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RECEIVED 09 November 2025
REVISED 30 January 2026
ACCEPTED 17 February 2026
PUBLISHED 27 February 2026

CITATION
Serikbayeva N, Sarzhanova G,
Belenko O, Oryngaliyeva S,
Orynbekova A and
Rakhimgaliyeva P (2026) Psychological
safety and well-being in Kazakh
upper-secondary classrooms: a
mixed-methods pilot study.
Front. Educ. 11:1742756.
doi: 10.3389/feduc.2026.1742756

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Psychological safety and well-being in Kazakh upper-secondary classrooms: a mixed-methods pilot study

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Psychological safety—the shared belief that one can speak up, ask questions, or make mistakes without social repercussions—remains under-explored in Central-Asian secondary schools. This cross-sectional mixed-methods pilot examined psychological safety and classroom well-being among 111 Kazakh students (Grades 10–11) in four schools. Students completed a seven-item preliminarily adapted Psychological Safety Scale ($\alpha = 0.84$) and a four-item Well-Being Index ($\alpha = 0.81$); focus groups and six teacher interviews were then conducted to contextualise and interpret the survey patterns. Mean safety ($M = 3.02/5$) and well-being ($M = 3.18/5$) were moderate, and Grade 11 reported lower safety than Grade 10 ($d = 0.42$). In hierarchical regression, psychological safety was positively associated with well-being, accounting for 29% of its variance ($\beta = 0.55, p < 0.001$), while grade and gender were not significant in the full model. Thematic analysis pointed to teacher approachability, peer-respect norms, public-evaluation anxiety, and time pressure as salient classroom drivers. Overall, the findings provide preliminary evidence supporting the adapted measures' internal consistency, establish baseline benchmarks, and highlight interaction style and assessment practices as promising targets for strengthening classroom well-being.

KEYWORDS

classroom climate, psychological safety, regression, secondary school, well-being

1 Introduction

Psychological safety encompasses the shared belief that the classroom climate allows students to ask questions, voice ideas, and admit mistakes without fear of ridicule or punishment (Edmondson, 1999; Mavrommatidou et al., 2023; Francis et al., 2022). In educational settings, this atmosphere is associated with increased engagement, deeper learning experiences, and enhanced socio-emotional development. However, most empirical evidence remains concentrated in higher education and adult populations, and studies examining upper-secondary students are still limited, particularly in Central Asia.

Kazakhstan's State Programme for the Development of Education and Science (2020–2025) underscores the necessity for “modern learning environments that protect learners' health and psychological well-being” (Fleming et al., 2024). Despite this established policy emphasis, educational institutions in Semey and other regional centres report persistent anxiety, a reluctance to seek

assistance, and limited participation in classroom activities among senior students (Tusseyev et al., 2021). Consequently, stakeholders require actionable evidence to ascertain the level of safety experienced by students and to identify the most effective teaching practices at the classroom level.

The current pilot study aimed to address this deficiency. A concise survey was administered alongside focus group interviews to investigate the perceptions of 10th and 11th-grade students from four public schools in Semey ($N = 111$). The quantitative component assessed (a) perceived psychological safety and (b) classroom well-being. The qualitative component examined instances within the classroom, teacher behaviours, and peer interactions that influenced these perceptions.

1.1 Research questions

RQ1: What levels of psychological safety and classroom well-being are reported by students in Grades 10 and 11?

RQ2: Do perceived levels of psychological safety and classroom well-being vary by grade or gender?

RQ3: Is psychological safety associated with classroom well-being when accounting for grade and gender?

1.2 Hypotheses

H1: Mean psychological safety scores will be at or below the theoretical midpoint of the scale, indicating moderate perceived safety.

H2: Students in Grade 11 will report lower psychological safety than students in Grade 10, consistent with increased academic demands in the final school year.

H3: Psychological safety will be positively associated with classroom well-being ($\beta > 0$), with an expected small-to-moderate effect, tested via correlation/regression rather than causal inference.

1.3 Contribution

By presenting the inaugural Kazakh pilot data on psychological safety in secondary classrooms and combining student narratives with essential statistics, this study offers (i) a preliminarily adapted set of local-language measures with initial internal-consistency evidence, (ii) baseline indicators for educational leaders, and (iii) practical recommendations aligned with AJUE's scholarship agenda centered on student-focused learning. The findings will contribute to the extensive data collection planned for 2025–2026 and will inform the development of modules for teacher training required by the national framework program.

2 Literature review

2.1 Conceptual grounding

In classroom contexts, psychological safety refers to students' shared perceptions that interpersonal risk-taking (e.g., asking questions, admitting confusion) will not lead to ridicule or retribution (Chen et al., 2022;

Duffy et al., 2022). A later integrative review clarified its historical foundations, outlined its antecedents (supportive leadership, inclusive norms), and established links between this construct and learning behaviours in various contexts (Edmondson and Lei, 2014; Lackie et al., 2023). Although much of this research emerged from organisational studies, educational researchers have embraced the construct, acknowledging that classrooms also require collective participation and the readiness to admit mistakes to sustain engagement and learning.

2.2 Measurement developments

The seven-item Team Psychological Safety Scale, introduced by Edmondson (1999), remains the standard instrument in this field and has been readily adapted for educational research, including studies involving K-12 staff and university undergraduates (Chin et al., 2024). Recent work also highlights the value of measuring adolescents' perceived safety directly, including multi-item instruments tested in adolescent samples (Cogan et al., 2025; Cogan et al., 2024). Together, these developments support classroom research that links interpersonal climate to well-being while underscoring the need for careful adaptation when instruments are used in new languages and contexts.

2.3 Current evidence base

Fleming et al. (2024) tracked 769 rural educators in the United States over a four-year period. They discovered that a "stable-high" safety profile was correlated with lower levels of burnout and greater self-efficacy compared to "dynamic-low" or "medium" profiles.

At the student level, emerging findings from Asia are significant. A Chinese survey involving 1,267 junior high students demonstrated that a positive school climate enhanced psychological capital, which in turn mitigated academic burnout, partially mediating the impact of school climate. In India, a comparative study of 636 higher secondary students identified significant variations in psychological well-being correlated with school type, emphasising the importance of contextual climate in adolescent mental health (Raghu and Sultana, 2024).

In the realm of higher education, a study published in AJUE regarding Malaysian undergraduates demonstrated that the fulfilment of basic psychological needs and academic motivation fully mediated the relationship between academic support and student engagement, thereby reinforcing the pathway from a supportive environment to positive outcomes (Chin et al., 2024). Collectively, these studies reveal consistent associations between safe environments and overall well-being. However, few specifically address upper secondary student populations. Russian-language evidence supports this mechanism: higher anxiety is linked to lower satisfaction with the educational environment and lower perceived psychological safety, expressed as fear of knowledge testing/social stress (girls) and teacher-related fears/self-expression difficulties (boys) (Ivanova and Stepanova, 2024). In a large vocational-student sample ($n = 2,789$; ages 12–25), higher psychological security was associated with higher social intelligence, especially understanding/predicting others and stronger social skills (Baeva et al., 2021).

2.4 Macro-context: post-pandemic pressures

Across jurisdictions, adolescent well-being and classroom climate have become explicit policy concerns, with school systems

increasingly emphasising prevention, support structures, and teacher capacity-building to reduce student distress and sustain engagement (Adams, 2025; Tang, 2024). This policy turn reinforces the importance of generating context-specific evidence on classroom psychological safety, particularly in upper-secondary grades where academic demands intensify.

2.5 Central Asian policy gap

Kazakhstan's State Programme for the Development of Education and Science 2020–2025 commits to establishing “safe and comfortable” learning conditions for every child while acknowledging that the national response system for students in challenging situations remains inadequately developed. A review of peer-reviewed literature indicates that this concept, although explored at various educational levels, has yet to be quantified in Kazakh secondary classrooms. Existing studies predominantly focus on elementary pupils (Mukhtarkyzy et al., 2025; Sarzhanova et al., 2023; Tusseyev et al., 2021) or the adaptation processes of university students (Litvinov et al., 2020; Tasmagambetova et al., 2024). Methodologically, mixed-method survey + interview designs are increasingly used in Kazakhstan to evaluate education reforms (e.g., a 24-student mixed-method study on dual education and a specialised teacher-training platform), supporting the feasibility of explanatory mixed-method approaches in local settings (Seitaliyeva et al., 2025). Furthermore, no published research has been identified that assesses psychological safety among Kazakh Grade 10–11 cohorts or evaluates its association with well-being, thus revealing a significant empirical gap that the present pilot study seeks to address.

2.6 Synthesis and study rationale

Across various regions and educational levels, psychological safety consistently demonstrates a correlation with increased engagement, reduced burnout, and improved mental health. However, the extant literature tends to exhibit a bias towards higher education and samples involving educators, with Central Asian secondary schools being nearly absent from the discourse. By conducting a pilot mixed-methods study in four schools within Semey City, the present research addresses three significant gaps: (i) it offers local-language measures that have been preliminarily adapted for use with adolescents, (ii) it establishes baseline safety and well-being indicators for students in Grades 10–11, and (iii) it presents contextually rich qualitative data aimed at informing future national reforms.

TABLE 1 Student sample by school and grade.

School	Grade 10	Grade 11	Total
Multidisciplinary Gymnasium № 5	14	15	29
Secondary School № 42 (boarding)	12	13	25
Secondary School № 40	15	17	32
Secondary School № 44	12	13	25
Total	53	58	111

3 Method

3.1 Overall design

The researcher employed a mixed-methods approach distinguished by its explanatory and sequential nature, specifically devised to address the three research questions (RQ1–RQ3) along with their corresponding hypotheses (H1–H3). The study used a cross-sectional, explanatory-sequential mixed-methods design: a brief questionnaire provided the primary (quantitative) evidence, and qualitative data were collected to explain and contextualise the observed patterns. A succinct student questionnaire constituted the foundation for the quantitative data, while focus groups and interviews conducted with educators facilitated qualitative insights. The quantitative components focused on RQ1 (baseline levels), RQ2 (differences based on grade and gender), and RQ3 (associational) modelling. The qualitative aspects enriched the interpretation of any discerned numerical patterns rather than serving as a parallel test of hypotheses.

3.2 Participants

All eligible Grades 10 and 11 students in the selected classes were invited to participate; 111 students participated in the study ($N = 111$; 53 tenth-graders and 58 eleventh-graders). Grade 10 students ($n = 53$) had a mean age of $M = 16.04$, $SD = 1.07$, and 39.9% identified as female; Grade 11 students ($n = 58$) had a mean age of $M = 16.91$, $SD = 1.38$, and 44.8% identified as female. The distribution of locations is presented in Table 1. Six subject teachers, comprising four females and two males, instructed the surveyed classes and participated in individual interviews. Given the pilot scope and sample size, the study is positioned as exploratory and intended to inform a larger planned data collection.

3.3 Data screening and missing data

Questionnaires were screened prior to analysis. After screening, 111 student questionnaires were retained for quantitative analyses (0 excluded). For scale scoring and regression, missing item-level data were handled using listwise deletion at the analysis level (i.e., cases with missing values on variables required for a given model were excluded from that model).

3.4 Instruments

- 1 Psychological Safety Scale: seven items adapted from Edmondson (1999) for adolescent language, utilising 5-point Likert responses (1 = strongly disagree, 5 = strongly agree).

This adaptation was intended for initial use in the local context and does not constitute full psychometric validation; reliability estimates reported in this pilot are preliminary and limited to internal consistency.

- 2 Classroom Well-Being Index: Four affective-comfort items presented in the same format.
- 3 A brief demographic block gathered information on school, grade, gender, and age.
- 4 Qualitative guides comprised a five-prompt focus group schedule for students and a four-prompt interview schedule for teachers. For instrument adaptation, items were reviewed for age-appropriate wording and cultural clarity, followed by minor revisions prior to administration.

3.5 Procedure

The data collection was conducted from April 3 to April 10, 2025. Researchers distributed paper questionnaires during one lesson period in each class, with an average completion time of 5 min. Subsequently, voluntary focus group discussions comprising six to eight students were convened in a quiet room. Focus groups were conducted with students from the same classes that completed the questionnaires (i.e., the qualitative sample was drawn from the surveyed cohort). Focus groups were held, each lasting approximately 25 min, guided by prompts on classroom situations that increased safety, teacher responses to mistakes/questions, and peer interaction norms. Teacher interviews were arranged to take place after school hours on the same day. All sessions were audio recorded and transcribed verbatim.

3.6 Ethics statement

The Research Ethics Committee at Shakarim University has approved the study. Participation in the study was entirely voluntary. Students aged 16 years and older provided written consent, whereas students under the age of 16 utilised a parental opt-out letter. No identifying information was collected during the study, and all data files were stored using encryption methods to ensure confidentiality and data security.

3.7 Data analysis

For Research Question 1 (RQ1) and Hypothesis 1 (H1), descriptive statistics and scale reliability were computed using SPSS version 29.0. Research Question 2 (RQ2) and Hypothesis 2 were examined using independent-samples *t*-tests to compare psychological safety and classroom well-being across grade and gender groups. Research Question 3 (RQ3) and Hypothesis 3 were examined using hierarchical linear regression, entering grade and gender in Step 1 and psychological safety in Step 2. Regression results are reported with regression coefficients, standard errors, and overall model fit indices including R^2 and the *F*-statistic. Two researchers independently coded qualitative transcripts using Braun and Clarke's six-phase thematic analysis, and inter-coder agreement exceeded 0.75. Transcripts were segmented into meaning units and labelled by

participant type (student/teacher) and grade (G10/G11) to support pattern comparisons. Coding discrepancies were resolved through discussion, and an audit trail (codebook + decision notes) was maintained.

4 Results

4.1 RQ1/H1 – baseline levels of psychological safety and well-being

The Cronbach's alpha coefficients demonstrated strong internal consistency for both scales, with values of 0.84 for Psychological Safety and 0.81 for Classroom Well-being. As shown in Table 2, the overall mean for psychological safety ($M = 3.02$, $SD = 0.56$) exceeded the neutral midpoint, thus providing partial support for Hypothesis 1. The mean score for classroom well-being was 3.18 ($SD = 0.60$), indicating a moderately more positive emotional environment.

4.2 RQ2/H2 – grade and gender contrasts

The grade comparison directly evaluated Hypothesis 2, which predicted a decline in psychological safety from Grade 10 to Grade 11. Tenth-grade students reported a higher mean safety score ($M = 3.15$, $SD = 0.55$) compared to their eleventh-grade counterparts ($M = 2.91$, $SD = 0.53$); this difference was statistically significant, $t(109) = 2.20$, $p = 0.030$, exhibiting a small-to-moderate practical effect size (Cohen's $d = 0.42$). Classroom well-being scores were also slightly lower in Grade 11 (Grade 10: $M = 3.22$, $SD = 0.61$; Grade 11: $M = 3.14$, $SD = 0.59$), and this grade difference reached statistical significance ($p = 0.035$), although the magnitude of the difference was small. Gender did not exert a reliable influence on either construct. Consequently, the results support Hypothesis 2 for psychological safety and indicate a small grade-linked difference in well-being, suggesting that the transition to the high-stakes examination year is associated with reduced interpersonal safety and a modest decline in reported classroom well-being.

4.3 RQ3/H3 – associational role of psychological safety

To examine whether psychological safety predicts classroom well-being beyond demographic variables, a hierarchical regression analysis was conducted. As shown in Table 3, the initial model (Step 1) including only grade and gender accounted for 5% of the variance in well-being scores [$F(2, 108) = 2.84$, $p = 0.063$]. Grade showed a modest negative effect ($\beta = -0.21$, $p = 0.035$), suggesting lower well-being in Grade 11; gender had no significant impact. When psychological safety was added in Step 2 (Table 4), it significantly improved the model, contributing an additional 26% of explained variance and raising the total adjusted R^2 to 0.29 [$F(3, 107) = 16.03$, $p < 0.001$; $\Delta F(1, 107) = 40.33$, $p < 0.001$]. Psychological safety emerged as a strong

TABLE 2 Reliability scales and overall means ($N = 111$).

Measure	α	M	SD
Psychological safety	0.84	3.02	0.56
Classroom well-being	0.81	3.18	0.60

TABLE 3 Step 1: demographic predictors of well-being.

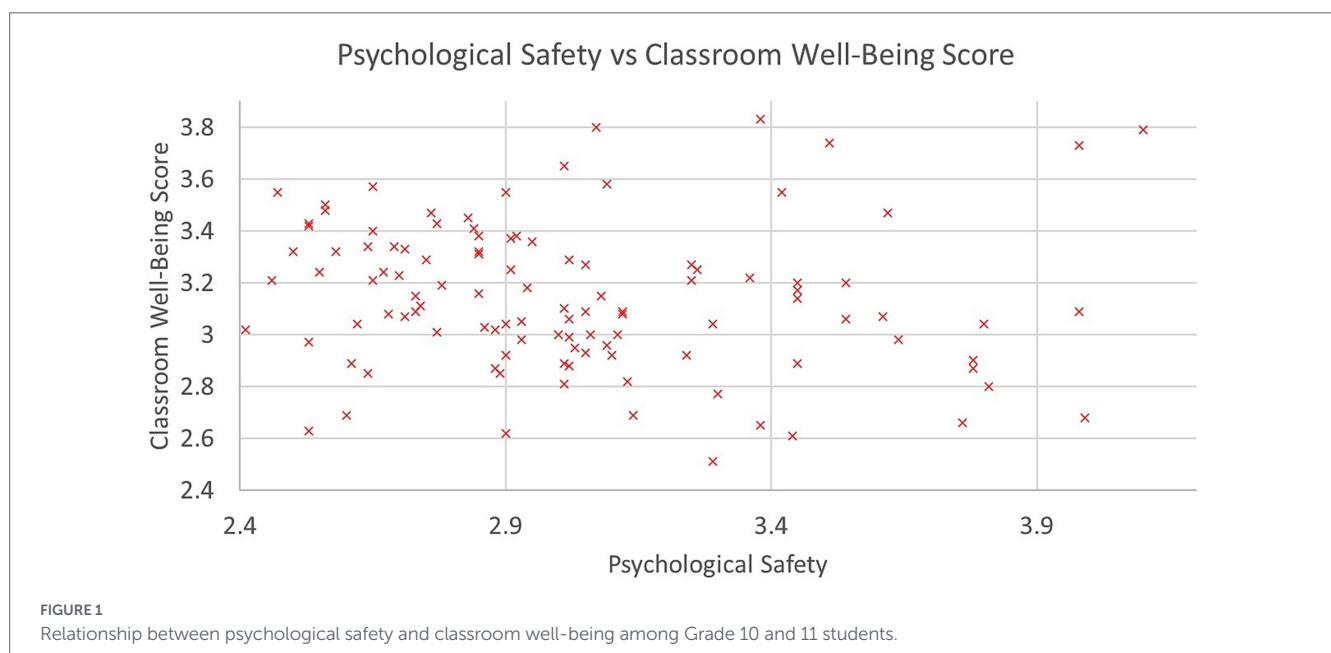
Predictor	β	SE β	t	p
Grade (10 = 0, 11 = 1)	-0.21	0.10	-2.13	0.035
Gender (male = 0, female = 1)	0.07	0.10	0.69	0.491

Model summary: $R^2 = 0.05$, Adj. $R^2 = 0.03$, $F(2, 108) = 2.84$, $p = 0.063$.

TABLE 4 Step 2: full model with psychological safety.

Predictor	β	SE β	t	p
Psychological safety	0.55	0.09	6.45	<0.001
Grade	-0.05	0.09	-0.58	0.565
Gender	0.03	0.08	0.37	0.712

Model summary: $R^2 = 0.31$, Adj. $R^2 = 0.29$, $F(3, 107) = 16.03$, $p < 0.001$; $\Delta R^2 = 0.26$, $\Delta F(1, 107) = 40.33$, $p < 0.001$.



positive associate ($\beta = 0.55$, $p < 0.001$), while the effects of grade and gender became statistically non-significant. This provides exploratory support for Hypothesis 3, indicating that students who feel psychologically safe are more likely to report higher levels of classroom well-being—regardless of their grade or gender. At the same time, the association should be interpreted cautiously given the pilot sample and the dispersion of individual scores, suggesting that additional unmeasured classroom factors also contribute to well-being, which is illustrated in Figure 1, where individual student scores show a positive association with considerable variability between psychological safety and well-being across the sample.

4.4 Qualitative elaboration of RQ1–RQ3 findings

Four student focus groups, comprising 27 participants, and six teacher interviews resulted in the identification of 142 meaning units that coalesced around four themes, elucidating the quantitative patterns, as presented in Table 5. Teacher approachability and norms of peer respect were consistently recognised as

facilitators of safety. Conversely, fear of public evaluation and time constraints emerged as significant detractors, particularly in Grade 11 classes preparing for high-stakes examinations. For example, Grade 11 students frequently described hesitation to answer in front of peers (e.g., “If I answer incorrectly, others will laugh”), while time pressure was linked to reduced opportunities to ask clarifying questions (e.g., “We have to rush, so there’s no time to explain mistakes”). These narratives enhance the understanding of the decline associated with grade levels and further substantiate the associational significance of safety within the regression model.

Theme 1 – Teacher approachability: Students described feeling safer when teachers normalised mistakes (e.g., using supportive humour and “mistakes are normal” statements), which reduced hesitation to ask questions in whole-class settings. This theme appeared in both grades, but was described as harder to sustain in Grade 11 under faster pacing.

Theme 2 – Peer-respect norms: Students highlighted explicit “no mocking” norms as a protective factor, often framed as a shared class agreement that made speaking up less risky. Where these norms were

TABLE 5 Illustrative quotations for emergent themes.

Theme	Student or teacher voice
Teacher approachability	<p>“When the teacher laughs with us and says mistakes are normal, it’s easy to speak” (female, G10).</p> <p>“Teacher support helps even under exam pressure/fast pacing” (Male, G11).</p> <p>“I try to normalise mistakes/invite questions/avoid sarcasm” (Teacher).</p>
Peer-respect norms	<p>“We agreed early in the year: no laughing at wrong answers” (Male, G11).</p> <p>“When classmates do not mock, I raise my hand more” (Female, G10).</p> <p>“We set class rules; I stop ridicule immediately” (Teacher).</p>
Fear of public evaluation	<p>“Standing at the board with everyone watching—that’s when I freeze” (Female, G11).</p> <p>“I’m afraid of being judged” (Male, G10).</p> <p>“Board answers can trigger anxiety; I use low-stakes checking first” (Teacher).</p>
Physical and time pressure	<p>“Ten-minute breaks are too short; I’m still anxious walking into mathematics” (Male, G10).</p> <p>“In Grade 11 we rush; there’s no time to ask; pressure is higher” (Female, G11).</p> <p>“Curriculum pacing/exam prep increases tempo; quieter students stop asking” (Teacher).</p>

absent or inconsistently enforced, participants linked this to avoidance of participation (especially during public answering).

Theme 3 – Fear of public evaluation: Participants connected anxiety to highly visible performance moments (e.g., answering at the board or being singled out), describing freezing and fear of ridicule; this theme was emphasised in Grade 11 narratives and aligns with the observed grade-linked drop in safety.

Theme 4 – Physical and time pressure: Time scarcity (short transitions, rushed explanations, rapid questioning) was reported as limiting clarification opportunities and increasing tension; teachers also noted that faster pacing can unintentionally silence quieter students.

Together, these theme-specific accounts clarify how classroom routines (error response, peer norms, public evaluation, pacing) plausibly produce the observed grade-linked safety differences and the safety–well-being association.

4.5 Synthesis across research questions

Collectively, the data provide coherent responses to the three guiding questions. The baseline safety level is moderate, yet fragile, deteriorating during the examination-intensive final year. This decline coincides with an increase in qualitatively identified fears concerning public mistakes. Psychological safety emerges as the strongest statistical correlate of classroom well-being, constituting nearly one-third of its variance. Qualitative evidence supports this finding, indicating that when educators normalise errors and peers alleviate ridicule, students experience emotional security, even amidst the pressures of the curriculum.

5 Discussion

5.1 RQ1/H1 – how safe and well did students feel?

The first research question inquired whether upper-secondary students experienced a psychologically safe and emotionally supportive classroom environment. Mean scores that slightly exceeded the neutral midpoint indicated only moderate levels of safety and well-being, thereby providing partial support for hypothesis H1. These

scores were consistent with the “middling” patterns observed in recent Asian samples (Chin et al., 2024). They were lower than those reported in earlier studies based on Edmondson’s framework, which often concentrated on lower-stakes contexts. The qualitative theme of teacher approachability played a crucial role in elucidating these findings. Students expressed a sense of security when errors were normalised and humour was permitted. However, such conducive conditions were inconsistently manifested across various lessons. Overall, a foundational level of safety was present but proved to be fragile. It was adequate for routine interactions but insufficient for sustained intellectual risk-taking in whole-class settings.

5.2 RQ2/H2 – why did Grade 11 students feel less safe?

In alignment with H2, Grade 10 students reported a significantly higher level of psychological safety compared to their Grade 11 counterparts; however, their overall well-being did not exhibit any significant difference. This observed grade effect is consistent with prior data from England, which indicates a decline in perceived safety following the transition to high-stakes examinations (UCL, 2025). Insights from focus group discussions identified two immediate factors contributing to this decline: increased public assessments and shorter transitions between lessons. For eleventh-grade students, the Blackboard test emerged as a symbolic stressor, described as “the moment everyone is watching,” thereby magnifying their fear of embarrassment. Educators acknowledged that rapid questioning tends to “shut quieter students down,” thereby supporting the connection between evaluative practices and perceived risk.

The prominence of grade differences—relative to gender (and the limited age variation within grades)—suggests that institutional conditions may matter more than stable individual characteristics in this context. In Kazakhstan, Grade 11 typically concentrates examination preparation and increases evaluative intensity; thus, the grade effect can be interpreted as reflecting a shift in classroom routines (assessment visibility, pacing, and error tolerance) rather than a developmental change alone. At the same time, developmental explanations cannot be ruled out, as older adolescents may be more sensitive to peer evaluation; however, the narrow age range and the alignment of age with grade make

institutional factors the more plausible proximal explanation in this pilot sample. The lack of observable gender differences implies that examination-related pressure diminished safety broadly rather than selectively, although the modest sample size may have limited power to detect small gender effects. Together, these findings point to grade-linked instructional and assessment practices—rather than demographic characteristics—as practical targets for improving classroom psychological safety.

5.3 RQ3/H3 – did safety relate to well-being?

Hierarchical regression provided exploratory support for H3 after controlling for grade and gender. Psychological safety accounted for an additional 24% of the variance in classroom well-being, rendering demographic effects non-significant. This pattern aligns with previous findings indicating that supportive environments mitigate burn-out and enhance engagement (Edmondson, 1999). However, the association should be interpreted cautiously: this was a cross-sectional pilot, and the scatter in individual scores indicates meaningful unexplained variability, suggesting that other classroom factors also contribute to well-being. Qualitative data elucidated plausible classroom mechanisms that may underlie this association. When peers enforced norms of courtesy and teachers encouraged the expression of divergent views, students reported feeling “relaxed” and “heard,” experiences that correspond directly with the well-being scale items. In contrast, public shaming and time pressure diminished both safety and comfort. Thus, the convergence of mixed-methods evidence emphasises safety not merely as a peripheral nicety but rather as a salient correlate of adolescents’ affective states in upper-secondary classrooms, while underscoring the value of qualitative accounts for interpreting the quantitative pattern.

5.4 Implications for policy and practice

The findings derived from all three questions converge on a salient message: instructional interaction style and assessment format serve as critical levers for fostering psychological safety within Kazakh upper-secondary classrooms. Professional development workshops should prioritise discourse routines that accommodate errors, promote student questioning, and institutionalise peer-respect charters. School leaders may undertake an audit of high-stakes oral testing practices, replacing private or small-group demonstrations wherever feasible. At the policy level, the national directive for “modern learning environments” could integrate explicit safety indicators, including types of teacher prompts, student participation ratios, and incidences of ridicule, to enhance existing physical environment benchmarks.

5.5 Limitations

The cross-sectional design precluded causal inference and obscured within-student trajectories. Although the sample encompassed four schools, it represented a single urban district. Rural or highly selective schools may differ in their approaches. Self-report measures might inflate associations due to common-method variance. However, the large effect size and qualitative corroboration alleviate this concern. Finally, teacher interviews involved volunteers and may underrepresent less reflective practitioners.

6 Conclusion

This pilot study provides preliminary evidence on psychological safety and classroom well-being among Kazakh upper-secondary students in Grades 10–11. Students reported moderate levels of both constructs, with psychological safety lower in Grade 11 than Grade 10, consistent with the heightened evaluative pressure of the final school year. In the quantitative analyses, psychological safety showed a positive association with classroom well-being after accounting for grade and gender, while qualitative accounts helped interpret this pattern by highlighting teacher approachability, peer-respect norms, public-evaluation anxiety, and time pressure as salient classroom conditions. Together, these findings offer initial local benchmarks and support the use of concise, preliminarily adapted Kazakh and Russian measures for future research. Practically, the results point to actionable, classroom-level levers—such as normalising mistakes, increasing opportunities for student questions, using less publicly evaluative assessment formats, and establishing explicit anti-ridicule norms—that may help sustain students’ sense of safety during high-stakes periods. Future studies should replicate these results in larger and more diverse samples and use longitudinal designs and multi-source data to clarify how psychological safety changes across Grade 10–11 and how it relates to student well-being over time.

7 Suggestion for future research

A longitudinal design that follows one cohort from Year 10 to Year 11 would clarify whether the decline in psychological safety is developmental or context-specific. Stratified sampling across rural, urban, and selective schools would test generalisability. Experimental studies could assess whether interventions, such as structured feedback training or peer-norm campaigns, enhance safety and, in turn, well-being. Incorporating classroom observations and physiological stress markers would triangulate self-report data and illuminate causal pathways.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by The Research Ethics Committee at Shakarim University. Participation in the study was entirely voluntary. Students aged 16 years and older provided written consent, whereas students under the age of 16 utilised a parental opt-out letter. No identifying information was collected during the study, and all data files were stored using encryption methods to ensure confidentiality and data security. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants’ legal guardians/next of kin.

Author contributions

NS: Writing – original draft, Methodology, Investigation, Project administration, Writing – review & editing, Funding acquisition. GS: Funding acquisition, Project administration, Supervision, Writing – review & editing. OB: Software, Writing – original draft, Resources, Funding acquisition, Writing – review & editing, Methodology. SO: Writing – review & editing, Formal analysis, Resources, Data curation, Project administration, Writing – original draft. AO: Investigation, Writing – original draft, Funding acquisition, Visualization, Writing – review & editing, Methodology. PR: Supervision, Investigation, Software, Writing – review & editing, Methodology, Writing – original draft, Validation, Visualization.

Funding

The author(s) declared that financial support was received for this work and/or its publication. This research is funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan within the framework of grant BR 24992828 “Approaches and mechanisms for creating a psychologically safe educational environment in secondary education”.

Acknowledgments

The authors express their gratitude to the participating schools, students, and teachers for their time and insights. Furthermore, they

extend their sincere appreciation to the administrations for their support.

Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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