


ARTICLE

Promoting student well-being in schools: Intervention effects and the role of student–student relationships and intrinsic motivation

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Abstract

Background: Student well-being is a core educational goal and a foundation for successful learning, yet it tends to decline during secondary school. Many school-based interventions show promising but inconsistent effects on student well-being. Also, the role of individual and classroom factors in shaping effects remains unclear.

Aims: We examined (1) changes in student well-being across a 10-week intervention programme comparing three sets of well-being strategies with a placebo control and (2) whether baseline student–student relationships and intrinsic motivation to participate moderated student well-being trajectories.

Sample: A total of 685 Grade 8 students (51% male; t_1 : $M_{age} = 14$ years, $SD = 0.6$) from 44 classes across 17 schools in Switzerland participated in our study.

Methods: Classes were randomly assigned to three experimental conditions or a placebo control. Student-reported well-being (three positive, three negative dimensions), student–student relationships and intrinsic motivation were assessed at baseline, mid-intervention, post-intervention and an additional 8-month follow-up. We estimated repeated-measures linear mixed-effects models. Given a non-significant main condition effect, moderator analyses contrasted high versus low baseline relationships and motivation.

Results: Across student well-being dimensions, significant time effects were observed, but few condition or interaction effects were found. Student well-being declined over time,

Julia Mori and Melanie Nuoffer contributed equally to this work and should be considered joint first authors.

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irrespective of condition. Students with stronger baseline student–student relationships and/or higher baseline intrinsic motivation reported higher scores on positive well-being dimensions.

Conclusions: Individual resources—student–student relationships and intrinsic motivation—were more strongly related to student well-being than participation in a specific condition. Interventions may need to deliberately strengthen such resources and tailor their components to student and classroom contexts.

KEYWORDS

intervention, intrinsic motivation, secondary education, student well-being, student–student relationships

INTRODUCTION

Youth well-being is declining globally, with around 13% of adolescents aged 10–19 worldwide experiencing a diagnosed mental disorder (United Nations Children's Fund, 2021).

In Switzerland, over 30% of students reported low psychological well-being in 2022 (Delgrande Jordan et al., 2023). While global issues such as climate change, migration and socio-economic instability undoubtedly play a role in young people's well-being (Cefai et al., 2021; Lawrance et al., 2022), the narratives of their everyday lives—including their social relationships and school experiences—are equally important. Considering that adolescents spend a large part of their day in schools, schools serve as one of the most meaningful settings for supporting young people's healthy functioning and protection against mental distress (Bonell et al., 2018). Student well-being is a multidimensional construct, referring to the predominance of students' positive emotions and cognitions towards school and members of the school community over negative ones (Hascher, 2007).

The transition to secondary school introduces new academic demands and unfamiliar settings, alongside shifts in social relationships, as adolescents seek greater autonomy and increasingly prioritize peer relationships (Deci & Ryan, 2000; Goldstein et al., 2015). These relationships can provide support and foster motivation, but may also generate stress through competition, exclusion or peer pressure (Pöhländ & Raufelder, 2014). Across studies, the quality of student–student relationships consistently emerges as a strong correlate of student well-being (e.g. Graham et al., 2016; Hoferichter et al., 2021; Raufelder et al., 2021; Schmidt et al., 2019). Supporting social–emotional skills, such as emotion regulation, conflict navigation and building positive relationships (Goodman et al., 2015) seems especially critical in secondary education, where student well-being typically declines (Pietarinen et al., 2014; Schnell et al., 2025; Virtanen et al., 2019).

Student well-being is closely linked to a range of personal and school-related factors, including self-esteem, physical health, social interactions, school engagement and academic achievement (e.g. Kiuru et al., 2020; Yang et al., 2019). Against this background, understanding how emotional, social and motivational factors contribute to student well-being and also how schools might strengthen these processes becomes particularly important. For example, students' intrinsic motivation to engage in an intervention may influence its benefits (Buckley & Doyle, 2016; Lyubomirsky et al., 2011), and the peer climate can either support or hinder the uptake of well-being practices (Dodd et al., 2022). We therefore understand student well-being as a construct shaped not only by students' affective and cognitive experiences at school, but also by social resources, represented here by student–student relationships, and motivational resources, represented by intrinsic motivation to participate in well-being activities. Accordingly, this study investigates both whether a curriculum-embedded well-being programme can

promote student well-being and whether students' social and motivational resources moderate its effects over time. In doing so, we contribute to understanding how emotional, motivational and social factors interact in shaping adolescents' well-being in school.

Student well-being

Despite extensive research on student well-being, its conceptualization and measurement remain contested (e.g. Hascher, 2004; Luo & Waite, 2005; Pavot & Diener, 2004; Pollard & Lee, 2003; Tian et al., 2015; Zaff et al., 2003). Still, there is a broad agreement that student well-being is best understood as a multidimensional construct. Because individual well-being experiences differ across situations and contexts (Hascher & Mori, 2024), domain-specific measures that focus directly on the school context and incorporate aspects crucial to well-being in school may capture student well-being more accurately (e.g. Hascher, 2004; Tian et al., 2015).

We align with Hascher's (2004) school-specific model integrating cognitive, emotional, social and physical dimensions of student well-being and combining positive (e.g. enjoyment, positive academic self-concept) and negative (e.g. worries, physical complaints) indicators. Student well-being denotes a predominance of positive over negative experiences while recognizing their coexistence. The model enables the detection of distinct constellations and trajectories of change (e.g. high enjoyment alongside high worry; trajectories in which enjoyment increases while worry remains stable), thereby facilitating the identification of differential well-being pathways. Associations with individual and contextual factors can vary across student well-being dimensions and should be treated as related yet distinct (Hascher & Hagenauer, 2020; Morinaj & Hascher, 2022; Saxer et al., 2024). In the present study, student well-being is thus understood as a school-specific, multidimensional construct reflecting students' emotional and cognitive evaluations of school life, captured through both positive and negative dimensions (Hascher, 2004). Within this framework, the emotional and cognitive components of student well-being are represented by students' positive and negative experiences in school, whereas the social and motivational conditions associated with student well-being are examined through student–student relationships and intrinsic motivation, respectively.

Fostering student well-being in the classroom

Drawing on Bronfenbrenner's bioecological model (2005), students' feelings and evaluations of school emerge from continuous interactions between individuals and their environments—classroom, school and broader society. Classroom-level factors such as relationship quality, instructional practices and school culture can enhance or hinder student well-being (Eren & Millimet, 2007; Koth et al., 2008; Schmitz, 2024). Across studies, positive student–student relationships predict higher student well-being (Hattie, 2009; Oberle et al., 2011; Raufelder et al., 2021). Relationships characterized by trust, reciprocity and acceptance promote school belonging and emotional security, buffering stress and supporting engagement (Allen et al., 2018; Wentzel et al., 2004). Conversely, negative peer relationships are linked to declines in well-being and academic adjustment, and to bullying and victimization (Burger, 2022; Efeoglu & Sen, 2022; Marengo et al., 2021). Declines in student well-being may reflect both individual developmental shifts (e.g. puberty, autonomy needs; Eccles & Roeser, 2009) and contextual changes such as increased academic pressure and more complex social dynamics in the school environment (Bronfenbrenner & Morris, 2007).

Given the multidimensional nature of student well-being, associations with student–student relationships likely differ across well-being dimensions. High-quality peer relationships are linked to greater school satisfaction and enjoyment (Thapa et al., 2013; Verkuyten & Thijs, 2002; Zullig et al., 2011), whereas negative peer relationships predict heightened negative emotions, depression and social alienation (Holt et al., 2018; Klima & Repetti, 2008; Kornienko & Santos, 2014). A longitudinal study showed

that alienation from classmates predicts declines in positive attitudes and increases in social problems (Morinaj & Hascher, 2019). Person-centred studies identified positive student–student relationships as the strongest predictor of transitions from less optimal to a higher well-being profile (Virtanen et al., 2019) and favourable well-being trajectories (Saxer et al., 2025). In this sense, student–student relationships represent a key social resource for student well-being because they shape how students experience school emotionally and interpret social situations. Collectively, these findings highlight that student–student relationships play a decisive role in shaping well-being trajectories, raising the question of how schools can leverage this knowledge in intervention design.

Factors moderating the effectiveness of well-being interventions

Intervention effects likely hinge on individual and classroom conditions, suggesting that individual and contextual factors influence intervention success. Peer contexts can amplify or constrain the uptake of activities, specifically when the activities are related to social interactions in the classroom. From a self-determination theory (SDT) perspective, autonomy-supportive peer interactions satisfy the need for relatedness, promoting internalization and persistence (Ryan & Deci, 2000, 2017). Group-based activities that elicit shared positive emotions may also trigger ‘broaden-and-build’ spirals (Fredrickson, 2001), whereby positive emotions broaden students’ thought–action repertoires (e.g. openness, willingness to connect) and, over time, help build enduring psychological and social resources. In classroom settings, such spirals may strengthen engagement, reinforce supportive peer interactions and thereby contribute to student well-being. Supportive emotional climates can further magnify these processes through emotional contagion (Burgess et al., 2018; Hatfield et al., 1994). In our study, we thus expect effects to be strongest when activities are socially reinforced and aligned with students’ needs for relatedness.

Along the motivational internalization continuum (Deci & Ryan, 2000), intrinsically motivated activities are typically more satisfying and sustained than extrinsically motivated ones. According to Schueller (2011), the success of a well-being activity depends on its alignment with a person’s values, needs and interests. Consistent with this idea, Sheldon and Lyubomirsky (2006) found that participants who identified with and expected to enjoy an activity were more likely to persist, leading to greater well-being gains. From the SDT perspective, such expectancy cues likely facilitate internalization—the process by which externally introduced practices become personally valued (Deci & Ryan, 2000; Vansteenkiste et al., 2018). When students perceive an activity as meaningful or helpful, they are more likely to sustain engagement and effort over time (Sheldon & Elliot, 1999; Wang et al., 2024). In the present study, intrinsic motivation is therefore conceptualized as a motivational resource that may condition how strongly students engage with, persist in and benefit from well-being activities. It refers explicitly to students’ intrinsic motivation to participate in the intervention exercises, rather than to general academic motivation. Together, these findings underscore the following principle: students benefit most when they have both ‘a will and a proper way’—that is, motivation and effort, paired with an activity that fits their social and cognitive needs (Lyubomirsky et al., 2011; Sheldon et al., 2010).

School-based interventions promoting student well-being

From this theoretical perspective, school-based interventions are likely to be most effective when they introduce positive practices and support students’ basic psychological needs, foster meaningful engagement and build on existing classroom relationships. A growing body of school-based research suggests that student well-being can be enhanced through targeted activities delivered during regular lessons, although average effects are typically small and heterogeneous (Cohen et al., 2024; Gunawardena et al., 2023; Mackenzie & Williams, 2018; Tejada-Gallardo et al., 2020). Interventions vary in scope and outcomes often depend on programme dose, focus and implementation quality. A synthesis of 75 psychosocial interventions across K-12 settings showed that brief, focused interventions

(≤ 4 sessions/ ≤ 240 min) yield small but reliable gains, whereas more comprehensive models show mixed effects depending on outcome domain and delivery fidelity (Cohen et al., 2024). Similarly, a Cochrane review of 67 studies based on the Health Promoting Schools framework reported limited improvements (Langford et al., 2015). Programmes appear to be more effective when they focus on promoting positive aspects of student well-being rather than merely preventing its negative aspects (Mackenzie & Williams, 2018). For adolescent samples, results are inconsistent: just over half of 57 universal interventions produced positive outcomes (Cilar et al., 2020), and many programmes failed to yield significant gains, illustrating persistent challenges in measurement and implementation (Gunawardena et al., 2023), with small samples and limited randomization undermining study quality (Mackenzie & Williams, 2018).

Within this mixed evidence, positive psychology interventions (PPIs)—brief, skill-specific exercises—have emerged as a feasible and theory-based approach for classrooms. Meta-analytic findings indicate moderate improvements in well-being and reduced depressive symptoms (Sin & Lyubomirsky, 2009). PPIs typically include self-oriented activities that cultivate reflection and gratitude (e.g. gratitude, savouring, visualizing future selves, pursuing personal goals) and social-behavioural activities that elicit shared positive emotions (e.g. acts of kindness, giving compliments, sharing positive experiences; Fredrickson et al., 2008; Gable et al., 2006; Lyubomirsky et al., 2011). Recent meta-analyses highlight that multicomponent PPIs, which combine several practices, can yield short- and long-term gains in well-being and reductions in depressive symptoms (Tejada-Gallardo et al., 2020). Researchers consistently emphasize the need for theory-driven, clearly implemented and factorial designs to isolate active ingredients (Langford et al., 2015). Despite strong theoretical grounding, rigorous school-based studies with adolescents—particularly randomized, multicomponent designs—remain scarce (Green et al., 2012; Huppert, 2014; Tejada-Gallardo et al., 2020; Waters, 2011).

Taken together, findings from school-based interventions suggest several design principles for improving student well-being: (a) orienting content towards positive experiences (rather than remediating deficits); (b) embedding activities in the curriculum; (c) using randomized and placebo-controlled designs; (d) prioritizing multicomponent approaches; (e) practising skill-specific activities (e.g. gratitude, kindness) at an optimal frequency; (f) securing participant involvement; and (g) ensuring quality of delivery (Green et al., 2012; Lyubomirsky et al., 2011; Seligman et al., 2005; Shankland & Rosset, 2017; Sin & Lyubomirsky, 2009; Tejada-Gallardo et al., 2020; Waters, 2011).

The current study

Despite growing interest in school-based well-being promotion, rigorous evidence on multicomponent interventions in adolescent school settings remains limited, particularly with regard to the social and motivational conditions under which such interventions may be effective. Grounded in the interdependence of students' emotions, social context and motivational orientation in everyday school life, we therefore examined whether a curriculum-embedded, multicomponent well-being programme improves student well-being in secondary school and under which conditions benefits are most likely. Drawing on SDT (Ryan & Deci, 2000) and broaden-and-build theory (Fredrickson, 2001), we focused on two resources—perceived student–student relationships and intrinsic motivation to participate—as potential conditioners of intervention impact. We reasoned that experiencing positive student–student relationships and intrinsic motivation to participate in well-being activities would elicit positive emotions and satisfy relatedness needs, thereby initiating ‘broaden-and-build’ spirals that enhance student well-being. Consistent with the positive engagement model (Heintzelman et al., 2023), we expected participants in the experimental conditions to show stronger improvements in student well-being than those in the placebo control.

We addressed two research questions (RQ) with corresponding hypotheses (H):

RQ1: Does student well-being change over time, and do trajectories differ between intervention and control conditions?

H1. Students in the intervention conditions (self-oriented, social-oriented, mixed) were expected to show more favourable student well-being trajectories (greater increases in positive dimensions and/or greater decreases in negative dimensions) than those in the placebo control.

RQ2: Do students' baseline individual resources—perceived student–student relationships and intrinsic motivation—moderate changes in student well-being over time?

H2a. Students reporting more positive baseline (t1) student–student relationships were expected to show more favourable trajectories over time (i.e. greater increases in positive dimensions and/or greater decreases in negative dimensions) than those reporting less positive student–student relationships.

H2b. Students with higher baseline (t1) intrinsic motivation were expected to report more favourable trajectories over time than those with lower motivation.

METHOD

Research design and sample

The sample comprised 685 Grade 8 students (51% male; $M_{age} = 14.0$ years, $SD = 0.6$) from 44 classes in 17 schools in Switzerland. The intervention study was embedded in the longitudinal research project 'Well-being in School in Switzerland' (WESIR, 2019–2025), funded by the Swiss National Science Foundation, and followed a three-wave cluster quasi-experimental controlled trial with an additional 8-month follow-up. Classes were randomly assigned to three experimental conditions and a placebo control. Participation was voluntary with written parental consent. An a priori power analysis revealed that a sample of $n = 150$ is large enough to ensure a power of at least 0.80. Considering attrition, we aimed to include 200 students per condition.

Intervention design and procedure

The 10-week Well-being-Boost Training was implemented once per week by class teachers during regular lessons (April to June 2023) and comprised six evidence-based activities designed to enhance student well-being. The intervention was grounded in positive psychology and informed by self-determination theory and broaden-and-build theory. More specifically, the activities were designed either to promote positive self-focused reflection (e.g. gratitude) or to strengthen positive social interactions in the classroom (e.g. performing acts of kindness). In line with these assumptions, the intervention included both self-oriented and social-oriented practices expected to support positive emotions, relatedness and meaningful engagement in school. Before the start of the intervention, teachers and students received an introductory training session from the research team lasting one school lesson, during which the activities were explained and practised. Teachers then integrated the weekly exercises into classroom routines, and students completed them via an online diary developed by the project team (see [Figure S1](#)). Implementation was additionally supported through written instructions, reminders, ongoing contact with teachers during the intervention phase and classroom posters for each exercise (see [Figure S2](#)).

To ensure implementation fidelity, at the start of each session, a script randomly selected two student IDs per class; these students were automatically redirected after completing the exercise to a brief fidelity questionnaire on general classroom conditions, clarity of instructions, diary structure and their perceptions of the exercise. Teacher feedback was collected via a brief online questionnaire at the end of

the intervention and, additionally, through oral comments in post-intervention focus group interviews; no classroom observations were conducted during the intervention phase.

The three experimental conditions differed in how the activities were combined (see Figure 1). In the self-oriented condition, students completed gratitude, savouring and visualizing future-selves activities. In the social-oriented condition, students completed sharing positive experiences, giving compliments and performing acts of kindness. In the mixed condition, students completed a combination of self- and social-oriented practices. The placebo control condition involved weekly reflections on the learning process. No delayed intervention was offered to the placebo control group after completion of the study. At baseline (t1), mid-intervention (t2; week 5), post-intervention (t3; week 10) and follow-up (t4; 8 months after t3), students completed short online questionnaires assessing student well-being, student–student relationships and intrinsic motivation, among other measures. After the 10-week intervention period, the activities were discontinued as planned.

Measures

Student well-being

Student well-being was assessed with the 19-item questionnaire by Hascher (2007), capturing three positive (positive attitudes towards school (PAS), e.g. ‘I like to go to school’; enjoyment in school (EIS); positive academic self-concept (PASC)) and three negative dimensions (worries in school (WIS), e.g. ‘Have you been worried about your school grades in the past few weeks?’; physical complaints in school (PCS); social problems in school (SPS)). Items were rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree). The six-factor structure of the scale was supported by confirmatory factor analysis in prior studies (see Hascher, 2007; Hascher & Hagenauer, 2020). Internal consistency (Cronbach’s alpha) for the subscales ranged from 0.837 to 0.951 across time points (see Table 1).

Student–student relationships

Perceived student–student relationships were assessed with the Hessian Reference Framework for School Quality scale (Institut für Qualitätsentwicklung Hessen, 2013), measuring the cohesion of student–student relationships in class with 6 items rated on a 4-point Likert scale (1 = not at all true to 4 = completely true; e.g. ‘In my class, most of the students get along very well with each other’). Internal consistency was $\alpha \geq .881$ across time points (see Table 1).

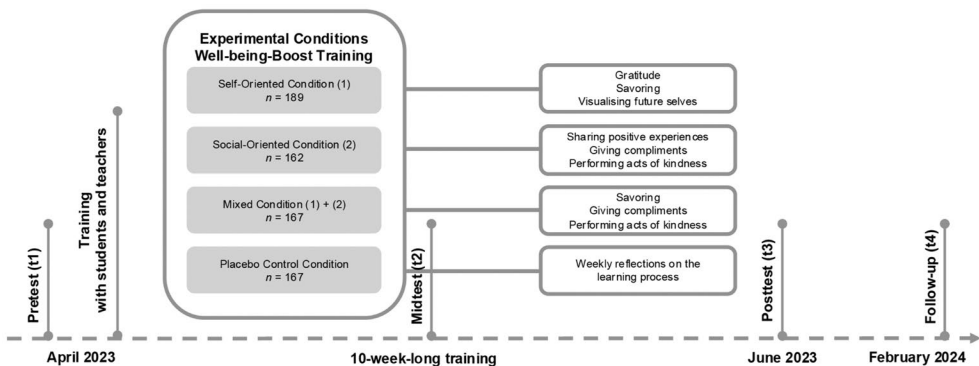


FIGURE 1 Multigroup experimental research design.

TABLE 1 Internal consistency of student well-being scales.

Scale	Time	α	Time	α	Time	α
PAS	t1	0.861	t2	0.906	t3	0.934
EIS	t1	0.837	t2	0.894	t3	0.921
PASC	t1	0.865	t2	0.915	t3	0.930
WIS	t1	0.854	t2	0.885	t3	0.892
PCS	t1	0.891	t2	0.921	t3	0.951
SPS	t1	0.917	t2	0.930	t3	0.910
Student–student relationships	t1	0.881	t2	-	t3	0.930
Intrinsic motivation	t1	0.945	t2	0.957	t3	0.974

Note: This table demonstrates Cronbach's α coefficients for each scale and time point. PAS=Positive Attitudes in School, EIS=Enjoyment in School, PASC=Positive Academic Self-Concept, WIS=Worries in School, PCS=Physical Complaints in School, SPS=Social Problems in School. Time included pretest = t1, midtest = t2, posttest = t3.

Intrinsic motivation

Intrinsic motivation to participate in the activities was measured with the intrinsic motivation subscale of the Situational Motivation Scale (SIMS; Guay et al., 2000; Vogt, 2004). Four items were rated on a 7-point Likert scale (1 = not at all to 7 = exactly; e.g. 'Because I think that this activity is interesting'). Internal consistency was $\alpha \geq .945$ across time points (see Table 1).

Data analysis

Analyses were conducted in R (version 4.5.0; RStudio Version 2024.12.1 + 563) using *lme4* and *lmerTest* for linear mixed-effects modelling, *emmeans* for pairwise post hoc comparisons of estimated marginal means and *effectsize* for calculation of effect sizes.

Data were analysed with repeated-measures linear mixed-effects models to account for the nested structure of repeated observations within students (Bates et al., 2015; van Wely, 2024). All models included random intercepts for students and fixed effects for time and were estimated via maximum likelihood, accommodating missing data under a missing-at-random assumption. The plausibility of this assumption was examined via Little's MCAR test and comparison of completers and non-completers at baseline. MCAR was rejected; however, dropout was systematically related to observed baseline characteristics (well-being subscales, student–student relationships, condition), with no differences in age, gender or intrinsic motivation. This pattern is consistent with MAR, and ML-based estimation remains valid under this assumption. Fixed effects were evaluated with Type III ANOVA using Satterthwaite approximations for degrees of freedom. Where appropriate, pairwise post hoc comparisons of estimated marginal means were conducted with multiplicity adjustment, and corresponding effect sizes were reported.

Analyses were conducted in two stages. First, we tested the overall effectiveness of the intervention conditions by fitting models with random intercepts for participants and fixed effects for time, condition and their interaction (time \times condition) to compare student well-being trajectories across conditions (Intervention Model; RQ1). Additionally, the intervention model was repeated including the 8-month follow-up to examine possible late effects of the training.

Second, as the condition did not emerge as a significant predictor, data were collapsed across conditions, and moderation by baseline individual resources was examined (Moderator Models; RQ2). Each moderator—student–student relationships and intrinsic motivation, measured at t1—was added separately, dichotomized via median split (high vs. low group), and tested through main effects and time \times moderator interactions to assess differential change in student well-being across measurement points.

In addition, the moderation analyses were repeated using the moderators in their continuous form as a sensitivity analysis.

RESULTS

Descriptive statistics

There were no significant baseline differences between conditions in gender or age (see [Table 2](#)). Apart from small differences in physical complaints and social problems in school, conditions did not differ significantly on t1 student well-being dimensions. Baseline differences in student–student relationships and intrinsic motivation likely reflect pre-existing classroom- or teacher-related variation prior to the intervention (e.g. established peer networks, teacher practices, classroom climate) [Table 3](#).

Intervention model results (RQ1)

Results from t1 to t3 are presented in [Figure 2a](#) and [Table 4](#), with additional details on data distribution and post hoc contrasts in the ([Figure S3](#), [Tables S1–S3](#)). Analyses including the 8-month follow-up (t4) are presented in [Figure 2b](#) and [Figure S4](#) and [Tables S4–S6](#).

Main effects of the condition emerged only on two negative subscales—physical complaints in school and social problems in school. Post hoc pairwise contrasts revealed small to moderate isolated differences; for instance, students in the social-oriented condition reported more physical and social problems in school than those in the self-oriented condition. When the follow-up was included, the condition also significantly predicted worries, but post hoc contrasts were not significant after multiple-testing correction.

In contrast, main effects of time were robust across nearly all student well-being dimensions, except enjoyment in school, which reached significance only when the follow-up was included. Positive dimensions generally declined over time, with one exception: positive academic self-concept increased from t2 to t4 in the social-oriented condition. Worries in school decreased until t3, though this trend weakened by t4. Physical complaints and social problems increased up to t3 and showed minor decreases by t4.

To summarize, the intervention conditions did not differentially affect student well-being trajectories on most student well-being facets. Instead, students exhibited modest, sample-wide changes—small declines in both positive and negative dimensions—with only limited and inconsistent between-condition differences.

Moderator model results (RQ2)

Student–student relationships

The results are presented in [Table 5](#) and [Figure 3a](#) (see also [Figure S5](#) and [Tables S7–S9](#)). We found main effects of relationship group on all student well-being dimensions, indicating that perceived student–student relationships were a strong overall predictor of student well-being. Post hoc comparisons showed that students in the high-quality relationship group consistently reported higher scores on positive dimensions and lower scores on negative dimensions at all measurement points compared to students in the low-quality relationship group. For worries, group differences were significant only at t1, with the low-quality relationship group reporting higher scores.

Main effects of time were significant for positive academic self-concept, worries in school, physical complaints in school and social problems in school, indicating change across time. Post hoc analyses

TABLE 2 Demographic sample characteristics.

Scale	Time	Overall		Self-oriented		Social-oriented		Mixed		Placebo control		Comparison of conditions at t1
		N	%	N	%	N	%	N	%	N	%	
Female	t1	281	49.2	82	50.0	61	48.4	70	49.0	68	49.3	Pearson's Chi-squared test $\chi^2 = 7.245, df = 9, p = 0.612$
	t2	263	47.6	69	52.3	50	39.7	74	50.3	70	47.6	
	t3	121	48.6	30	55.6	19	38.0	43	50.0	29	49.2	
Male	t1	275	48.2	79	48.2	60	47.6	71	49.7	65	47.1	
	t2	268	48.6	60	45.5	70	55.6	68	46.3	70	47.6	
	t3	100	40.2	18	33.3	24	48.0	34	39.5	24	40.7	
Other	t1	8	1.4	-	-	3	2.4	1	0.7	4	2.9	
	t2	14	2.5	3	2.3	2	1.6	4	2.7	5	3.4	
	t3	21	8.4	3	5.6	3	6.0	9	10.5	6	10.2	
Not specified	t1	7	1.2	3	1.8	2	1.6	1	0.7	1	0.7	
	t2	7	1.3	-	-	4	3.2	1	0.7	2	1.4	
	t3	7	2.8	3	5.6	4	8.0	-	-	-	-	
Age	Time	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	N	Comparison of conditions at t1
Age (years)	t1	13.14 (0.60)	571	13.06 (0.54)	164	13.2 (0.58)	126	13.11 (0.58)	143	13.22 (0.68)	138	ANOVA $F(3, 567) = 2.171$
	t2	13.94 (0.63)	552	13.87 (0.52)	132	14.01 (0.63)	126	13.91 (0.69)	147	13.97 (0.66)	147	$p = 0.090$
	t3	15.0 (0.78)	249	14.93 (1.04)	54	15.08 (0.75)	50	14.97 (0.74)	86	15.05 (0.54)	59	

Note: This table demonstrates demographic sample characteristics overall and by intervention condition with comparisons at t1. Time included pretest = t1, midtest = t2, posttest = t3. * $p < 0.05$.

TABLE 3 Descriptives and baseline statistics of well-being.

Scale	Time	Overall		Self-oriented		Social-oriented		Mixed		Placebo control		Comparison of conditions at t1
		M(SD)	N	M(SD)	N	M(SD)	N	M(SD)	N	M(SD)	N	
PAS	t1	4.07 (1.21)	680	4.12 (1.22)	187	3.94 (1.30)	161	4.07 (1.18)	166	4.12 (1.14)	166	$F(3, 676) = 0.891$ $p = 0.445$
	t2	4.0 (1.26)	578	4.10 (1.23)	142	3.82 (1.39)	126	4.06 (1.23)	159	3.99 (1.20)	151	
	t3	4.09 (1.33)	285	3.83 (1.37)	60	4.09 (1.49)	54	4.24 (1.24)	92	4.13 (1.29)	79	
EIS	t1	3.94 (1.21)	680	3.89 (1.14)	187	4.02 (1.31)	161	4.06 (1.13)	166	3.80 (1.26)	166	$F(3, 676) = 1.599$ $p = 0.188$
	t2	3.92 (1.28)	578	3.98 (1.21)	142	3.74 (1.37)	126	4.09 (1.25)	159	3.83 (1.27)	151	
	t3	4.03 (1.32)	285	3.78 (1.12)	60	4.00 (1.39)	54	4.21 (1.30)	92	4.04 (1.41)	79	
PASC	t1	4.2 (1.14)	680	4.26 (1.16)	187	4.13 (1.18)	161	4.19 (1.12)	166	4.22 (1.12)	166	$F(3, 676) = 0.382$ $p = 0.766$
	t2	4.06 (1.22)	578	4.24 (1.15)	142	3.79 (1.42)	126	4.15 (1.10)	159	4.03 (1.19)	151	
	t3	4.14 (1.34)	285	4.18 (1.32)	60	4.07 (1.42)	54	4.34 (1.22)	92	3.91 (1.44)	79	
WIS	t1	3.52 (1.44)	680	3.32 (1.42)	187	3.49 (1.43)	161	3.66 (1.45)	166	3.62 (1.46)	166	$F(3, 676) = 2.083$ $p = 0.101$
	t2	3.50 (1.44)	578	3.25 (1.46)	142	3.63 (1.44)	126	3.60 (1.54)	159	3.52 (1.30)	151	
	t3	3.18 (1.46)	285	2.99 (1.30)	60	2.99 (1.41)	54	3.34 (1.52)	92	3.26 (1.52)	79	
PCS	t1	2.44 (1.40)	680	2.18 (1.29)	187	2.62 (1.52)	161	2.47 (1.39)	166	2.51 (1.38)	166	$F(3, 676) = 3.194$ $p = 0.023^*$
	t2	2.71 (1.44)	578	2.54 (1.42)	142	2.84 (1.48)	126	2.72 (1.55)	159	2.77 (1.28)	151	
	t3	2.58 (1.44)	285	2.33 (1.37)	60	2.42 (1.48)	54	2.70 (1.53)	92	2.72 (1.36)	79	
SPS	t1	2.06 (1.29)	680	1.83 (1.20)	187	2.28 (1.39)	161	2.13 (1.34)	166	2.05 (1.19)	166	$F(3, 676) = 3.892$ $p = 0.009^*$
	t2	2.40 (1.36)	578	2.13 (1.30)	142	2.62 (1.49)	126	2.37 (1.38)	159	2.48 (1.26)	151	
	t3	2.33 (1.31)	285	2.18 (1.23)	60	2.52 (1.47)	54	2.28 (1.29)	92	2.36 (1.27)	79	
Student-student relationships	t1	3.0 (0.62)	677	3.11 (0.6)	184	2.98 (0.61)	161	3.0 (0.66)	166	2.9 (0.63)	166	$F(3, 676) = 3.531$ $p = 0.015^*$
	t3	3.03 (0.71)	275	2.96 (0.83)	56	3.10 (0.64)	52	3.11 (0.69)	90	2.94 (0.70)	77	
Intrinsic motivation	t1	3.62 (1.53)	680	3.34 (1.52)	187	3.72 (1.70)	161	3.75 (1.43)	166	3.70 (1.41)	166	$F(3, 676) = 2.916$ $p = 0.034^*$
	t2	3.40 (1.57)	579	3.23 (1.54)	142	3.58 (1.71)	126	3.39 (1.53)	160	3.41 (1.52)	151	
	t3	3.22 (1.64)	292	2.80 (1.47)	66	3.43 (1.74)	54	3.41 (1.72)	92	3.21 (1.58)	80	

Note: This table demonstrates descriptive statistics (M, SD, N) for all scales across time points and overall and per condition, along with corresponding omnibus tests at t1. Student well-being is rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree); intrinsic motivation is rated on a 7-point Likert scale (1 = not at all to 7 = exactly); student-student relationships are rated on a 4-point Likert scale (1 = not at all true to 4 = completely true). PAS = Positive Attitudes in School, EIS = Employment in School, PASC = Positive Academic Self-Concept, WIS = Worries in School, PCS = Physical Complaints in School, SPS = Social Problems in School. Time included pretest = t1, midtest = t2, posttest = t3. * $p < 0.05$.

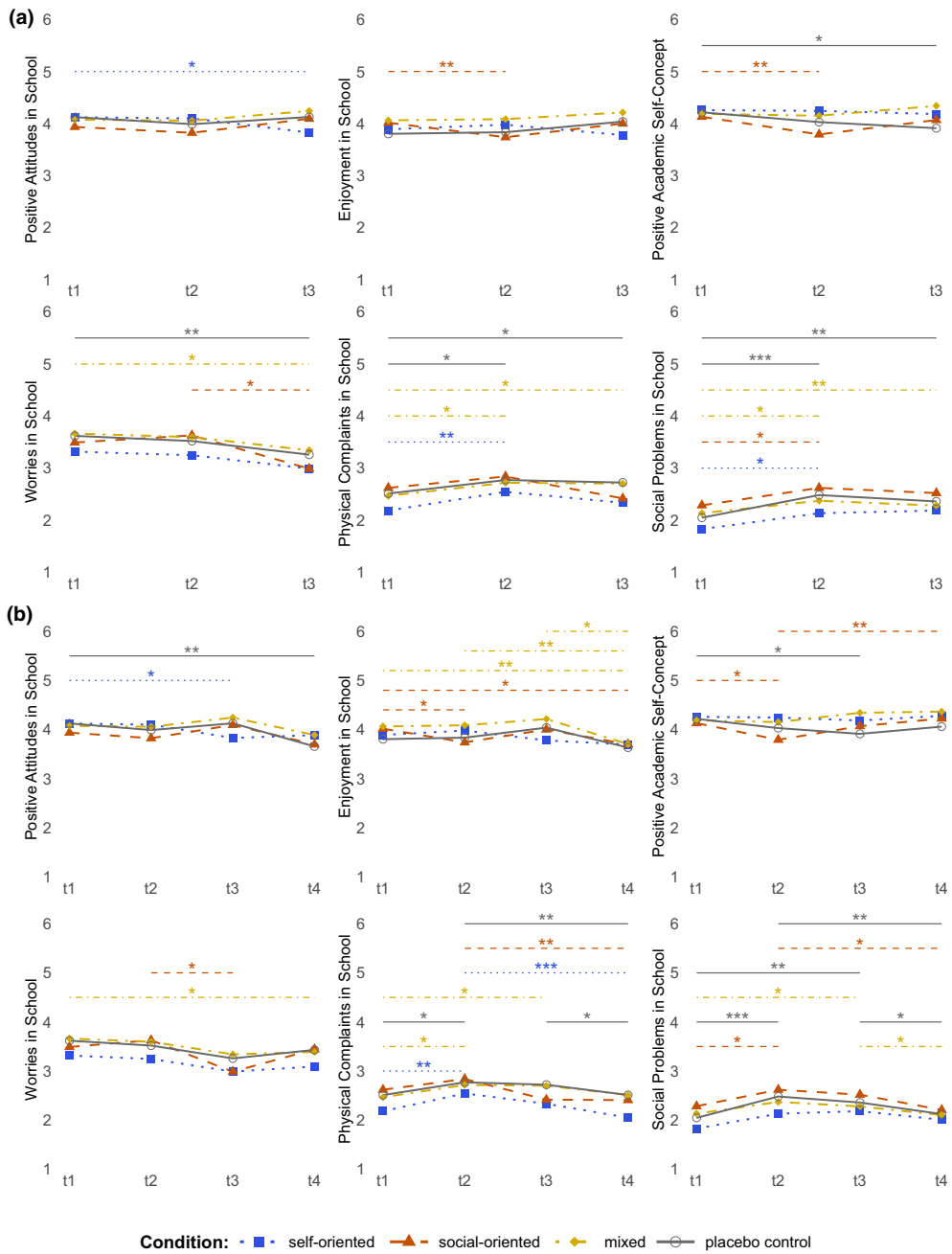


FIGURE 2 Mean student well-being trajectories by condition across the three timepoints (a) or additionally including the follow-up timepoint (b). Top row: Positive subscales (higher scores = better outcomes). Bottom row: Negative subscales (lower scores = better outcomes). Student well-being is rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree). Conditions included self-oriented (blue dotted line, square symbol), social-oriented (orange dashed line, triangle symbol), mixed (yellow dot-dashed line, diamond symbol) and placebo control (grey solid line, open circle). Time included pretest = t1, midtest = t2, posttest = t3 and follow-up = t4. Significance bars indicating post hoc differences within each condition across time are shown at the top, matching the respective colour and line style of each condition. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

TABLE 4 Mixed-effects model results for the time \times condition interaction on student well-being.

Scale	Predictor	Sum of squares	Mean square	Df	F	p	Partial eta ²	Partial eta ² 95% CI [LL, UL]
PAS	Condition	1.815	0.605	3, 734	0.939	0.421	0.004	[0, 1]
	Time	5.058	2.529	2, 924	3.926	0.020*	0.008	[0.001, 1]
	Condition \times Time	4.825	0.804	6, 922	1.248	0.279	0.008	[0, 1]
EIS	Condition	5.060	1.687	3, 737	2.099	0.099	0.008	[0, 1]
	Time	0.967	0.483	2, 944	0.601	0.548	0.001	[0, 1]
	Condition \times Time	8.818	1.470	6, 942	1.829	0.090	0.012	[0, 1]
PASC	Condition	4.484	1.495	3, 753	1.782	0.149	0.007	[0, 1]
	Time	7.182	3.591	2, 976	4.282	0.014*	0.009	[0.001, 1]
	Condition \times Time	11.668	1.945	6, 973	2.319	0.031*	0.014	[0.001, 1]
WIS	Condition	5.195	1.732	3, 749	1.943	0.121	0.008	[0, 1]
	Time	19.413	9.706	2, 941	10.888	<0.001*	0.023	[0.009, 1]
	Condition \times Time	4.024	0.670	6, 939	0.752	0.608	0.005	[0, 1]
PCS	Condition	8.169	2.723	3, 747	3.175	0.024*	0.013	[0.001, 1]
	Time	26.273	13.137	2, 938	15.316	<0.001*	0.032	[0.015, 1]
	Condition \times Time	3.439	0.573	6, 937	0.668	0.675	0.004	[0, 1]
SPS	Condition	10.522	3.508	3, 743	4.286	0.005*	0.017	[0.003, 1]
	Time	40.083	20.041	2, 942	24.491	<0.001*	0.049	[0.028, 1]
	Condition \times Time	1.816	0.303	6, 940	0.370	0.898	0.002	[0, 1]

Note: Student well-being is rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree). PAS = Positive Attitudes in School, EIS = Enjoyment in School, PASC = Positive Academic Self-Concept, WIS = Worries in School, PCS = Physical Complaints in School, SPS = Social Problems in School. Condition included self-oriented, social-oriented, mixed and placebo control. Time included pretest = t1, midtest = t2, posttest = t3. The bold values indicate the statistical significance of $*p < 0.05$.

revealed that worries decreased from t1 to t3, whereas academic self-concept, physical complaints and social problems increased over time.

No significant time \times relationship group interactions emerged, suggesting that although stronger student–student connectedness was consistently linked to higher overall student well-being, it did not alter the trajectories of change. To summarize, students with stronger relationships reported consistently more favourable well-being across all dimensions, while patterns of change over time remained comparable between relationship groups. Sensitivity analyses using the original continuous relationship scores replicated this pattern (Tables S14–S16, Figures S7 and S8).

Intrinsic motivation

The findings are presented in Table 6 and Figure 3b (see also Figure S6 and Tables S10–S12). We found robust main effects of motivation group on all student well-being dimensions except worries and social problems in school, indicating that baseline intrinsic motivation (t1) was a strong predictor of student well-being. Across time points, the high-motivation group reported higher scores on the positive dimensions than the low-motivation group. For the negative dimensions, baseline group differences showed less favourable scores in the high-motivation group—that is, higher worries, physical complaints and social problems—but these differences attenuated over time and were no longer significant at later timepoints, suggesting that the groups converged on school-related problems.

Main effects of time were significant for all subscales except enjoyment in school: Irrespective of motivation level, student well-being tended to change over time, with physical and social problems increasing and worries decreasing across the three measurement points.

TABLE 5 Mixed-effects model results for the time \times relationship group interaction on student well-being.

Scale	Predictor	Sum of squares	Mean square	Df	F	p	Partial η^2 95% CI [LL, UL]
PAS	Time	3.488	1.744	2, 940	2.700	0.068	0.006 [0, 1]
	Relationship group	47.981	47.981	1, 754	74.290	<0.001*	0.090 [0.060, 1]
	Time \times Relationship group	1.839	0.919	2, 940	1.423	0.241	0.003 [0, 1]
EIS	Time	0.531	0.265	2, 967	0.329	0.720	0.001 [0, 1]
	Relationship group	53.695	53.695	1, 763	66.517	<0.001*	0.080 [0.052, 1]
	Time \times Relationship group	1.985	0.993	2, 967	1.230	0.293	0.003 [0, 1]
PASC	Time	6.099	3.049	2, 991	3.594	0.028*	0.007 [0.0, 1]
	Relationship group	29.209	29.209	1, 775	34.422	<0.001*	0.043 [0.022, 1]
	Time \times Relationship group	0.968	0.484	2, 991	0.570	0.566	0.001 [0, 1]
WIS	Time	16.141	8.071	2, 943	9.006	<0.001*	0.019 [0.006, 1]
	Relationship group	5.141	5.141	1, 760	5.737	0.017*	0.007 [0.001, 1]
	Time \times Relationship group	0.577	0.289	2, 943	0.322	0.725	0.001 [0, 1]
PCS	Time	27.580	13.790	2, 940	16.006	<0.001*	0.033 [0.016, 1]
	Relationship group	22.254	22.254	1, 756	25.830	<0.001*	0.033 [0.015, 1]
	Time \times Relationship group	0.620	0.310	2, 940	0.360	0.698	0.001 [0, 1]
SPS	Time	38.864	19.432	2, 947	23.704	<0.001*	0.048 [0.027, 1]
	Relationship group	38.741	38.741	1, 755	47.257	<0.001*	0.059 [0.035, 1]
	Time \times Relationship group	1.101	0.551	2, 947	0.672	0.511	0.001 [0, 1]

Note: Student well-being is rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree); student–student relationships are rated on a 4-point Likert scale (1 = not at all true to 4 = completely true). Relationship group was derived via a median split of student–student relationship scores at baseline (t1), distinguishing students with high versus low relationships. PAS = Positive Attitudes in School, EIS = Enjoyment in School, PASC = Positive Academic Self-Concept, WIS = Worries in School, PCS = Physical Complaints in School, SPS = Social Problems in School. Time included pretest = t1, midtest = t2, posttest = t3. The bold values indicate the statistical significance of $*p < 0.05$.

Significant time \times motivation group interactions emerged for academic self-concept, worries in school and physical complaints in school. Post hoc analyses indicated slightly different trajectories between high- and low-motivation groups. For positive academic self-concept, high-motivation students remained stable, while low-motivation students showed a decline from t1 to t3. For worries, high-motivation students showed a continuous decrease from t1 to t3, whereas low-motivation students decreased only from t2 to t3. For physical complaints in school, high-motivation students started higher at t1, but low-motivation students caught up by t2 and t3 (i.e. groups converged). To summarize, baseline intrinsic motivation was consistently associated with higher scores on positive student well-being dimensions, while initial group differences on negative dimensions diminished over time, yielding converging trajectories across motivation levels. Sensitivity analyses using the original continuous motivation scores replicated this pattern (Tables S17–S19, Figures S9 and S10).

DISCUSSION

This study aimed to examine whether a curriculum-embedded, multicomponent programme could improve student well-being in lower-secondary classrooms and to test whether two theoretically salient individual resources—perceived student–student relationships and intrinsic motivation to participate—conditioned

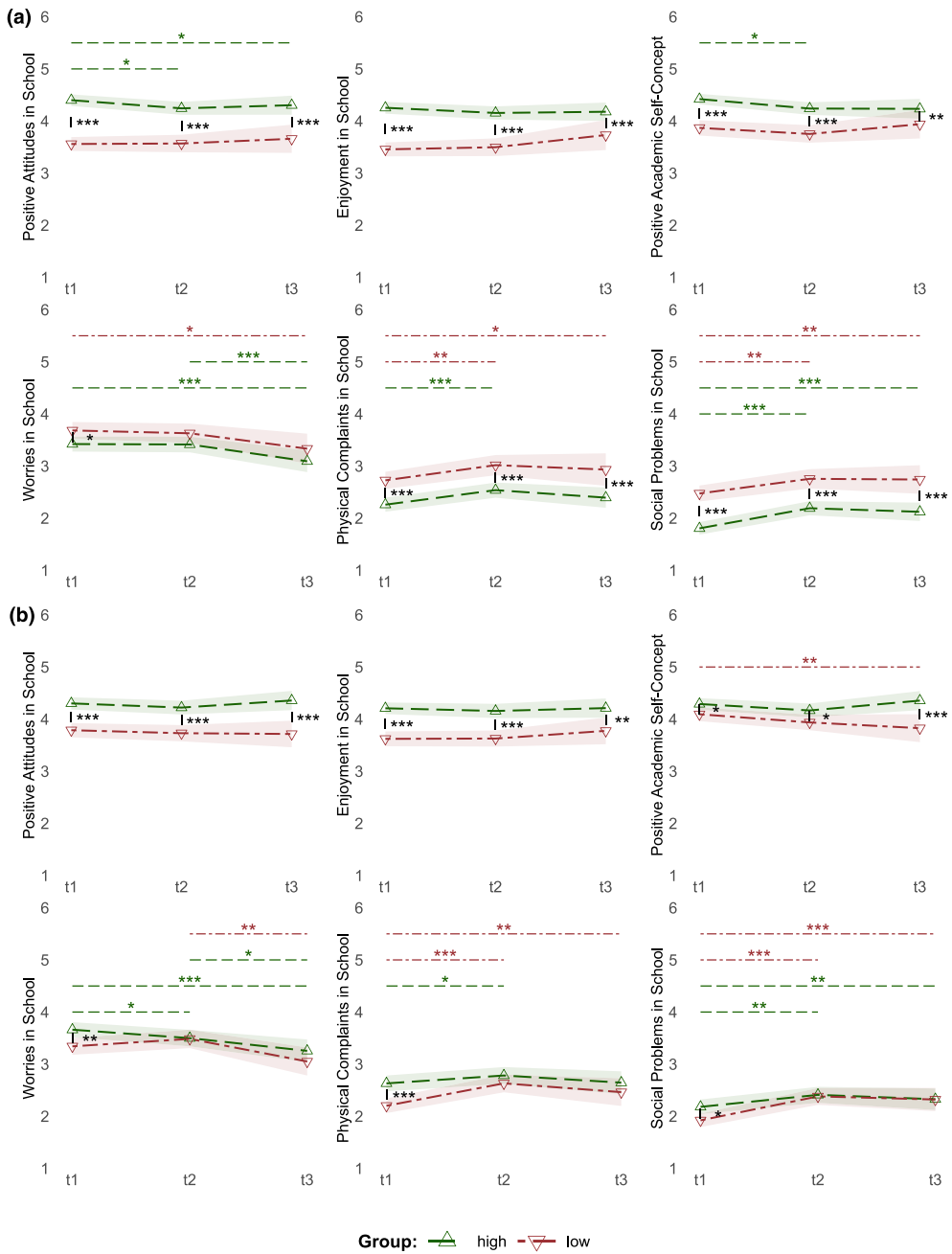


FIGURE 3 Mean student well-being trajectories by median split high versus low student–student relationship (a) or intrinsic motivation (b) group. (A) shows mean student well-being trajectories of high versus low relationship group and (B) high versus low-motivation group. Motivation group and relationship groups were derived via a median split of intrinsic motivation and student–student relationship scores at baseline (t1), distinguishing students with high (green, long-dashed line, upward-pointing triangle symbol) versus low (red, dot-dashed line, downward-pointing triangle symbol) intrinsic motivation and relationship. Top rows: Positive subscales (higher scores = better outcomes). Bottom rows: Negative subscales (lower scores = better outcomes). Significance bars indicating post hoc differences within each group across time are shown at the top, matching the respective colour and line style of the groups. Significance bars indicating differences between groups at each time point are shown in black between the group lines. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

TABLE 6 Mixed-effects model results for the time × motivation group interaction on student well-being.

Scale	Predictor	Sum of squares	Mean square	Df	F	p	Partial eta ² 95% CI [LL, UL]
PAS	Time	4.730	2.365	2, 924	3.636	0.027*	0.008 [0.0, 1]
	Motivation group	24.907	24.907	1, 732	38.291	<0.001*	0.050 [0.027, 1]
	Time × Motivation group	0.619	0.309	2, 924	0.476	0.622	0.001 [0, 1]
EIS	Time	0.522	0.261	2, 947	0.321	0.725	0.001 [0, 1]
	Motivation group	29.868	29.868	1, 736	36.768	<0.001*	0.048 [0.026, 1]
	Time × Motivation group	1.330	0.665	2, 947	0.818	0.441	0.002 [0, 1]
PASC	Time	7.573	3.787	2, 976	4.481	0.012*	0.009 [0.001, 1]
	Motivation group	14.087	14.087	1, 753	16.670	<0.001*	0.022 [0.008, 1]
	Time × Motivation group	5.989	2.994	2, 976	3.543	0.029*	0.007 [0.0, 1]
WIS	Time	18.508	9.254	2, 938	10.403	<0.001*	0.022 [0.008, 1]
	Motivation group	2.014	2.014	1, 747	2.264	0.133	0.003 [0, 1]
	Time × Motivation group	6.900	3.450	2, 938	3.878	0.021*	0.008 [0.001, 1]
PCS	Time	29.737	14.868	2, 935	17.368	<0.001*	0.036 [0.018, 1]
	Motivation group	6.642	6.642	1, 744	7.758	0.005*	0.010 [0.002, 1]
	Time × Motivation group	5.630	2.815	2, 935	3.288	0.038*	0.007 [0.0, 1]
SPS	Time	43.570	21.785	2, 937	26.727	<0.001*	0.054 [0.032, 1]
	Motivation group	1.975	1.975	1, 740	2.423	0.120	0.003 [0, 1]
	Time × Motivation group	4.559	2.279	2, 937	2.796	0.062	0.006 [0, 1]

Note: Student well-being is rated on a 6-point Likert scale (from 1 = never/strongly disagree to 6 = very often/strongly agree); intrinsic motivation is rated on a 7-point Likert scale (1 = not at all to 7 = exactly). Motivation group was derived via a median split of intrinsic motivation scores at baseline (t1), distinguishing students with high versus low intrinsic motivation. PAS = Positive Attitudes in School, EIS = Enjoyment in School, PASC = Positive Academic Self-Concept, WIS = Worries in School, PCS = Physical Complaints in School, SPS = Social Problems in School. Time included pretest = t1, midtest = t2, posttest = t3. The bold values indicate the statistical significance of * $p < 0.05$.

change. Contrary to our first hypothesis (H1), assignment to one of three activity sets versus a placebo control did not yield consistent differential gains across student well-being dimensions. Instead, we observed small sample-wide shifts over time—modest declines on positive dimensions alongside small improvements on some negative dimensions (e.g. worries)—with only isolated and inconsistent between-condition differences on the negative subscales. By contrast, moderation analyses revealed clearer patterns (H2a and H2b): students perceiving stronger peer connectedness and those higher in intrinsic motivation reported more favourable levels of student well-being across measurement points, although these resources rarely altered trajectories of change. Taken together, the findings suggest that the social-motivational context may matter more for student well-being than the specific mix of positive activities assigned.

Intervention effects

The intervention conditions did not outperform the placebo reflection condition in systematic ways. This null pattern aligns with accumulating evidence that average effects of universal, school-based

well-being programmes are typically small and heterogeneous (Cilar et al., 2020; Cohen et al., 2024). We employ three complementary explanations for this finding.

First, developmental timing and context likely constrained gains. Student well-being commonly declines during lower-secondary education (Eccles & Roeser, 2011; Virtanen et al., 2019), and the implementation period coincided with heightened academic demands and evaluative pressures that may dampen positive affect even when beneficial activities are offered.

Second, the placebo task—guided weekly reflections on learning—may have been weakly ‘activating’ rather than inert. Reflecting on one’s learning can foster self-regulation and perceived competence, processes linked to well-being (Pietarinen et al., 2014), thereby narrowing condition contrasts.

Third, consistent with reviews emphasizing dose, focus and fidelity (Cohen et al., 2024; Shankland & Rosset, 2017), our once-weekly, teacher-delivered activities may have provided insufficient intensity or implementation quality to shift well-being trajectories within 10 weeks, particularly without personalization beyond condition-level assignment. At the same time, the available fidelity information suggested that classroom conditions, instructions and diary structure were generally perceived positively, whereas ratings of the exercises themselves were more moderate. This pattern indicates that limited effects may reflect not only implementation constraints but also the fit and perceived relevance of the activities for this age group. Informal teacher feedback suggested that the programme was perceived as meaningful but sometimes difficult to integrate into everyday classroom routines because of time constraints and the perceived length of some materials. Similar constraints also affected the preparatory phase, as the originally planned training had to be reduced substantially because teachers were unable to allocate more time. This suggests that the implementation of school-based well-being programmes depends not only on the quality of the activities themselves but also on whether schools can provide sufficient structural time and space for teacher preparation and classroom delivery.

The small decline in worries observed across groups suggests that brief, structured practices—whether reflective or ‘positive’—may still assist students in emotion regulation around school stressors (Fredrickson, 2001; Sin & Lyubomirsky, 2009). The takeaway is not that positive psychology interventions lack value, but that a generic assignment to broadly effective activities is unlikely to move the needle in a meaningful way in early adolescence unless embedded in a classroom ecology that amplifies engagement (Noble & McGrath, 2008) and affords meaningful choice (Ryan & Deci, 2000, 2017).

Student–student relationships as a resource

Perceived student–student relationships emerged as a strong and consistent predictor of student well-being across time. Students in more cohesive classrooms reported higher positive and lower negative school experiences, echoing prior research identifying peer ties as one of the most potent correlates of student well-being (Allen et al., 2018; Graham et al., 2016; Oberle et al., 2011; Schmidt et al., 2019). From bioecological and SDT perspectives (Bronfenbrenner, 2005; Ryan & Deci, 2017), cohesive peer climates satisfy relatedness needs, buffer daily stressors and create emotionally supportive learning environments where positive emotions can broaden thought–action repertoires (Fredrickson, 2001) and spread through emotional contagion (Burgess et al., 2018; Hatfield et al., 1994).

Yet we found little evidence that student–student relationships changed how student well-being evolved over time. This pattern points to a level effect rather than a slope effect within the present dose and timeframe: stronger relationships provide a stable advantage in student well-being, but a low-intensity universal programme may be insufficient to translate this advantage into differential gains without explicit structures that reinforce peer processes (e.g. peer-led activities; Dodd et al., 2022).

Intrinsic motivation as a resource

The motivation measure captured students’ intrinsic motivation to do the well-being exercises. Interestingly, not only intrinsic learning motivation—consistent with SDT—but also intrinsic motivation

for well-being exercises robustly covaried with student well-being: highly motivated students reported higher scores on the positive student well-being dimensions at every timepoint, and initial group differences on the negative dimensions tended to converge over time. These results resonate with the idea that ‘both a will and a proper way’ are required for durable benefits (Lyubomirsky et al., 2011). Intrinsic motivation likely contributes through greater practice frequency, higher-quality engagement and deeper internalization of activity goals (Deci & Ryan, 2000; Sheldon & Elliot, 1999).

Notably, time interactions were sparse and small, suggesting that intrinsic motivation functions more as a background resource that sustains higher well-being levels rather than as a catalyst for change during the short intervention period. This finding aligns with meta-analytic evidence showing that person–activity fit and expectancy amplify positive psychology intervention effects but rarely transform growth trajectories in brief school implementations (Layous et al., 2013; Nelson & Lyubomirsky, 2014; Sin & Lyubomirsky, 2009).

Synthesis and theoretical implications

Across models, social-motivational factors—students' relationships and intrinsic motivation—seem to be more predictive of well-being than the specific activity set. Put differently, our findings support a context-sensitive interpretation of the positive engagement model: doing ‘something positive’ may be necessary but not sufficient in early adolescence unless classroom conditions that foster autonomous engagement and social reinforcement are present (Green et al., 2012; Noble & McGrath, 2008). This interpretation aligns with calls to couple universal positive activities with autonomy-supportive delivery and micro-personalization, for example, by offering choice among activities, scaffolding person–activity fit and embedding practices in peer-supportive structures, such as partner- or small-group formats, opportunities for peer feedback and classroom routines that normalize sharing and reinforcing positive experiences, which may amplify positive contagion (Dodd et al., 2022; Heintzelman et al., 2023; Ryan & Deci, 2017).

Implications for practice

For schools aiming to strengthen student well-being, three practical implications emerge. First, context and content: routines and norms that foster peer cohesion and a psychologically safe, inclusive classroom climate should be considered (Allen et al., 2018; Thapa et al., 2013). In such climates, the same activities are more likely to be socially reinforced.

Second, autonomy-supportive delivery of well-being practices should be prioritized. In practice, this may involve offering students a meaningful choice among brief activities, together with rationales that link these tasks to students' own goals, values and everyday school experiences. Such choice and relevance are likely to facilitate internalization and persistence (Deci & Ryan, 2000, 2017; Lyubomirsky & Layous, 2013).

Third, dosage and adherence warrant attention. Activities can remain brief and embedded in classroom routines, while engagement quality is raised through concrete action planning (when/where/how) and structured reflective debriefs (Cohen et al., 2024; Shankland & Rosset, 2017). At the same time, schools may need to create more structural time and space for implementation, as teachers' feedback indicated that competing curricular demands can limit both preparatory training and the routine integration of well-being activities. Where feasible, layering targeted supports for students with weaker peer ties or low initial motivation may reduce disparities and create conditions for more equitable benefits.

Strengths, limitations and future research

This study has several strengths that enhance the credibility and practical relevance of the findings. Classes were assigned to three theoretically differentiated activity sets or an active reflection control, and the intervention was delivered universally by regular teachers within routine lessons. The multi-wave design, including an 8-month follow-up, enabled the examination of trajectories rather than single time point snapshots. In addition, student well-being was assessed multidimensionally, capturing both positive and negative facets, and the analyses were guided by theory-driven moderation models focusing on intrinsic motivation and student–student relationships. Finally, the use of repeated-measures mixed models with maximum likelihood allowed all available data to be retained in the analysis. Together, these features enabled a rigorous, real-world test of universal, school-based well-being activities with adolescents.

Several limitations warrant caution in interpreting our conclusions. First, the online diary format may have imposed cognitive or technical friction for Grade 8 students; lower-friction formats, such as short audio submissions or paper/online exit tickets, may have yielded better engagement and completion (Smith, 2021). Second, the ‘placebo’ condition—a structured reflection on learning—may itself have contained positive ingredients, thereby reducing contrasts between groups. Third, although classes were cluster-randomized to conditions, baseline differences in motivation and student–student relationships point to natural classroom and teacher variability that could not be fully controlled. Some activities may also have been developmentally less resonant for Grade 8 students, particularly for those unfamiliar with reflective practices or uncertain of their value. Because the study was conducted during regular lessons, day-to-day confounds, such as acute events, mood or out-of-school stressors, could not be ruled out. Posttest attrition was also considerable (53%, see Table S13). Although the mixed-model approach reduces bias and preserves statistical power under the missing-at-random assumption, this level of attrition nonetheless warrants caution. A further limitation concerns the operationalization of student–student relationships and intrinsic motivation as moderators. We used a median split to form high and low groups, which allowed for straightforward interpretation of differential intervention effects across subgroups. However, median splits are associated with a loss of statistical power and restriction of variance, which may have attenuated the precision of the estimated moderation effects (Iacobucci et al., 2015). To address this issue, we conducted sensitivity analyses treating both student–student relationships and intrinsic motivation as continuous moderators. These analyses replicated the median-split findings in direction and time course—stable associations for relationships and time-varying, subscale-specific associations for motivation—suggesting that the reported moderation effects are robust to the dichotomization. Finally, the sample was drawn from Grade 8 classrooms in Switzerland, which limits generalisability to other age groups, school systems and cultural contexts.

Future research should further examine how well-being activities are best implemented in classrooms. In particular, comparing autonomy-supportive, choice-rich delivery with assignment-only models would help clarify the role of agency and person–activity fit. Relatedly, micro-personalization strategies that align activities with students' goals and preferences merit closer attention (Heintzelman et al., 2023; Nelson & Lyubomirsky, 2014). It would also be valuable to test alternative, lower-friction delivery formats, embed peer-leveraging designs (e.g. peer-led components or positive social-norms messaging) and employ factorial designs to identify active ingredients and adaptive sequences across diverse classroom contexts. Longer or more intensive implementations may also be needed to detect stronger changes in student well-being. Future research should also examine how well-being programmes can be aligned more closely with everyday curricular demands, for example through shorter formats or dedicated time slots for implementation. Although our study included basic fidelity checks, future evaluations would benefit from stronger implementation supports, such as teacher coaching or usage analytics, and from more systematic attrition-mitigation procedures. Finally, developmental tailoring of activities and rationales, together with social-network measures, may help clarify how peer structures shape the uptake and impact of well-being practices in classrooms (Burgess et al., 2018; Schmidt et al., 2019).

CONCLUSION

This study suggests that the effectiveness of school-based well-being activities in adolescence depends less on the specific activity set assigned than on individual and contextual conditions under which these activities are implemented. In lower-secondary school classrooms, the key challenge may therefore be not only to introduce positive practices but to embed them in contexts that support relatedness, autonomy and meaningful engagement. Programmes that cultivate these social-motivational foundations—by strengthening peer cohesion, teaching for autonomy and offering choice and fit—are most likely to translate the promise of positive psychology activities into everyday gains for adolescent learners.

AUTHOR CONTRIBUTIONS

Julia Mori: Conceptualization; investigation; funding acquisition; writing – original draft; methodology; validation; visualization; writing – review and editing; project administration; data curation; supervision; resources. **Melanie Nuoffer:** Conceptualization; writing – original draft; methodology; validation; visualization; writing – review and editing; formal analysis; project administration; data curation. **Katja Saxer:** Investigation; writing – review and editing; methodology. **Jakob Schnell:** Investigation; methodology; writing – review and editing. **Tina Hascher:** Conceptualization; funding acquisition; writing – review and editing; resources.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial or non-financial interests that are directly or indirectly related to the work submitted for publication.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

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 Bern prior to data collection (Ethics Application Nr. 2021-08-00005, August 2021).

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REFERENCES

- Allen, K., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2018). What schools need to know about fostering school belonging: A meta-analysis. *Educational Psychology Review*, 30(1), 1–34. <https://doi.org/10.1007/s10648-016-9389-8>
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>

- Bonell, C., Allen, E., Warren, E., McGowan, J., Bevilacqua, L., Jamal, F., & Viner, R. M. (2018). Effects of the learning together intervention on bullying and aggression in English secondary schools (INCLUSIVE): A cluster randomised controlled trial. *Lancet*, *392*(10163), 2452–2464.
- Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of Child Psychology: Theoretical Models of Human Development* (pp. 793–828). Wiley. <https://doi.org/10.1002/9780470147658>
- Burger, C. (2022). School bullying is not a conflict: The interplay between conflict management styles, bullying victimization and psychological school adjustment. *International Journal of Environmental Research and Public Health*, *19*(18), 11809. <https://doi.org/10.3390/ijerph191811809>
- Burgess, L. G., Riddell, P. M., Fancourt, A., & Murayama, K. (2018). The influence of social contagion within education: A motivational perspective. *Mind, Brain, and Education*, *12*(4), 164–174. <https://doi.org/10.1111/mbc.12178>
- Cefai, C., Simões, C. C. S., & Caravita, S. (2021). “A systemic, whole-school approach to mental health and well-being in schools in the EU: NESET report. Publications Office of the European Union.”. <https://doi.org/10.2766/50546>
- Cilar, L., Štiglic, G., Kmetec, S., Barr, O., & Pajnikihar, M. (2020). Effectiveness of school-based mental well-being interventions among adolescents: A systematic review. *Journal of Advanced Nursing*, *76*(8), 2023–2045. <https://doi.org/10.1111/jan.14408>
- Cohen, K. A., Ito, S., Ahuvia, I. L., Yang, Y., Zhang, Y., Renshaw, T. L., & Schleider, J. L. (2024). Brief school-based interventions targeting student mental health or well-being: A systematic review and meta-analysis. *Clinical Child and Family Psychology Review*, *27*(3), 732–806. <https://doi.org/10.1007/s10567-024-00487-2>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Delgrande Jordan, M., Schmidhauser, V., & Balsiger, N. (2023). “Santé et bien-être des 11 à 15 ans en Suisse – Situation en 2022, évolution dans le temps et corrélats. Résultats de l'étude Health Behaviour in School-aged Children (HBSC) (Rapport de recherche N° 159). Addiction Suisse.”. <https://doi.org/10.58758/rech159>
- Dodd, S., Widnall, E., Russell, A. E., Curtin, E. L., Simmonds, R., Limmer, M., & Kidger, J. (2022). School-based peer education interventions to improve health: A global systematic review of effectiveness. *BMC Public Health*, *22*(1), 2247. <https://doi.org/10.1186/s12889-022-14688-3>
- 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* (pp. 404–434). John Wiley & Sons Inc.. <https://doi.org/10.1002/9780470479193.adlpsy001013>
- Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225–241.
- Efeoglu, B., & Sen, C. K. N. (2022). Rejection sensitivity and mental well-being: The positive role of friendship quality. *Personal Relationships*, *29*(1), 4–23. <https://doi.org/10.1111/perc.12403>
- Eren, O., & Millimet, D. L. (2007). Time to learn? The organizational structure of schools and student achievement. *Empirical Economics*, *32*, 301–332. <https://doi.org/10.1007/s00181-006-0093-2>
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. <https://doi.org/10.1037/0003-066X.56.3.218>
- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*(5), 1045–1062. <https://doi.org/10.1037/a0013262>
- Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, *91*(5), 904–917. <https://doi.org/10.1037/0022-3514.91.5.904>
- Goldstein, S. E., 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>
- Goodman, A., Joshi, H., Nasim, B., & Tyler, C. (2015). *Social and Emotional Skills in Childhood and their Longterm Effects on Adult life*. Institute of Education.
- 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>
- Green, L. S., Oades, L. G., & Robinson, P. L. (2012). Positive education programs: Integrating coaching and positive psychology in schools. In C. van Nieuwerburgh (Ed.), *Coaching in Education: Getting Better Results for Students, Educators, and Parents* (pp. 115–132). Karnac Books.
- Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The situational motivation scale (SIMS). *Motivation and Emotion*, *24*(3), 175–213. <https://doi.org/10.1023/A:1005614228250>
- Gunawardena, H., Voukelatos, A., Nair, S., Cross, S., & Hickie, I. B. (2023). Efficacy and effectiveness of universal school-based wellbeing interventions in Australia: A systematic review. *International Journal of Environmental Research and Public Health*, *20*(15), 6508. <https://doi.org/10.3390/ijerph20156508>
- Hascher, T. (2004). *Wohlbefinden in der Schule*. Waxmann.
- Hascher, T. (2007). Exploring students' well-being by taking a variety of looks into the classroom. *Hellenic Journal of Psychology*, *4*(3), 331–349.

- Hascher, T., & Hagenauer, G. (2020). Swiss adolescents' well-being in school. *Swiss Journal of Educational Research*, 42(2), 367–390. <https://doi.org/10.24452/sjer.42.2.5>
- Hascher, T., & Mori, J. (2024). Teacher and student well-being: Theoretical reflections and perspectives. In G. Hagenauer, R. Lazarides, & H. Järvenoja (Eds.), *EARLI Book Series: Motivation and Emotion in Learning and Teaching Across Educational Contexts – Theoretical and Methodological Perspectives and Empirical Insights* (pp. 114–127). Routledge.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional contagion*. Cambridge University Press.
- Hattie, J. (2009). *Visible Learning: A Synthesis of Meta-analyses Relating to Achievement*. Routledge.
- Heintzelman, S. J., Kushlev, K., & Diener, E. (2023). Personalizing a positive psychology intervention improves well-being. *Applied Psychology: Health and Well-Being*, 15(4), 1271–1292. <https://doi.org/10.1111/aphw.12436>
- 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*, 12, 758226. <https://doi.org/10.3389/fpsyg.2021.758226>
- 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>
- Huppert, F. A. (2014). The state of wellbeing science: Concepts, measures, interventions, and policies. In F. A. Huppert & C. L. Cooper (Eds.), *Interventions and Policies to Enhance Wellbeing* (pp. 1–49). Wiley Blackwell.
- Iacobucci, D., Posavac, S. S., Kardes, F. R., Schneider, M. J., & Popovich, D. L. (2015). Toward a more nuanced understanding of the statistical properties of a median split. *Journal of Consumer Psychology*, 25, 652–665. <https://doi.org/10.1016/j.jcps.2014.12.002>
- Institut für Qualitätsentwicklung Hessen. (2013). Kohäsion/ Klassenzusammenhalt - Schüler [Fragebogenskala: Version 1.0]. In Hessischer Referenzrahmen Schulqualität - Fragebogenerhebung [Skalenkollektion: Version 1.0]. Datenerhebung 2011. *Forschungsdatenzentrum Bildung am DIPF*. <https://doi.org/10.7477/44:48:1>
- Kiuru, N., Wang, M. T., Salmela-Aro, K., Kannas, L., Ahonen, T., & Hirvonen, R. (2020). Associations between adolescents' interpersonal relationships, school well-being, and academic achievement during educational transitions. *Journal of Youth and Adolescence*, 49, 1057–1072. <https://doi.org/10.1007/s10964-019-01184-y>
- 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>
- 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 and Adolescence*, 43(4), 541–553. <https://doi.org/10.1007/s10964-013-9979-4>
- Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology*, 100, 96–104.
- Langford, R., Bonell, C. P., Jones, H. E., Poulidou, T., Murphy, S. M., Waters, E., Komro, K., Gibbs, L., Magnus, D., & Campbell, R. (2015). The World Health Organization's health promoting schools framework: A Cochrane systematic review and meta-analysis. *BMC Public Health*, 15, 130. <https://doi.org/10.1186/s12889-015-1360-y>
- Lawrance, E. L., Thompson, R., Newberry Le Vay, J., Page, L., & Jennings, N. (2022). The impact of climate change on mental health and emotional wellbeing: A narrative review of current evidence, and its implications. *International Review of Psychiatry*, 34(5), 443–498. <https://doi.org/10.1080/09540261.2022.2128725>
- Layous, K., Katherine Nelson, S., & Lyubomirsky, S. (2013). What is the optimal way to deliver a positive activity intervention? The case of writing about one's best possible selves. *Journal of Happiness Studies*, 14(2), 635–654. <https://doi.org/10.1007/s10902-012-9346-2>
- Luo, Y., & Waite, L. J. (2005). The impact of childhood and adult SES on physical, mental, and cognitive well-being in later life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 60(2), S93–S101. <https://doi.org/10.1093/geronb/60.2.S93>
- Lyubomirsky, S., Dickerhoof, R., Boehm, J. K., & Sheldon, K. M. (2011). Becoming happier takes both a will and a proper way: An experimental longitudinal intervention to boost well-being. *Emotion*, 11(2), 391–402. <https://doi.org/10.1037/a0022575>
- Lyubomirsky, S., & Layous, K. (2013). How do simple positive activities increase well-being? *Current Directions in Psychological Science*, 22(1), 57–62. <https://doi.org/10.1177/0963721412469>
- Mackenzie, K., & Williams, C. (2018). Universal, school-based interventions to promote mental and emotional well-being: What is being done in the UK and does it work? A systematic review. *BMJ Open*, 8(9), e022560. <https://doi.org/10.1136/bmjopen-2018-022560>
- Marengo, D., Fabris, M. A., Prino, L. E., Settanni, M., & Longobardi, C. (2021). Student-teacher conflict moderates the link between students' social status in the classroom and involvement in bullying behaviors and exposure to peer victimization. *Journal of Adolescence*, 87, 86–97. <https://doi.org/10.1016/j.adolescence.2021.01.005>
- Morinaj, J., & Hascher, T. (2019). School alienation and student well-being: A cross-lagged longitudinal analysis. *European Journal of Psychology of Education*, 34, 273–294. <https://doi.org/10.1007/s10212-018-0381-1>
- Morinaj, J., & Hascher, T. (2022). Well-being 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. 67–85). Springer. https://doi.org/10.1007/978-3-030-95205-1_5
- Nelson, S. K., & Lyubomirsky, S. (2014). Finding happiness: Tailoring positive activities for optimal well-being benefits. In M. Tugade, M. N. Shiota, & L. D. Kirby (Eds.), *Handbook of Positive Emotions* (pp. 275–293). The Guilford Press.

- Noble, T., & McGrath, H. (2008). The positive educational practices framework: A tool for facilitating the work of educational psychologists in promoting pupil wellbeing. *Educational and Child Psychology*, 25(2), 119–134.
- Oberle, E., Schonert-Reichl, K. A., & Zumbo, B. D. (2011). Life satisfaction in early adolescence: Personal, neighborhood, school, family, and peer influences. *Journal of Youth and Adolescence*, 40(7), 889–901. <https://doi.org/10.1007/s10964-010-9599-1>
- Pavot, W., & Diener, E. D. (2004). The subjective evaluation of well-being in adulthood: Findings and implications. *Ageing International*, 29, 113–135. <https://doi.org/10.1007/s12126-004-1013-4>
- 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>
- Pöhlnd, L., & Raufelder, D. (2014). The role of peers and teachers as motivators on adolescents' neural emotional processing predicting feelings of loneliness, depression and stress: Results of an interdisciplinary study. *Diskurs Kindheits- Und Jugendforschung*, 9(4), 451–465. <https://doi.org/10.3224/diskurs.v9i4.17292>
- Pollard, E. L., & Lee, P. D. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research*, 61, 59–78. <https://doi.org/10.1023/A:1021284215801>
- Raufelder, D., Neumann, N., Domin, M., Lorenz, R. C., Gleich, T., Golde, S., Romund, L., Beck, A., & Hoferichter, F. (2021). Do belonging and social exclusion at school affect structural brain development during adolescence? *Child Development*, 92(6), 2213–2223. <https://doi.org/10.1111/cdev.13613>
- 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: Basic Psychological Needs in Motivation, Development, and Wellness*. The Guilford Press. <https://doi.org/10.1521/978.14625/28806>
- Saxer, K., Schnell, J., Mori, J., & Hascher, T. (2024). The role of teacher–student relationships and student–student relationships for secondary school students' well-being in Switzerland. *International Journal of Educational Research Open*, 6, 100318. <https://doi.org/10.1016/j.ijedro.2023.100318>
- Saxer, K., Tuominen, H., Schnell, J., Mori, J., & Niemivirta, M. (2025). Lower secondary students' well-being profiles: Stability, transitions, and connections with teacher–student, and student–student relationships. *Child & Youth Care Forum*, 55, 1–30. <https://doi.org/10.1007/s10566-025-09886-0>
- 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. <https://doi.org/10.1111/sode.12379>
- Schmitz, B. (2024). What teachers can do to enhance students' well-being: Discussion. *Learning and Instruction*, 94, 101980. <https://doi.org/10.1016/j.learninstruc.2024.101980>
- Schnell, J., Saxer, K., Mori, J., & Hascher, T. (2025). On the relationship between student well-being, school engagement, and academic achievement: A longitudinal study among secondary school students in Switzerland. *Education Science*, 15(3), 383. <https://doi.org/10.3390/educsci15030383>
- Schueller, S. M. (2011). To each his own well-being boosting intervention: Using preference to guide selection. *The Journal of Positive Psychology*, 6(4), 300–313. <https://doi.org/10.1080/17439760.2011.577092>
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60(5), 410–421. <https://doi.org/10.1037/0003-066X.60.5.410>
- Shankland, R., & Rosset, E. (2017). Review of brief school-based positive psychological interventions: A taster for teachers and educators. *Educational Psychology Review*, 29(2), 363–392. <https://doi.org/10.1007/s10648-016-9357-3>
- Sheldon, K. M., Abad, N., Ferguson, Y., Gunz, A., Houser-Marko, L., Nichols, C. P., & Lyubomirsky, S. (2010). Persistent pursuit of need-satisfying goals leads to increased happiness: A 6-month experimental longitudinal study. *Motivation and Emotion*, 34(1), 39–48. <https://doi.org/10.1007/s11031-009-9153-1>
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76(3), 482–497. <https://doi.org/10.1037/0022-3514.76.3.482>
- Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The Journal of Positive Psychology*, 1(2), 73–82. <https://doi.org/10.1080/17439760500510676>
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology*, 65, 467–487. <https://doi.org/10.1002/jclp.20593>
- Smith, S. (2021). Finding the voice of students engaging in online alternative provision via digital data collection methods. *British Journal of Educational Technology*, 52(2), 899–914. <https://doi.org/10.1111/bjet.13061>
- Tejada-Gallardo, C., Blasco-Belled, A., Torrelles-Nadal, C., & Alsinet, C. (2020). Effects of school-based multicomponent positive psychology interventions on well-being and distress in adolescents: A systematic review and meta-analysis. *Journal of Youth and Adolescence*, 49(10), 1943–1960. <https://doi.org/10.1007/s10964-020-01289-9>
- Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357–385. <https://doi.org/10.3102/0034654313483907>
- Tian, L., Wang, D., & Huebner, E. S. (2015). Development and validation of the brief adolescents' subjective well-being in school scale (BASWBSS). *Social Indicators Research*, 120(2), 615–634. <https://doi.org/10.1007/s11205-014-0603-0>
- United Nations Children's Fund. (2021). *The State of the World's Children 2021: On My Mind – Promoting, Protecting and Caring for Children's Mental Health*. UNICEF.

- van Wely, M. (2024). Mixed models for repetitive measurements: The basics. *Fertility and Sterility*, 121(6), 914–917. <https://doi.org/10.1016/j.fertnstert.2024.04.009>
- Vansteenkiste, M., Aelterman, N., De Muynck, G. J., Haerens, L., Patall, E., & Reeve, J. (2018). Fostering personal meaning and self-relevance: A self-determination theory perspective on internalization. *The Journal of Experimental Education*, 86(1), 30–49. <https://doi.org/10.1080/00220973.2017.1381067>
- 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>
- 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>
- Vogt, K. (2004). “Interessenerzeugung durch individuelle Belohnung oder Übung zur Verhinderung von social loafing in Kooperationssituationen [Doctoral dissertation, Eberhard Karls Universität Tübingen]”. <https://d-nb.info/975646788/34>
- Wang, Y., Wang, H., Wang, S., Wind, S. A., & Gill, C. (2024). A systematic review and meta-analysis of self-determination-theory-based interventions in the education context. *Learning and Motivation*, 87, 102015. <https://doi.org/10.1016/j.lmot.2024.102015>
- Waters, L. (2011). A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist*, 28(2), 75–90. <https://doi.org/10.1375/aedp.28.2.75>
- Wentzel, K. R., Barry, C. M., & Caldwell, K. A. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology*, 96(2), 195–203. <https://doi.org/10.1037/0022-0663.96.2.195>
- Yang, Q., Tian, L., Huebner, E. S., & Zhu, X. (2019). Relations among academic achievement, self-esteem, and subjective well-being in school among elementary school students: A longitudinal mediation model. *School Psychology*, 34(3), 328–340. <https://doi.org/10.1037/spq0000292>
- Zaff, J. F., Smith, D. C., Rogers, M. F., Leavitt, C. H., Halle, T. G., & Bornstein, M. H. (2003). Holistic well-being and the developing child. In M. H. Bornstein, L. Davidson, C. L. M. Keyes, & K. A. Moore (Eds.), *Well-being: Positive Development Across the Life Course* (pp. 23–32). Erlbaum.
- 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>

SUPPORTING INFORMATION

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