays a crucial role in shaping students' educational achievement and has a significant impact on their overall functioning at school in the long term. For example, Ansari and Stock (2010) and Gutman and Vorhaus (2012) found that students who reported higher levels of school well-being performed better academically. Similarly, Alder (2017) argues that higher well-being can improve students' performance on national standardized exams. His randomized controlled trial showed that students in the well-being intervention group demonstrated greater perseverance, engagement, and stronger relationships, which in turn positively impacted their academic outcomes (Adler, 2016).

Additionally, students who experience higher levels of well-being not only tend to perform better academically but also exhibit fewer behavioral problems

(Jiang et al., 2022). Also, a positive school environment fosters emotional security and social connectedness, which in turn reduces stress and promotes prosocial behavior (Luo et al., 2023). These findings suggest that fostering a supportive school climate, strengthening social relationships, and incorporating well-being education into school curricula can improve academic, behavioral and psychological outcomes.

Beyond shaping students' immediate experiences, school well-being is also associated with long-term outcomes such as motivation and positive self-concept (Sturiale & Espino-Díaz, 2024). Students who exhibit higher levels of school well-being are more likely to sustain positive academic trajectories, while those experiencing lower school well-being face an elevated risk of disengagement and mental health challenges (Aldridge & McChesney, 2018). Consequently, cultivating school well-being through supportive school culture and targeted interventions is essential, not only for promoting students' current well-being but also for laying a foundation for their future development.

1.6. Measuring School Well-Being and Its Limitations

A frequently used measure for assessing school well-being in educational research is the Student Subjective Well-being Questionnaire (SSWQ), developed by Renshaw (2015). Its adaptation to the Polish cultural context by Zadworna et al. (2023) remains the only instrument available for assessing this construct among Polish primary school students.

A notable strength of the SSWQ, both in the original English version and the Polish adaptation, is its robust psychometric properties. These include high internal consistency ($\alpha = 0.88$ in the original; Renshaw, 2015; $\alpha = 0.87$ in the Polish adaptation; Zadworna et al., 2023), strong test-retest reliability confirming stability over time ($r_{tt} = 0.88$; Zadworna et al., 2023), and satisfactory convergent validity determined, for example by positive correlations, inter alia, with health-related quality of life ($r = 0.48$) and negative correlations with anxiety as a state and trait ($r = -0.26$, $r = -0.10$, respectively; Zadworna et al., 2023). These attributes make the SSWQ a reliable instrument for measuring four specific dimensions of school-related well-being, such as joy of learning, educational purpose, academic efficacy, and school connectedness. Specifically, the joy of learning dimension captures students' positive emotions and satis-

faction related to learning activities. Educational purpose refers to the sense of meaningfulness and perceived relevance of school tasks in relation to personal development and future goals. Academic efficacy reflects perceptions of one's academic behaviors as effective and successful in meeting school demands. Finally, school connectedness describes feelings of belonging, inclusion, and attachment to the school community (Renshaw, 2015).

However, as Renshaw (2015) himself points out, deliberate focus on a general sense of school connectedness and different facets of fulfillment in the student role has some limitations. This is because the scale restricts the scope of measurement to academic well-being, neglecting other critical aspects that are addressed in the theoretical models of well-being at school proposed by Konu (2002) and Soutter et al. (2014). These include peer relationships, interactions with teachers, and the school's physical environment. Simultaneously, this limitation indicates the possibility of expanding the SSWQ by incorporating additional dimensions to provide a more comprehensive assessment of school-related well-being.

Enhancing the SSWQ to incorporate more explicit references to peer and teacher relationships would better capture the significant role these interactions play in shaping students' school experiences. Additionally, although the SSWQ already addresses aspects of belonging and respect, statements such as "I feel like I belong at this school" or "I am treated with respect at this school" may be too abstract for younger students. In this case, incorporating indicators related to day-to-day interactions with peers and teachers could improve the clarity and relevance of the measure for young primary school students. Moreover, from a practical perspective, expanding the scope of the measure to encompass various school relationships would provide teachers with deeper insights into how students perceive their social environment, enabling them to develop targeted interventions and foster a more inclusive, supportive learning climate.

2. Assumptions Underlying the Revision and Extension of the SSWQ-PL

This study assessed the psychometric properties of the revisited and extended Polish version of the Student Subjective Well-being Questionnaire (SSWQ-PL; Zadworna et al., 2023). Compared to the original version, new dimensions, and refined items have been introduced to enhance the scale's comprehensiveness. The validation process was conducted on a sample of primary school children (grades 4–8, age range 10–15).

As indicated above, the original SSWQ measures school well-being across four dimensions: school connectedness, the joy of learning, educational purpose, and academic efficacy. To enhance the scale's ability to capture a broader range of factors influencing school well-being, we extended it by including items on peer relationships and student-teacher interactions. Additionally, we also made an attempt to include items in the questionnaire regarding school conditions and physical well-being at school. These modifications were based on theoretical models of school well-being, particularly those proposed by Konu et al. (2002) and Soutter et al. (2014), which emphasize the multifaceted nature of students' well-being in educational settings. We assumed that the expanded version of the scale would provide a more holistic assessment of school well-being, aligning more closely with these broader theoretical frameworks.

Furthermore, building upon an existing, well-established instrument rather than developing an entirely new scale allowed us to retain its strengths while broadening its scope. Importantly, the decision to extend an already validated and culturally adapted scale ensured both its relevance to the Polish context and its methodological rigor. Additionally, the authors of the original version of the scale granted other researchers permission to use and adapt the instrument (Renshaw, 2018; Roberson & Renshaw, 2022; Zadworna et al., 2023), which ensures that our approach adheres to ethical research practices.

3. Procedure for Constructing the Revised and Extended Version of the SSWQ-PL

To translate the theoretical assumptions outlined above into the development of a revised scale, we employed a two-stage procedure aimed at extending the original SSWQ-PL while maintaining its methodological integrity.

Phase 1. The initial phase of the scale revision and extension process involved identifying and selecting new dimensions of school well-being, followed by their operationalization through the development of a corresponding set of items. In addition to the dimensions already included in the SSWQ, the newly incorporated aspects of school well-being were: (1) teacher-student relationships, (2) peer relationships, and (3) school conditions and students' physical well-being at school. Items related to teacher-student relationships focused on fairness, respect, support, equal treatment, valuing opinions, approachability, and guidance. Peer relationship items addressed friendships, being liked, collaboration, and support from classmates. Items regarding school conditions and students' physical well-being included facilities, space for rest and meals, class schedules, and the satisfaction of students' basic personal needs. All items were formulated as affirmative sentences, to which the respondent selected answers on a 4-point scale ranging from 1 (*definitely no*) to 4 (*definitely yes*).

Phase 2. In the second phase, the quality of the generated items was subjected to a formal content validity evaluation. Five experts (three educational researchers, one psychologist, and one sociologist) independently reviewed all items according to predefined criteria, including content relevance, clarity, specificity, and ensuring that the item content was positively framed and free of ambiguous valence. Additionally, they assessed the comprehensiveness of item coverage across the targeted domains of school well-being. Items identified as problematic by at least one expert were subsequently discussed at the meeting, during which decisions regarding item exclusion, refinement, or supplementation were made by unanimous agreement. This process ensured rigorous content validation, strengthened the construct validity of the instrument, and enhanced the methodological robustness of the scale development phase.

As a result, this process led to the removal of three redundant items from 24 items created in the first phase and the revision and improvement of the remaining items to address problem of overlapping meanings and valence ambiguity. The experimental version of the scale contained 37 items: 16 were based on the SSWQ-PL, two were adapted from the Perceptions of Inclusion Questionnaire (PIQ; Venetz et al., 2015) in the Polish version, and 19 were newly created items.

4. Psychometric Evaluation of the SSWQ-PL-R

4.1. Study 1

In Study 1, we used exploratory factor analysis (EFA) to examine the factor structure of the revisited and extended Polish version of the Student Subjective Well-being Questionnaire (SSWQ-PL; Zadworna et al., 2023). The EFA aimed to identify the optimal number of latent factors and streamline the questionnaire by reducing the number of items. Subsequently, we applied exploratory graph analysis (EGA) to further assess the stability of the dimensions identified through EFA. We expected the EGA results to provide additional evidence supporting the revised factor structure and to help evaluate the validity of the theoretical assumptions underlying the newly added dimensions.

4.1.1. Method

Participants and Procedure

The non-random sample consisted of 525 Polish adolescents (45.9% girls) drawn from seven primary schools located in southern and central Poland. The schools were purposively selected to reflect a diversity of educational contexts, varying in both size and geographic location. The sample included students from urban areas (53.3%) as well as from rural settings. Data were collected from pupils in Grades 4 (18.5%), 5 (14.9%), 6 (16.6%), 7 (24.8%), and 8 (15.4%), aged between 10 and 15 years.

The study was reviewed and approved by the Research Ethics Committee at the Faculty of Education, University of Warsaw (No 2024/2). The survey was conducted in May 2024 using the computer-assisted web interview (CAWI) method, with no compensation provided to participants. Before the research, consent was obtained from both students and their parents. Based on the estimated number of students invited within each class, the overall response rate was approximately 87%, reflecting the proportion of those who provided consent and completed the survey, thereby ensuring good sample representativeness and reducing the potential for non-response bias. Although a forced-response model was not used, the item-level missing data were minimal (typically below 1–2%), resulting in high overall data quality. Students completed the online survey in their native Polish language, using either smartphones or laptops, under the supervision of a trained interviewer.

Psychometrics Analysis

Unique Variable Analysis (UVA). The UVA is a method used in network psychometrics to detect redundancy, local dependence between variables in a dataset. It employs network modeling and graph theory measures, where variables are represented as nodes and their relationships as edges, typically using partial correlations conditioned on all other variables (Christensen et al., 2023). A specific measure used in UVA is weighted topological overlap (wTO), which quantifies the extent of overlap between two variables by considering the number and strength of their shared connections within the network. High wTO values indicate that two variables are highly related and have similar relationships with other variables, suggesting redundancy and local dependence. The analysis was conducted using R package *EGAnet* version 2.0.6 (Golino et al., 2022).

Exploratory Factor Analysis (EFA). The EFA was performed using a polychoric correlation matrix (Olsson, 1979), the weighted least squares with mean- and variance-adjusted (WLSMV) and the Oblimin rotation. The modelling was performed using Mplus 8.3 software (Muthén & Muthén, 2019). The number of factors extracted in EFA was determined using Kaiser's criterion applied to the polychoric correlation matrix.

Model Fit Criteria. The fit of the models was assessed with three indices: chi-square goodness-of-fit test, RMSEA, CFI, and SRMR. It is assumed that

the model is well fitted to the data when the chi-square test is statistically non-significant, RMSEA ≤ 0.05, SRMR < 0.08, and CFI > 0.95 (Schreiber, 2017). At the same time, a model with 0.05 < RMSEA ≤ 0.08 will be interpreted as acceptable (Schermelleh-Engel et al., 2003), and lower RMSEA and SRMR values and higher CFI values will indicate a better fit of the model to the data.

Additionally, when assessing particular factor solutions of the EFA, the following criteria were taken into account: (a) the factors created had to be interpretable based on the content of the items that compose them, (b) each extracted factor had to consist of at least three items in accordance with the three-indicator rule, (c) loading values had to be higher than 0.50, (d) there must be no cross-loading issue (i.e., when an item has a loading above 0.50 on one factor and a substantive loading (> 0.30) on another factor) (Taherdoost et al., 2014). Moreover, it was considered optimal that each factor consisted of four items because, in this case, it is possible to estimate the fit indices for each factor separately. At the same time, in order to maintain links with the existing (original) scale, we gave priority to items taken from it.

Exploratory Graph Analysis (EGA). The EGA (Golino et al., 2020; Golino & Epskamp, 2017) was used to validate the stability of the dimensions identified through EFA and to provide additional support for the underlying factor structure of the scale. Unlike traditional exploratory methods, EGA employs a network-based approach to model relationships between variables, identifying clusters of variables that correspond to latent factors. The result is a network of n-nodes that represent the constituent elements of an emergent structure, offering a detailed visualization of the interconnections within the data. Furthermore, the bootstrap EGA technique, by resampling the data multiple times, evaluates the stability of the dimensionality estimates. This approach reduces sensitivity to slight data variations, making EGA a reliable complement to traditional methods.

In the EGA, the *glasso* method and *walktrap* algorithm were used (Pons & Latapy, 2006). The stability of the extracted dimensions was evaluated across 1,000 bootstrap samples using the *bootEGA* function included in the R package EGAnet version 2.0.6 (Golino et al., 2022).

4.1.2. Results

Unique Variable Analysis (UVA)

In the first step, we explored potential redundancies between item pairs. Out of the total 37 items, based on the wTO statistic, overlap between three pairs of items was identified: (1) W2 and W31 (wTO = 0.28); (2) W10 and W34 (wTO = 0.26); (3) W16 and W26 (wTO = 0.21). Following a thorough content analysis of the items conducted by the team, one item from each identified pair was excluded to improve accuracy and clarity, namely, items W2, W10, and W26 (Table 1). Therefore, consistent with the UVA findings, all further analyses were conducted using the 34 items.

Table 1. Results of Unique Variable Analysis (UVA): Variable Pairs with Redundancy (Study 1)

	Moderate-to-large redundancy			wTO > 0.25
W2	I feel connected to my school	W31	**I feel like I belong at my school [ORG]**	0.28
W10	School grades are very important to me	W34	**I feel it is important to do well in my classes [ORG]**	0.26
	Small-to-moderate redundancy			wTO > 0.20
W16	**I have enough time at school to eat something or go to the toilet**	W26	When I'm hungry at school, I always have something to eat, like a sandwich or a hot meal	0.21

Note: wTO = weighted topological overlap; ORG = Item of the original SSWQ version. Approved items are marked in bold.

Exploratory Factor Analysis (EFA)

To estimate the number of latent factors explaining the relationships between variables, we used Kaiser's criterion. The analysis of the eigenvalues of the polychoric correlation matrix revealed five factors with eigenvalues greater than 1, which together explain 60.11% of the total variance in the data (Table 2 and Figure 1).

Table 2. Eigenvalues of the polychoric correlation matrix (Study 1)

1	2	3	4	5	6
12.433	2.851	2.580	1.368	1.207	0.988

Based on Kaiser's Eigenvalues Criterion, a five-factor model was tested, using four-factor and one-factor models for comparison. As we showed in Table 3, the one-factor solution did not provide a suitable structure, whereas both the four- and five-factor solutions demonstrated a good fit to the data. At the same time, although the best parameters were achieved by the five-factor model (RMSEA = 0.040 [90% CI: 0.035-0.045], SRMR = 0.033, CFI = 0.976), analysis of factor loadings for this model indicated that all items belonging to the fifth factor had values lower than 0.50 (Appendix, Table S1). Therefore, this factor was uninterpretable, and the five-factor solution had to be rejected.

Further analysis of the four-factor model indicated that 18 items should be removed (see Appendix, Table S2 for a summary of criteria leading to item reduction). The reasons for their rejection were related to loading values lower
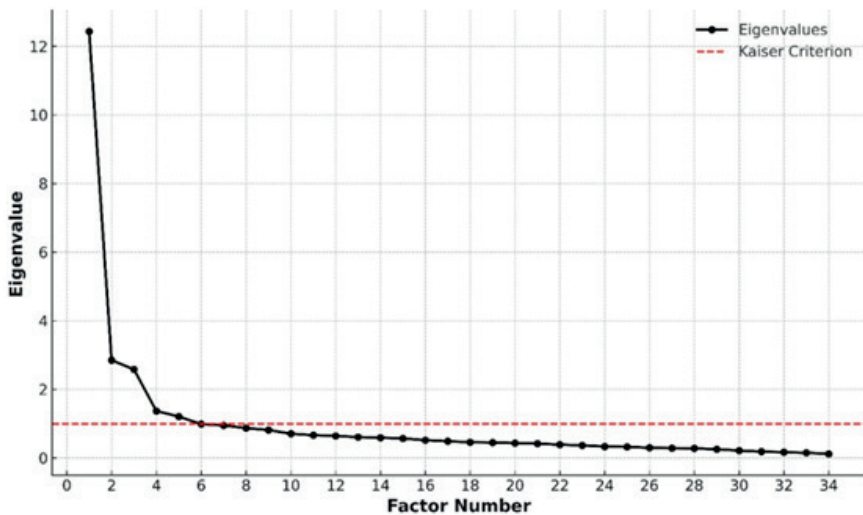
Figure 1. Scree plot with Kaiser criterion for eigenvalues (polychoric correlation matrix) (Study 1)

than 0.50 or significant cross-loadings. Additionally, to maintain links with the existing (original) scale, we prioritized items derived from it and ensured a balanced number of items per factor by limiting it to four statements.

Table 3. Model Fit Indices for Four Solutions in the EFA (Study 1)

Model	Chi-square Test of Model Fit		RMSEA	RMSEA 90% CI	SRMR	CFI
	χ^2	df				
One-factor	3840.374*	527	0.109	[0.106–0.113]	0.107	0.768
Four-factor	895.516*	431	0.045	[0.041–0.049]	0.039	0.968
Five-factor	738.487*	401	0.040	[0.035–0.045]	0.033	0.976

Note: χ^2 = chi-square goodness-of-fit statistic; df = degrees of freedom; RMSEA = root mean square error of approximation; CI = confidence interval for RMSEA; SRMR = standardized root mean square residual; CFI = comparative fit index. * statistically significant (p < 0.001).

Based on these criteria, we selected 16 items with loading values ranging from 0.57 to 0.89, which provided a strong representation of the four latent factors: joy of learning (Factor 1), academic efficacy (Factor 2), teacher-student relationship (Factor 3), and peer relationship (Factor 4) (see Appendix, Table S1). At the same time, this four-factor model strikes an optimal balance between statistical fit, interpretability, and parsimony with item numbers while also avoiding the potential pitfalls of overfactoring (Clark & Bowles, 2018; Fabrigar et al., 1999).

Notably, no separate dimension emerged related to the physical and organizational conditions of the school, which are known to influence school well-being. Items addressing these aspects exhibited either low factor loadings or substantial cross-loadings, precluding their inclusion. Similarly, the originally proposed dimension of educational purpose, which evaluates the perceived importance and meaningfulness of school and academic tasks (Zadworna et al., 2023), did not form a distinct factor in the revised model. Instead, items from this domain loaded predominantly onto Factor 1 (joy of learning), albeit with weaker factor loadings and, in most cases, significant cross-loadings. Detailed results and the rationale for item exclusions are provided in Appendix Tables S1 and S2.

Exploratory Graph Analysis (EGA)

We applied EGA to verify the stability of the 16-item SSWQ-PL-R version using the *glasso* method and *walktrap* algorithm. The resulting network consisted of 16 nodes and 64 edges, with an edge density of 0.53. Four distinct communities were identified within the network (Figure 2). The average non-zero edge weight was 0.110, with values ranging from 0.001 to 0.473, indicating relatively low levels of correlation among the items.
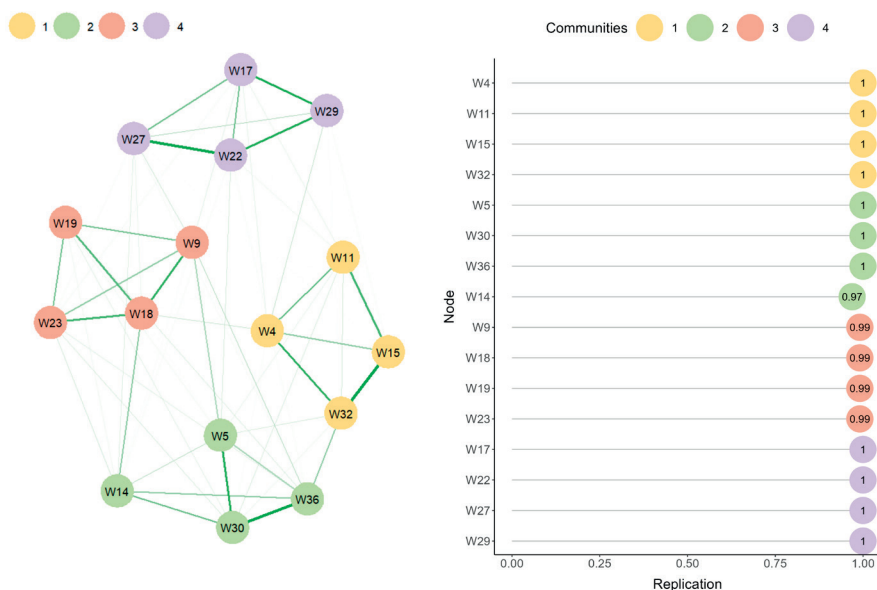
Figure 2. Exploratory Graph Analysis using glasso method with walktrap community detection algorithm (Study 1)

Additionally, the estimation of 1,000 bootstrap samples indicated that a four-factor solution is the most common, occurring 99.6% of the time with the median number of dimensions 4 and 95% confidence interval between 3.88 and 4.12. Moreover, all items were fully replicated on the specific dimension determined by EGA after bootstrapping. In other words, the EGA findings confirmed the stability of the dimensions identified through EFA, and the consistency between the results from using these two exploratory methods

strengthens the validity and robustness of the revised factor structure of the scale, providing strong empirical support for the four-factor model.

4.2. Study 2

In Study 2, using an independent sample, we focused on verifying and confirming the latent structure of the scale obtained from the exploratory methods through confirmatory factor analysis (CFA). Additionally, we performed an evaluation of the final version of the scale, assessing its reliability and convergent validity.

4.2.1. Method

Participants and Procedure

The research procedure was identical to that in Study 1, with the modification that participants were recruited from public primary schools located in a medium-sized city in central-eastern Poland.

The survey encompassed the entire local population of fourth-, sixth-, and eighth-grade students (aged 10–15) attending seven mainstream public primary schools in the city. The sample included 702 students (49.3% girls), distributed across Grade 4 (45.7%), Grade 6 (35.9%), and Grade 8 (18.4%). The lower representation of eighth-grade students was attributable to their absences during the consent collection and survey period, which coincided with the eighth-grade examination. At the same time, it should be noted that, although the study constitutes a local school population survey, the city's demographic and educational profile supports the assumption that the findings are broadly representative of the Polish context.

Data was collected in early June 2024. As in Study 1, the response rate supported good sample representativeness and minimized the risk of non-response bias (approximately 83% based on the number of students invited to participate). Notably, full data coverage was achieved at the item level, with no missing responses recorded for the survey questions.

Measures

The Revised and Extended Polish version of the Student Subjective Well-Being Questionnaire (SSWQ-PL-R). The SSWQ-PL-R is 16-item instrument that assesses school well-being and is composed of four dimensions with four items each: joy of learning (JL), academic efficacy (AE), teacher-student relationship (TSR), and peer relationship (PR). The joy of learning dimension captures positive emotions associated with learning, exemplified by the statement: "I get excited about learning new things in class". Academic efficacy reflects the perception of one's academic behaviors as effectively meeting environmental demands, as illustrated by the item: "I get good grades in my classes". The teacher-student relationship dimension represents perceived support and respectful treatment from teachers, with an example being: "My teachers treat me fairly and without prejudice". The peer relationship subscale describes positive interactions with classmates, as shown by the item: "I am liked in class". Responses are recorded on a 4-point scale ranging from 1 (*definitely no*) to 4 (*definitely yes*). In each dimension, a higher score indicates a higher level of well-being. The full set of 16 items in the original Polish version, along with a preliminary English translation (without a back-translation procedure), is provided in Appendix (Table S4). The table also includes the ordinal numbering of items used in Study 1 and Study 2.

Validity Measures

School Environment Stress Questionnaire (SESQ; Anonymized for review purposes, 2025). The SESQ is a 15-item measure that assesses overall school-related stress among primary school students and three sources of this stress related to peer relationships (PRS; e.g., "Being teased by other students at school, such as being ridiculed, called names, humiliated, or excluded"), teacher-student relationships (TSRS; e.g., "Misunderstandings between you and a teacher"), and academic stress related to learning and assessment (LAS; e.g., "Taking quizzes and tests"). Each dimension is represented by five items. Respondents assess each item in two stages. First, indicate on a dichotomous scale (0 = *no*, 1 = *yes*) whether the factor has occurred in the past few months. If they respond 'yes', they then rate the intensity of stress on a five-point scale, ranging from 0 (*not stressful at all*) to 4 (*extremely stressful*), with higher scores

indicating higher stress. However, using this scale for convergent validity analysis, we recoded data so that both unexperienced stressors and those rated as 'not stressful at all' received a score of 0. This approach ensures consistency by equating the absence of a stressor with no perceived stress. In the present study, the SESQ demonstrated a high level of reliability, with ordinal alpha as follows: for the total score 0.91, for the PRS subscale 0.86, for the TSRS subscale 0.90, and for the LAS subscale 0.79.

Strengths and Difficulties Questionnaire: Emotional symptoms (SDQ-EMO; Goodman, 1997). The SDQ-EMO includes five items assessing emotional problems experienced by children and adolescents, such as frequent worry, somatic complaints, feelings of unhappiness, nervousness in new situations, and fears. However, the original scale, which assesses emotional symptoms in general, was modified by specifying the school context (e.g., "I often worry about something at school"). Participants responded on a 4-point Likert scale ranging from 1 *(definitely no)* to 4 *(definitely yes)*, with higher scores indicating greater emotional difficulties. The ordinal alpha coefficient for the current sample was 0.86.

Self-Regulation Scale: Short version (sSRS; Rodzeń & Gajda, 2024). The sSRS is the Polish short version of the Self-Regulation Scale (SRS) by Novak & Clayton (2001), consisting of 12 items that measure emotional, behavioral, and cognitive dimensions of self-regulation. The emotional dimension reflects the tendency to experience intense emotions, such as anger and frustration (sSRS-EMO; e.g., "I have difficulty controlling my temper"). The cognitive dimension evaluates the ability to focus on a task (sSRS-COG; e.g. "I have difficulty keeping attention on tasks"), while the behavioral dimension assesses fidgetiness and difficulties in focusing and directing attention (sSRS-BEH; e.g., "I get very fidgety after a few minutes if I am supposed to sit still"). Each dimension is represented by four items. Participants rate statements on a 4-point scale ranging from 1 *(never true)* to 4 *(always true)*. The statements for the emotional and behavioural dimensions are scored inversely. After recoding, higher scores indicate better self-regulation skills. The ordinal alpha in this study for the sSRS-EMO subscale was 0.86, for the sSRS-COG subscale was 0.64, and for the sSRS-BEH subscale was 0.79.

Psychometrics Analysis

Confirmatory Factor Analysis (CFA). The CFA, like the EFA in Study 1, was performed using a polychoric correlation matrix and the WLSMV estimator. The analysis was conducted in Mplus 8.3 software (Muthén & Muthén, 2019), employing the same model fit criteria as those applied in the EFA. Two structural models were examined during the CFA: a model with four first-order factors and a higher-order factor model.

The first-order factor model can include multiple latent constructs, each directly linked to the observed variables (items). In contrast, the higher-order factor model introduces a secondary latent factor that influences these first-order factors (Koufteros et al., 2009). Accordingly, we used the higher-order model to test whether SSWQ-PL-R both measures specific dimensions of school well-being (first-order factors) and provides an overarching indicator of overall school well-being through a second-order factor.

Reliability Analyses. The reliability of the SSWQ-PL-R was evaluated using the ordinal alpha (α_{ord}) coefficient (Zumbo et al., 2007) calculated from a polychoric correlation matrix and the omega (ω) coefficient (McDonald, 1999) estimated based on factor loadings and error variances obtained from the CFA model (Orçan, 2023). We interpreted both indices according to the criterion that values above 0.70 signify good reliability (Tavakol & Dennick, 2011).

Convergent Validity. The *r*-Pearson correlation coefficient with a 95% confidence interval (CI) was employed to assess the convergent validity of the SSWQ-PL-R. The calculations were performed using the *apaTables* R package version 2.0.8 (Stanley, 2021). Based on the mean scores of the observed variables, we analysed the associations of the SWB-S total score and its subscales with conceptually relevant constructs. These included: [1] school-related stress (SESQ) with specific stressors such as peer relationship (SESQ-PRS), teacher-student relationship (SESQ-TSRS), and learning and assessment (SESQ-LAS); [2] symptoms of the emotional difficulties (SDQ-EMO); and [3] self-regulation across emotional (sSRS-EMO), cognitive (sSRS-COG) and behavioral (sSRS-BEH) skills. Consistent with theoretical assumptions, we expected that school well-being would correlate negatively with school stress

(SESQ) and symptoms of emotional difficulties (SDQ-EMO) while showing a positive association with self-regulation (sSRS).

4.2.2. Results

Confirmatory Factor Analysis (CFA)

The CFA aimed to evaluate the scale structure identified through EGA and EFA by testing a four-factor model and a higher-order factor model, while using a one-factor model for comparison.

Table 4. Fit Indices for CFA Models (Study 2)

Model	Chi-square Test of Model Fit		RMSEA	RMSEA 90% CI	SRMR	CFI
	χ^2	df				
One-factor	2235.002*	104	0.171	[0.165–0.177]	0.135	0.752
Four-factor	314.601*	98	0.057	[0.050–0.064]	0.050	0.974
Higher-order	332.056*	100	0.056	[0.049–0.063]	0.045	0.975

Note: χ^2 = chi-square goodness-of-fit statistic; df = degrees of freedom; RMSEA = root mean square error of approximation; CI = confidence interval for RMSEA; SRMR = standardized root mean square residual; CFI = comparative fit index. * statistically significant ($p < 0.001$).

The one-factor model was rejected due to poor fit to the data. In contrast, the four-factor model and the higher-order factor model demonstrated good fit statistics, with RMSEA values of 0.057 and 0.056, respectively, SRMR values of 0.050 and 0.045, and CFI values of 0.974 and 0.975. These results suggest that both models provide an adequate representation of the data. The detailed results for the analyzed solutions are presented in Table 4. At the same time, factor loadings for the second-order factor (representing overall school well-being) in the higher-order model: 0.88 for JL, 0.62 for AE, 0.80 for TSR, and 0.46 for PR (see Figure 3), providing solid evidence to support the second-order factor model.

In conclusion, the CFA results support the higher-order model as a robust representation of the scale's latent structure, allowing for the aggregation of

shared variance across the four distinct but interrelated factors into a second-order factor. Consequently, the scale allows for the capture not only of specific dimensions of school well-being represented by four first-order factors but also a higher-order factor (overall school well-being) that is theoretically meaningful and psychometrically sound.
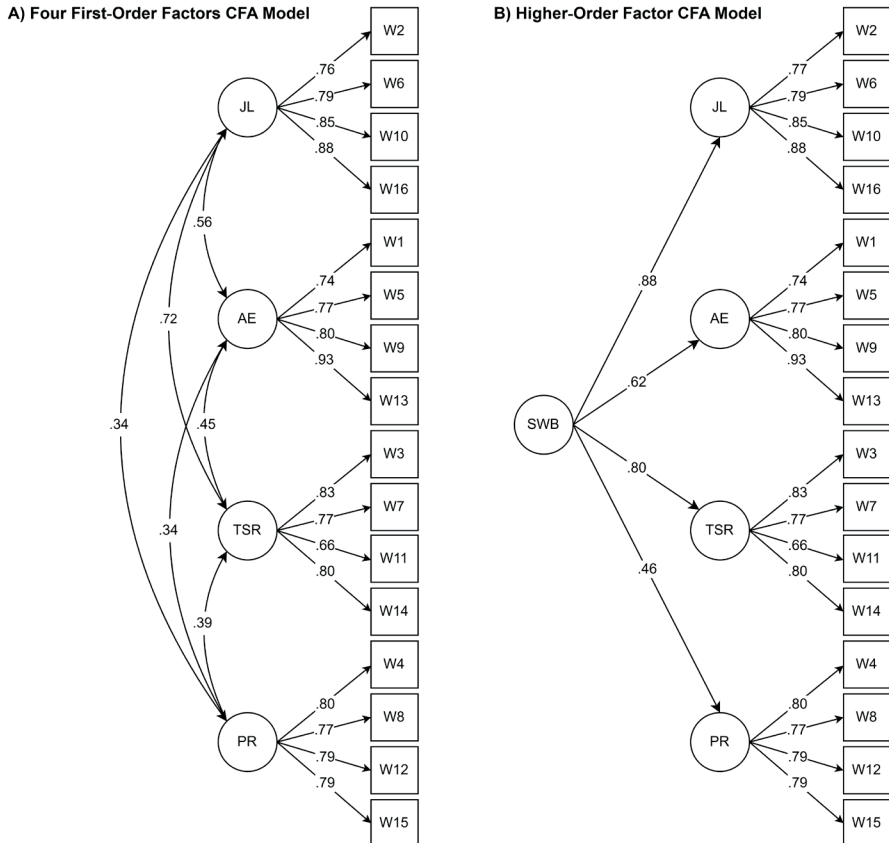
Figure 3. The Four First-Order Factors and the Higher-Order Factor CFA Models (Study 2)

Note: SWB = School Well-being; JL = Joy of Learning; AE = Academic Efficacy; TSR = Teacher-Student Relationship; PR = Peer Relationship.

Reliability Analyses

The SSWQ-PL-R exhibited satisfactory internal consistency in both the overall score and individual dimensions. This is supported by ordinal alpha and omega coefficients, which are as follows: total score ($\alpha_{ord} = 0.90$, $\omega = 0.90$), JL subscale ($\alpha_{ord} = 0.88$, $\omega = 0.84$), AE subscale ($\alpha_{ord} = 0.87$, $\omega = 0.82$), TSR subscale ($\alpha_{ord} = 0.82$, $\omega = 0.78$), and PR subscale ($\alpha = 0.86$, $\omega = 0.82$).

Convergent Validity

The obtained results support the convergent validity of the SSWQ-PL-R and its subscales, as evidenced by significant correlations with theoretically related constructs (Table 5). Specifically, the total SSWQ-PL-R score and its subscales were negatively associated with peer relationship stress (SESQ-PRS; ranging from -0.26 to -0.18), teacher-student relationship stress (SESQ-TSRS; ranging from -0.42 to -0.14), and learning and assessment stress (SESQ-LAS; ranging from -0.29 to -0.15). Moreover, significant negative correlations were found with emotional difficulties (SDQ-EMO; ranging from -0.32 to -0.17).

Additionally, positive correlations were identified between the SSWQ-PL-R (both total score and subscale scores) and self-regulation in the emotional (sSRS-EMO; ranging from 0.23 to 0.45), cognitive (sSRS-COG; ranging from 0.15 to 0.31), and behavioral (sSRS-BEH; ranging from 0.22 to 0.38) domains, which highlights the importance of self-regulation in promoting school well-being.

In summary, the SSWQ-PL-R and its subscales demonstrated significant and theoretically consistent negative correlations with school-related stress and emotional problems, as well as positive relationships with self-regulation skills, supporting the scale as a robust measure of school well-being.

Descriptive and Comparative Analysis of SSWQ-PL-R Results

Distribution of Responses. A detailed percentage distribution of responses for each item across four subscale of the SSWQ-PL-R is presented in Figure 4.

Table 5. Correlations with Confidence Intervals for SWB and Related Constructs (Study 2)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. SSWQ-PL-R												
2. SSWQ-PL-R -AE	0.68** [0.64, 0.72]											
3. SSWQ-PL-R -JL	0.81** [0.78, 0.83]	0.45** [0.38, 0.50]										
4. SSWQ-PL-R-TSR	0.79** [0.75, 0.81]	0.35** [0.29, 0.42]	0.59** [0.54, 0.64]									
5. SWB-S-PR	0.64** [0.59, 0.68]	0.28** [0.21, 0.35]	0.27** [0.20, 0.34]	0.31** [0.24, 0.37]								
6. SESQ	-0.40** [-0.46, -0.34]	-0.15** [-0.22, -0.07]	-0.24** [-0.31, -0.17]	-0.41** [-0.47, -0.35]	-0.36** [-0.42, -0.29]							
7. SESQ-PRS	-0.26** [-0.33, -0.19]	-0.07 [-0.14, 0.01]	-0.08* [-0.16, -0.01]	-0.18** [-0.25, -0.11]	-0.41** [-0.47, -0.35]	0.77** [0.74, 0.80]						
8. SESQ-TSRS	-0.42** [-0.48, -0.36]	-0.14** [-0.21, -0.07]	-0.31** [-0.37, -0.24]	-0.54** [-0.59, -0.48]	-0.22** [-0.29, -0.15]	0.83** [0.81, 0.86]	0.44** [0.38, 0.50]					
9. SESQ-LAS	-0.29** [-0.36, -0.22]	-0.15** [-0.22, -0.07]	-0.18** [-0.25, -0.11]	-0.27** [-0.34, -0.20]	-0.24** [-0.31, -0.17]	0.83** [0.80, 0.85]	0.46** [0.40, 0.51]	0.57** [0.52, 0.62]				
10. SDQ-EMO	-0.32** [-0.39, -0.26]	-0.19** [-0.26, -0.12]	-0.17** [-0.24, -0.09]	-0.26** [-0.33, -0.19]	-0.33** [-0.40, -0.26]	0.64** [0.60, 0.68]	0.57** [0.52, 0.62]	0.45** [0.39, 0.51]	0.55** [0.49, 0.60]			
11. sSRS-EMO	0.45** [0.39, 0.50]	0.23** [0.16, 0.30]	0.34** [0.27, 0.40]	0.38** [0.31, 0.44]	0.35** [0.28, 0.41]	-0.50** [-0.55, -0.44]	-0.42** [-0.48, -0.36]	-0.39** [-0.46, -0.33]	-0.40** [-0.46, -0.34]	-0.55** [-0.60, -0.50]		
12. sSRS-COG	0.31** [0.24, 0.37]	0.30** [0.23, 0.37]	0.26** [0.19, 0.33]	0.15** [0.08, 0.22]	0.20** [0.13, 0.27]	-0.02 [-0.10, 0.05]	-0.07 [-0.15, 0.00]	-0.01 [-0.08, 0.07]	0.02 [-0.05, 0.09]	-0.09* [-0.16, -0.01]	0.18** [0.10, 0.25]	
13. sSRS-BEH	0.38** [0.32, 0.44]	0.22** [0.15, 0.29]	0.36** [0.29, 0.42]	0.30** [0.23, 0.37]	0.22** [0.15, 0.29]	-0.41** [-0.47, -0.35]	-0.31** [-0.38, -0.24]	-0.34** [-0.41, -0.28]	-0.35** [-0.42, -0.29]	-0.45** [-0.51, -0.39]	0.58** [0.52, 0.62]	0.17** [0.09, 0.24]

Note: SSWQ-PL-R = Student Subjective Well-being Questionnaire, Polish revised and extended version; SSWQ-PL-R -AE = Academic Efficacy subscale; SSWQ-PL-R -JL = Joy of Learning subscale; SSWQ-PL-R -TSR = Teacher-Student Relationship subscale; SSWQ-PL-R -PR = Peer Relationship subscale; SESQ = School Environment Stress Questionnaire; SESQ-PRS = Peer Relationship Stress subscale; SESQ-TSRS = Teacher-Student Relationship Stress subscale; SESQ-LAS = Learning and Assessment Stress subscale; SDQ-EMO = Strengths and Difficulties Questionnaire: Emotional Symptoms; sSRS-EMO = Self-Regulation Scale: Emotional subscale; sSRS-COG = Self-Regulation Scale: Cognitive subscale; sSRS-BEH = Self-Regulation Scale: Behavioral subscale.

Correlation coefficient calculated for the mean scores for observed variable. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < 0.05$; ** indicates $p < 0.01$
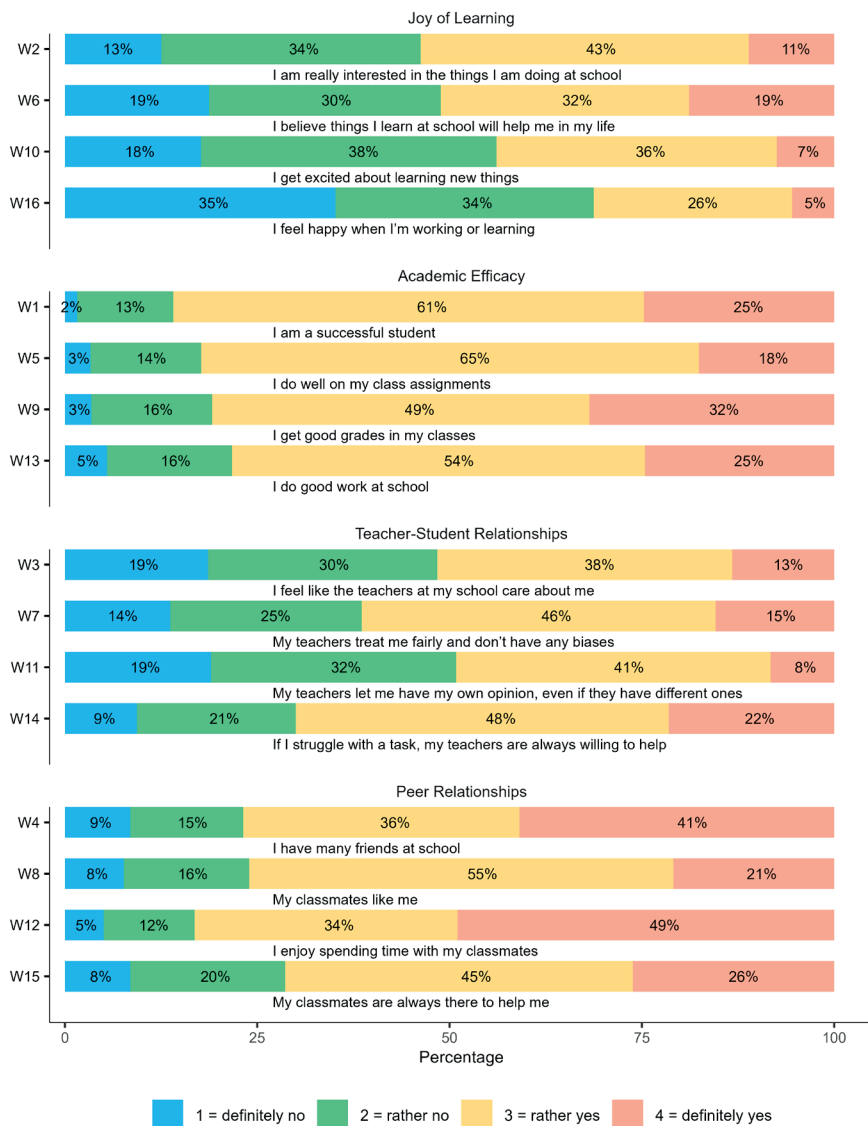
Figure 4. Distribution of Responses for Items in the SSWQ-PL-R Subscales (Study 2)

The results indicate substantial variation in the perception of students' well-being across these dimensions. Positive responses (3 = *rather yes* and 4 = *definitely yes*) were most frequently observed in the peer relationships (PR) subscale (64%) and academic efficacy (AE) subscales (61%), suggesting that students perceive strong peer support and high levels of academic confidence. The teacher-student relationships (TSR) subscale demonstrated intermediate levels of positive responses (49%), reflecting moderate perceptions of support and quality in interactions with teachers. In contrast, the joy of learning (JL) subscale exhibited the highest proportion of negative responses (1 = *definitely no* and 2 = *rather no*), with 63% of students reporting low levels of well-being related to engagement or enjoyment in learning activities.

These findings indicate that while students generally report high levels of well-being in peer relationships and academic confidence, their sense of joy in learning and perceived quality of teacher-student relationships are less favorable. These insights underscore the need for targeted interventions to enhance engagement in learning activities and improve teacher-student interactions. Moreover, the observed disparities between dimensions highlight the appropriateness of adopting a more holistic approach to measuring school well-being by extending the scale and incorporating new dimensions.

Descriptive Statistics with Normality Test Results. Further statistical analysis focused on the distribution and central tendency of responses for SSWQ-PL-R overall score and each dimension (see Figure 5, Table 6).

The school well-being (SWB) overall score, representing a measure of averaging all items, showed a mean score of 2.75 (*SD* = 0.51), ranging from 1 to 4. The trimmed mean was 2.76, which suggests that extreme values had minimal influence on the overall distribution. The median score was also 2.75, with a median absolute deviation (MAD) of 0.56, indicating moderate variability around the median. The skewness of -0.18 points to a nearly symmetric distribution, while the kurtosis of -0.34 suggests a distribution flatter than normal. The Lilliefors test (*D* = 0.041, *p* = 0.008) indicated a significant deviation from normality.

The joy of learning (JL) subscale had the lowest mean score among all subscales, at 2.35 (*SD* = 0.75). The trimmed mean of 2.35 closely aligned with the median score of 2.50, reflecting consistency in central tendency. The MAD was 0.74, suggesting moderate variability around the median, comparable to
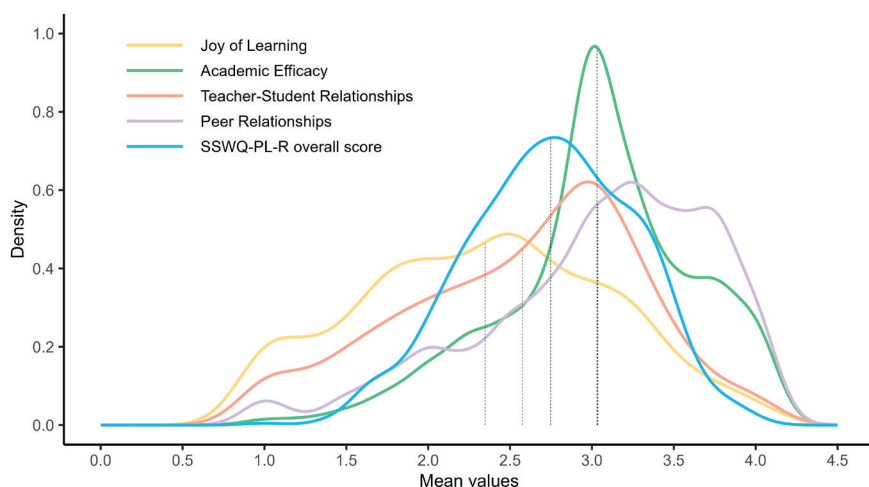
Figure 5. Density Plot of the Overall Score and Four SSWQ-PL-R Subscales (Study 2)

the observed standard deviation. Scores ranged from 1 to 4, with a skewness of 0.02 suggesting a nearly symmetric distribution and a kurtosis of -0.73 indicating a flatter-than-normal shape. The Lilliefors test ($D = 0.082, p < 0.001$) confirmed a significant departure from normality.

The academic efficacy (AE) subscale showed a high mean score of 3.03 ($SD = 0.59$). The trimmed mean of 3.06 indicates minimal influence from extreme values. The median score was 3.00, with a MAD of 0.37, reflecting relatively low variability around the median. Scores ranged from 1 to 4. The skewness of -0.55 indicates a modest left skew, while the kurtosis of 0.37 suggests a slightly peaked distribution. The Lilliefors test ($D = 0.179, p < 0.001$) showed a significant deviation from normality.

The teacher-student relationships (TSR) subscale demonstrated a mean score of 2.58 ($SD = 0.72$). The trimmed mean of 2.61 closely aligned with the median score of 2.75. The MAD was 0.74, reflecting moderate variability around the median, closely aligned with the standard deviation value. Scores ranged from 1 to 4, with a skewness of -0.37 indicating a slight left skew and a kurtosis of -0.52 pointing to a flatter-than-normal distribution. The Lilliefors normality test ($D = 0.131, p < 0.001$) confirmed a significant deviation from normality.

Table 6. Descriptive statistics of SSWQ-PL-R (Study 2)

Dimensions	M	SD	Trimmed Mean	Median	MAD	Skewness	Kurtosis	Lilliefors Test D	p
SSWQ-PL-R overall score	2.75	0.51	2.76	2.75	0.56	-0.18	-0.34	0.041	0.008
Joy of learning	2.35	0.75	2.35	2.50	0.74	0.02	-0.73	0.082	0.001
Academic efficacy	3.03	0.59	3.06	3.00	0.37	-0.55	0.37	0.179	0.001
Teacher-student relationships	2.58	0.72	2.61	2.75	0.74	-0.37	-0.52	0.131	0.001
Peer relationships	3.04	0.71	3.10	3.25	0.74	-0.81	0.16	0.143	0.001

Note: *M* = mean; *SD* = standard deviation; MAD = median absolute deviation; *D* = Lilliefors test statistic. Lilliefors test values (*D* and *p*) indicate significant deviations from normality ($p < 0.05$). The trimmed mean reflects the central tendency after removing extreme values, while skewness and kurtosis describe the shape of the distributions.

The peer relationships (PR) subscale, similar to the AE subscale, was characterized by a high level of positive responses. The mean score was 3.04 (SD = 0.71), with a trimmed mean of 3.10 and a median score of 3.25. The MAD was 0.74, indicating moderate variability. Scores ranged from 1 to 4, with a skewness of -0.81, suggesting a moderate left skew, and a kurtosis of 0.16, indicating a distribution close to normal. The Lilliefors test ($D = 0.143$, $p < 0.001$) indicated a significant departure from normality.

Gender Differences. The independent-samples t-test was conducted to examine potential gender differences in the SSWQ-PL-R scores (see Table 7). The results revealed no statistically significant differences in the overall school well-being (SWB) score between girls and boys, $t(678) = -1.66$, $p = 0.096$, nor in the teacher-student relationship (TSR) subscale, $t(678) = -1.15$, $p = 0.249$. Similarly, the peer relationships (PR) subscale did not show a statistically significant difference, $t(678) = 1.96$, $p = 0.051$. However, the *p*-values for the overall SWB score and the PR subscale have a trend toward statistical significance, suggesting potential gender-related differences in these areas.

Table 7. Gender-Based Comparison of SSWQ-PL-R (Study 2)

Dimensions	Boys		Girls		t	df	p	Cohen's d
	M	SD	M	SD				
SSWQ-PL-R overall score	2.72	0.53	2.79	0.48	-1.66	678	0.096	-0.13
Joy of learning	2.29	0.81	2.41	0.69	-2.12	678	0.035	-0.16
Academic efficacy	2.94	0.61	3.12	0.55	-3.95	678	0.001	-0.31
Teacher-student relationships	2.55	0.73	2.61	0.71	-1.15	678	0.249	-0.09
Peer relationships	3.10	0.66	3.00	0.72	1.96	678	0.051	0.15

Note: *M* = mean; *SD* = standard deviation; *t* = t-value; *df* = degrees of freedom; *p* = p-value; Cohen's *d* = effect size. A negative *t* value indicates that girls scored higher on average, while a positive value indicates that boys scored higher. Effect sizes (Cohen's *d*) are interpreted as small (|0.2|), medium (|0.5|), and large (|0.8|) (Cohen, 1988).

In contrast, significant gender differences were observed in two subscales. Girls ($M = 2.40$, $SD = 0.81$) scored significantly higher than boys ($M = 2.23$, $SD = 0.81$) on the joy of learning (JL) subscale, $t(678) = -2.12$, $p = 0.035$, Cohen's $d = -0.17$. Furthermore, a statistically significant difference was identified in the academic efficacy (AE) subscale, where girls ($M = 3.12$, $SD = 0.54$) also scored higher than boys ($M = 2.95$, $SD = 0.601$), $t(678) = -3.95$, $p < 0.001$, Cohen's $d = -0.27$.

In summary, the descriptive and comparative analysis of the SSWQ-PL-R results confirms the scale's effectiveness in assessing both overall school well-being and its specific dimensions. Despite deviations from normality, the distributions remain generally symmetric, with minimal floor and ceiling effects, particularly in the peer relationships (PR) subscale. These findings validate the scale's ability to reliably differentiate between varying levels of well-being.

5. Calculation and Interpretation of Scale Results

The analysis of the SSWQ-PL-R results is quantitative in nature. Respondents answer each item on a four-point Likert scale, where 1 = *definitely no*, 2 = *rather no*, 3 = *rather yes*, and 4 = *definitely yes*. The total raw score for the scale is calculated by summing the scores from all responses to the 16 items included in the final version of the SWB-S. There are no reverse-scored items in the scale.

Similarly, the raw scores for the four subscales are obtained by adding the points from the items assigned to each subscale, as specified in the key provided in Table 8. These subscales correspond to distinct dimensions of school well-being: joy of learning (JL), academic efficacy (AE), teacher-student relationships (TSR), and peer relationships (PR).

Table 8. Key to Each of the Four SSWQ-PL-R Subscales (Study 2)

Subscale	Number of items	Item numbers	Range of possible scores
Joy of learning	4	2, 6, 10, 16	4–16
Academic efficacy	4	1, 5, 9, 13	4–16
Teacher-student relationships	4	3, 7, 11, 14	4–16
Peer relationships	4	4, 8, 12, 15	4–16

The interpretation of results focuses on both the total score and subscale scores. The total score reflects the overall level of school well-being, with higher scores indicating greater perceived well-being within the school environment. Each subscale provides insights into specific aspects of school well-being, such as: [1] joy of learning (JL) subscale – the degree of enjoyment and interest in school-related activities; [2] academic efficacy (AE) subscale – self-confidence in academic skills and achievements; [3] teacher-student relationships (TSR) subscale – the perceived quality of interactions and support received from teachers; [4] peer relationships (PR) subscale – the perceived quality of social connections and support among peers. An increase in the score for a given subscale indicates a higher intensity of positive experiences associated with that particular aspect of school well-being.

Additionally, Table 9 contains the basic distribution parameters for the interval variables, which serve as a premise for interpreting individual respondents' raw scores. These values were determined based on the combined group from Studies 1 and 2 ($N = 1{,}144$). However, it should be noted that this is not a representative sample of Polish elementary school students, although the variation in school locations provides some approximation of the national population. Analogous distribution parameters by grade level are provided in the Appendix (Table S3). While these distributional data offer valuable descriptive insights, an alternative approach – particularly recommended for scientific research – involves defining a higher-order factor model, as illustrated in Figure 3. This method provides a more structured framework for understanding the interrelations between subscales and overall school well-being.

Table 9. Parameters of SSWQ-PL-R Distribution by Gender (Study 1 and Study 2)

Dimensions		N	5th percentile	Q1	Me	Q3	95th percentile
SSWQ-PL-R overall score	boys	518	29	38	43	50	56
	girls	572	32	39	45	50	56
Joy of learning	boys	532	4	7	9	11	14
	girls	582	5	8	10	12	14
Academic efficacy	boys	532	7	10	12	13	16
	girls	584	8	12	12	14	16
Teacher-student relationships	boys	526	5	8	11	12	15
	girls	575	5	9	11	12	15
Peer relationships	boys	532	7	11	13	14	16
	girls	582	7	10	12	14	16

Note: N = sample size; Q1 = first quartile (25th percentile); Me = median (50th percentile); Q3 = third quartile (75th percentile). Percentiles indicate the distribution of scores for each dimension of the SSWQ-PL-R by gender.

6. Discussion

This study aimed to validate the revisited and extended Polish version of the Student Subjective Wellbeing Questionnaire (SSWQ-PL; Zadworna et al., 2023), an instrument designed to assess key dimensions of school well-being in a Polish primary school context. Building upon the theoretical frameworks proposed by Konu et al. (2002) and Soutter et al. (2014), the SSWQ-PL-R represents a comprehensive extension of the original version of the instrument.

The final version of the scale consists of 16 items grouped across four subscales: joy of learning (JL), academic efficacy (AE), teacher-student relationships (TSR), and peer relationships (PR). Each subscale contains four items, with responses recorded on a 4-point Likert scale ranging from 1 (*definitely no*) to 4 (*definitely yes*). This structure captures critical aspects of school well-being while remaining concise and user-friendly. At the same time, the SSWQ-PL-R demonstrated robust psychometric properties. Two exploratory methods – factor analysis (EFA) and graph analysis (EGA) – followed by confirmatory factor analysis (CFA), conducted across two independent student samples, confirmed a higher-order factor structure encompassing the four dimensions of well-being in the school environment and an overarching second-order factor representing the overall score. Reliability indices, including ordinal alpha and omega coefficients, consistently exceeded the recommended thresholds across all subscales and the total score. Furthermore, convergent validity was supported by significant correlations with related constructs, such as school-related stress, emotional difficulties, and self-regulation skills. These findings align with prior research that underscores the multidimensional nature of school well-being and its links to both cognitive and social-emotional domains (Allen et al., 2017; Emslander et al., 2023; OECD, 2017).

Despite its strengths, the study identified several limitations. First, the sample was limited to students from specific regions of Poland, using a convenience sampling method. This limits the generalizability of the findings to the broader student population. Future research should address this limitation by replicating the study with nationally representative samples. Second, while the SSWQ-PL-R builds on theoretical models that include physical and organizational aspects of school well-being (Konu & Rimpelä, 2002), no distinct dimension related to these factors emerged. Items addressing physical

and organizational conditions exhibited low factor loadings or significant cross-loadings, precluding their inclusion. Similarly, the originally proposed dimension of educational purpose, which evaluates the perceived meaningfulness of academic tasks (Renshaw et al., 2015), did not form a separate factor. Instead, items from this domain primarily loaded onto the joy of learning subscale, albeit with weaker loadings and significant cross-loadings. These findings suggest that while students recognize the importance of academic tasks, they may integrate this dimension into their overall enjoyment of learning rather than perceiving it as distinct. Moreover, items reflecting a general sense of belonging to school, as proposed in the original SSWQ (Renshaw et al., 2015), did not form an independent factor. For example, the item "I feel like I belong at this school" demonstrated significant associations with both the peer relationships and joy of learning subscales, while "I can really be myself at this school" loaded significantly on all four dimensions. These results indicate that younger students and early adolescents may find abstract items less meaningful than those grounded in concrete, specific experiences. This highlights the need for future refinements of the scale to enhance its relevance for younger populations.

Additionally, in Study 2, only the fourth-, sixth-, and eighth-grades were included, while the fifth and seventh grades were not surveyed due to pragmatic constraints, such as cost and time limitations. Although we considered that including the youngest, middle, and oldest primary school cohorts would provide sufficient developmental representation, future research should address this limitation by examining whether students' interpretations of well-being items differ systematically across intermediate age groups. Another important avenue for future research involves the cross-cultural validation of the SSWQ-PL-R offers. While this study focused on a Polish sample, adapting the scale to other cultural contexts could provide valuable insights into the universality and cultural specificity of school well-being dimensions. To encourage such work in the appendix, we present a draft of the English translation of the questionnaire, but without back translation.

From a practical perspective, the SSWQ-PL-R offers a concise, psychometrically sound tool for assessing school well-being. Its multidimensional structure provides educators and policymakers with actionable insights into various aspects of students' school experiences, such as teacher-student and

peer relationships. These insights can inform targeted interventions to foster a supportive and inclusive school climate. However, the omission of items related to physical and organizational conditions suggests that complementary measures may be necessary to fully capture the complexity of school environments.

In conclusion, the SSWQ-PL-R contributes significantly to the field of educational research, offering a validated tool for measuring school well-being in a Polish context. While its psychometric properties and practical utility are evident, further studies are warranted to address its limitations and broaden its applicability. Specifically, adapting the scale to diverse cultural settings will enhance its potential to support the assessment and promotion of school well-being.

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APPENDIX

Integration of Findings on Exploratory Factor Analysis (EFA)

Table S1. Factor Loadings in the EFA for the Four and Five-factor Solution (Study 1)

	ITEM	4-FACTOR SOLUTION				5-FACTOR SOLUTION				
		1	2	3	4	1	2	3	4	5
W30	Ciekawi mnie zdobywanie wiedzy szkolnej. [ORG]	**0.89***	0.01	-0.02	-0.06*	**0.85***	0.05	-0.02	-0.09*	0.13*
W5	Jestem zainteresowana/-y tym, co robię w szkole. [ORG]	**0.76***	-0.02	-0.01	0.09*	**0.75***	-0.03	0.01	0.13*	-0.06
W36	Cieszy mnie nauka szkolna. [ORG]	**0.78***	0.05	0.03*	0.05	**0.73***	0.10*	0.01	-0.01	0.22*
W14	Wierzę, że to, czego uczę się w szkole, pomoże mi w życiu. [ORG]	**0.57***	-0.01	0.19*	-0.01	**0.56***	-0.03	0.22*	0.03	-0.08
W8	Lubię pracować na lekcji.	0.74*	0.11*	-0.02	-0.01	0.71*	0.13*	-0.01	-0.00	-0.04
W12	Uczenie się nowych rzeczy w szkole sprawia mi przyjemność.	0.76*	-0.03	0.01	0.02	0.77*	-0.01	0.02	0.03	0.04
W1	To, czego uczę się w szkole, jest dla mnie ciekawe.	0.64*	0.03	0.20*	0.00	0.67*	-0.01	0.24*	0.09*	-0.20*
W34	Nauka jest dla mnie ważna. [ORG]	0.56*	0.31*	0.02	-0.15*	0.57*	0.31*	0.05	-0.11*	-0.12*
W3	Mam poczucie, że to, co robię w szkole, jest ważne. [ORG]	0.50*	0.02	0.09*	0.15*	0.52*	0.01	0.12*	0.21*	-0.10
W33	Lubię realizować projekty i zadania klasowe. [ORG]	0.43*	0.30*	-0.04	0.13*	0.39*	0.34*	-0.06	0.09*	0.14*
W7	Myślę, że sprawy szkolne należy traktować poważnie. [ORG]	0.40*	0.15*	0.24*	-0.06	0.41*	-0.12	0.29*	0.02	-0.21*

ITEM		4-FACTOR SOLUTION				5-FACTOR SOLUTION				
		1	2	3	4	1	2	3	4	5
W15	Dostaję dobre oceny z wielu przedmiotów. [ORG]	0.01	**0.84***	0.01	0.01	0.01	**0.84***	0.02	0.02	-0.08*
W32	Dobrze się uczę. [ORG]	0.12*	**0.79***	0.01	0.01	0.09*	**0.83***	-0.01	-0.03	0.10*
W4	Jestem dobrym uczniem. [ORG]	-0.08	**0.74***	0.07	0.10*	-0.09*	**0.75***	0.06	0.09*	-0.01
W11	Dobrze wykonuję przydzielone mi zadania klasowe. [ORG]	0.11	**0.61***	-0.01	0.05	0.10	**0.61***	0.00	0.07	-0.06
W18	Moi nauczyciele traktują mnie sprawiedliwie i bez uprzedzeń.	-0.06	0.14*	**0.85***	-0.07*	-0.05	0.11*	**0.88***	-0.03	-0.09*
W19	Nauczyciele pozwalają mi mieć swoje zdanie, nawet jeśli sami mają odmienne.	0.02	-0.00	**0.73***	-0.03	0.01	0.01	**0.71***	-0.07	0.14*
W23	Gdy mam problem z zadaniem, nauczyciele chętnie mi pomagają.	0.08	-0.01	**0.71***	-0.05*	0.09	-0.02	**0.70***	-0.04	0.03
W9	Czuję, że nauczyciele w mojej szkole troszczą się o mnie. [ORG]	0.09*	0.04	**0.66***	0.07*	0.11*	-0.02	**0.66***	0.10*	-0.02
W16	Mam w szkole czas na to, by zjeść czy skorzystać z toalety.	0.08	-0.03	0.57*	-0.00	0.08	-0.03	0.56*	-0.01	0.07
W13	Jestem w szkole traktowany z szacunkiem. [ORG]	-0.07	0.00	0.49*	0.40*	-0.09	-0.02	0.45*	0.35*	0.19*
W25	Moja szkoła jest dobrze wyposażona i zadbana, czuję się w niej komfortowo.	0.22*	-0.07*	0.42*	0.24*	0.20*	-0.05	0.40*	0.22*	0.14*
W24	Prawie zawsze mogę się wyspać i przyjść do szkoły wypoczęta/-y.	0.36*	-0.05	0.40*	0.03	0.31*	0.00	0.36*	-0.06	0.30*

ITEM		4-FACTOR SOLUTION				5-FACTOR SOLUTION				
		1	2	3	4	1	2	3	4	5
W28	Lekcje kończą się dość wcześnie i po szkole mam sporo wolnego czasu.	0.26*	-0.13	0.40*	0.12	0.22*	-0.09	0.36*	0.06	0.22*
W21	W szkole mam miejsce, gdzie mogę spokojnie odpocząć, kiedy tego potrzebuję.	0.10	-0.12	0.37*	0.31*	0.09	-0.11*	0.34*	0.27*	0.15*
W20	Są w szkole nauczyciele, z którymi mogę porozmawiać o moich problemach.	0.22*	-0.02	0.33*	0.06	0.22*	-0.02	0.32*	0.06	0.04
W6	W mojej szkole mogę naprawdę być sobą. [ORG]	0.24*	-0.10*	0.25*	0.36*	0.20*	-0.06	0.19*	0.29*	-0.31*
W35	Dobrze radzę sobie z presją związaną z nauką w szkole.	0.19	0.01	0.24*	0.26*	0.12*	0.10*	0.16*	0.12*	0.49*
W37	Wierzę w swoje możliwości nawet, gdy otrzymam złą ocenę.	0.18	-0.05	0.22*	0.26*	0.12	0.02	0.14*	0.14*	0.44*
W31	Czuję przynależność do mojej szkoły. [ORG]	0.28*	0.05	0.17	0.40*	0.27*	0.06	0.16*	0.40*	0.08
W22	Chętnie spędzam czas z koleżankami i kolegami z klasy.	0.14*	-0.03	-0.11	**0.82***	0.14*	-0.04	-0.09*	**0.85***	-0.06
W29	W klasie jestem lubiany.	-0.11*	0.11*	-0.04	**0.81***	-0.12*	0.12*	-0.06	**0.79***	0.10*
W17	W szkole mam wielu przyjaciół.	-0.09*	0.09*	0.08	**0.76***	-0.10*	0.09*	0.06	**0.75***	0.04
W27	Zawsze mogę liczyć na pomoc kolegów/ koleżanek z klasy.	0.03	0.02	0.05	**0.69***	0.04	0.00	0.08	**0.72***	-0.06

Note: ORG = item of the original SSWQ version. The values for approved items are bold.

Table S2. Summary of the EFA Results as a Basis for Reducing the Number of Scale Items (Study 1)

ITEM	REMOVED ITEM				APPROVED ITEM	FACTOR
	Redundant item	Low factor loading[a]	Cross- -loading[b]	Non-original scale item		
W1				X		
W2	X					
W3		X				
W4					X	AE
W5					X	JL
W6		X				
W7		X				
W8				X		
W9					X	TSR
W10	X					
W11					X	AE
W12				X		
W13		X				
W14					X	JL
W15					X	AE
W16				X		
W17					X	PR
W18					X	TSR
W19					X	TSR
W20		X				
W21		X				
W22					X	PR
W23					X	TSR
W24		X				
W25		X				
W26	X					
W27					X	PR
W28		X				
W29					X	PR
W30					X	JL
W31		X				
W32					X	AE

ITEM	REMOVED ITEM				APPROVED ITEM	FACTOR
	Redundant item	Low factor loading[a]	Cross-loading[b]	Non-original scale item		
W33		X				
W34			X			
W35		X				
W36					X	JL
W37		X				

Note: [a] loading values lower than or equal 0.50; [b] an item has a loading above 0.50 on one factor and a substantive loading (> 0.30) on another factor. JL = Joy of Learning; AE = Academic Efficacy; TSR = Teacher-Student Relationship; PR = Peer Relationship.

Table S3. Parameters of SSWQ-PL-R Distribution by Grade (Study 1 and 2)

Grade		N	5th percentile	Q1	Me	Q2	95th percentile
SSWQ-PL-R overall score							
grade 4	boys	185	32	42	47	52	58
	girls	207	35	44	49	54	59
grade 5–6	boys	235	28	36	41	48	54
	girls	251	30	37	43	48	55
grade 7–8	boys	86	29	38	43	46	54
	girls	89	31	39	42	46	53
Joy of learning (JL) subscale							
grade 4	boys	191	5	8	10	13	16
	girls	209	7	9	11	13	15
grade 5–6	boys	243	4	6	9	11	13
	girls	256	5	7	9	11	13
grade 7–8	boys	86	4	7	9	10	13
	girls	89	5	7	9	10	13
Academic efficacy (AE) subscale							
grade 4	boys	190	8	11	12	14	16
	girls	209	9	12	13	15	16
grade 5–6	boys	244	7	10	12	13	16
	girls	259	8	11	12	14	16
grade 7–8	boys	86	6	10	12	13	16
	girls	89	8	11	12	14	16

Grade		N	5th percentile	Q1	Me	Q2	95th percentile
Teacher-student relationships (TSR) subscale							
grade 4	boys	190	6	9	12	13	15
	girls	207	7	10	12	13	15
grade 5–6	boys	238	4	8	10	12	15
	girls	254	4	8	10	12	14
grade 7–8	boys	86	5	9	11	12	15
	girls	89	5	8	10	12	15
Peer relationships (PR) subscale							
grade 4	boys	192	8	12	13	15	16
	girls	209	7	12	13	15	16
grade 5–6	boys	242	6	10	13	14	16
	girls	258	6	10	12	14	16
grade 7–8	boys	86	6	10	12	14	15
	girls	89	6	10	12	13	15

Note: N = sample size; Q1 = first quartile (25th percentile); Me = median (50th percentile); Q3 = third quartile (75th percentile). Percentiles indicate the distribution of scores for each dimension of the SSWQ-PL-R by gender.

Table S4. Items of the SWB-S Final Version (Polish and Translated into English[1])

ITEMS	NUMBER OF ITEMS		FACTOR
	Study 1	Study 2	
Ciekawi mnie zdobywanie wiedzy szkolnej [ORG] [I get excited about learning new things]	W30	W10	JL
Jestem zainteresowana/-y tym, co robię w szkole [ORG] [I am really interested in the things I am doing at school]	W5	W2	JL
Cieszy mnie nauka szkolna [ORG] [I feel happy when I'm working or learning]	W36	W16	JL
Wierzę, że to, czego uczę się w szkole, pomoże mi w życiu [ORG] [I believe things I learn at school will help me in my life]	W14	W6	JL

ITEMS	NUMBER OF ITEMS		FACTOR
	Study 1	Study 2	
Dostaję dobre oceny z wielu przedmiotów [ORG] [I get good grades in my classes]	W15	W9	AE
Dobrze się uczę [ORG] [I do good work at school]	W32	W13	AE
Jestem dobrym uczniem/uczennicą [ORG] [I am a successful student]	W4	W1	AE
Dobrze wykonuję przydzielone mi zadania klasowe [ORG] [I do well on my class assignments]	W11	W5	AE
Moi nauczyciele traktują mnie sprawiedliwie i bez uprzedzeń [My teachers treat me fairly and don't have any biases]	W18	W7	TSR
Nauczyciele pozwalają mi mieć swoje zdanie, nawet jeśli sami mają odmienne [My teachers let me have my own opinion, even if they have different ones]	W19	W11	TSR
Gdy mam problem z zadaniem, nauczyciele chętnie mi pomagają [If I struggle with a task, my teachers are always willing to help]	W23	W14	TSR
Czuję, że nauczyciele w mojej szkole troszczą się o mnie [ORG] [I feel like the teachers at my school care about me]	W9	W3	TSR
Chętnie spędzam czas z koleżankami i kolegami z klasy [I enjoy spending time with my classmates]	W22	W12	PR
W klasie jestem lubiany [My classmates like me]	W29	W8	PR
W szkole mam wielu przyjaciół [I have many friends at school]	W17	W4	PR
Zawsze mogę liczyć na pomoc kolegów/koleżanek z klasy [My classmates are always there to help me]	W27	W15	PR

Note: [1] The English version of the items was developed without a back-translation procedure. ORG = item of the original SSWQ version. JL = Joy of Learning; AE = Academic Efficacy; TSR = Teacher-Student Relationship; PR = Peer Relationship.

The Student Subjective Well-Being Questionnaire – Polish Version Revised (SSWQ-PL-R)

This document presents the revised Polish version of the Student Subjective Well-being Questionnaire (SSWQ-PL-R), which has been implemented online in LimeSurvey.

The SSWQ-PL-R, prepared by (anonymized for manuscript review), is a verified and extended version of the Polish adaptation of the Student Subjective Well-being Questionnaire (SSWQ-PL). The original SSWQ was developed by Renshaw (2015), and its adaptation to the Polish cultural context (SSWQ-PL) was conducted by Zadworna et al. (2023).

The SSWQ-PL-R is a self-report measure intended for primary school students (grades 4–8) to assess their school well-being and includes four key dimensions: Joy of Learning (items: 2, 6, 10, 16), Academic Efficacy (items: 1, 5, 9, 13), Teacher-Student Relationship (items: 3, 7, 11, 14), and Peer Relationship (items: 4, 8, 12, 15).

Responses are rated on a 4-point Likert scale (1 = definitely no, 2 = rather no, 3 = rather yes, 4 = definitely yes). The total score is calculated by summing all responses, while the scores for each dimension are obtained by summing the points of the corresponding items. Higher scores indicate a higher level of well-being in the respective area.

LimeSurvey

Pomyśl o tym, jak Ci idzie w szkole. Przeczytaj uważnie każde zdanie i zaznacz odpowiedź, która najlepiej Ci odpowiada. Proszę odpowiedz na wszystkie pytania.

Nie ma dobrych i złych odpowiedzi.

	Zdecydowanie nie	Raczej nie	Raczej tak	Zdecydowanie tak
1. Jestem dobrym uczniem/uczennicą.	O	O	O	O
2. Jestem zainteresowana/-y tym, co robię w szkole.	O	O	O	O
3. Czuję, że nauczyciele w mojej szkole troszczą się o mnie.	O	O	O	O
4. W szkole mam wielu przyjaciół.	O	O	O	O
5. Dobrze wykonuję przydzielone mi zadania klasowe.	O	O	O	O
6. Wierzę, że to, czego uczę się w szkole, pomoże mi w życiu.	O	O	O	O
7. Moi nauczyciele traktują mnie sprawiedliwie i bez uprzedzeń.	O	O	O	O
8. W klasie jestem lubiany.	O	O	O	O
	Zdecydowanie nie	Raczej nie	Raczej tak	Zdecydowanie tak
9. Dostaję dobre oceny z wielu przedmiotów.	O	O	O	O
10. Ciekawi mnie zdobywanie wiedzy szkolnej.	O	O	O	O
11. Nauczyciele pozwalają mi mieć swoje zdanie, nawet jeśli sami mają odmienne.	O	O	O	O
12. Chętnie spędzam czas z koleżankami i kolegami z klasy.	O	O	O	O
13. Dobrze się uczę.	O	O	O	O
14. Gdy mam problem z zadaniem, nauczyciele chętnie mi pomagają.	O	O	O	O
15. Zawsze mogę liczyć na pomoc kolegów/koleżanek z klasy.	O	O	O	O
16. Cieszy mnie nauka szkolna.	O	O	O	O