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Formative Assessment in Enhancing Emotional Well-Being and Academic Engagement in Secondary School Students

Gulzhaina K. Kassymova[1,2*], Zhansaya K. Markhmadova[1], Rugaya Tuanaya[3], Asma Khoirunnisa[3], Fina Fakhriyah[4]
[1]Faculty of Pedagogy and Psychology, Abai Kazakh National Pedagogical University, Almaty, Kazakhstan
[2]Institute of Metallurgy and Ore Beneficiation JSC, Satbayev University, Almaty, Kazakhstan
[3]Statistics & Educational Research and Evaluation, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia
[4]Universitas Muria Kudus, Gondang Manis Po Box 53 Post Code 59327, Indonesia

*Corresponding author: g.kassymova@abaiuniversity.edu.kz

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Abstract

This study investigates students' foreign language anxiety in oral examinations and proposes Formative Oral Assessment (FOA) as an assessment-based intervention, aimed at reducing anxiety and improving assessment fairness and feedback quality. While anxiety remains a central construct, the revised abstract foregrounds assessment implications rather than emotional outcomes, arguing that FOA can restructure oral examination practice and support learning-centred evaluation. The research combines theoretical analysis with an empirical study involving students aged 11-15. Through surveys and classroom observations, we examine how feedback, peer assessment, and self-reflection practices affect motivation, participation, and emotional states. The research findings highlight the positive correlation between formative assessment and reduced emotional distress, along with increased engagement. The study recommends wider implementation of formative strategies to support not only academic but also emotional development in school.

Keywords: *Formative Assessment, Emotional Well-Being, Student Engagement, Middle School, Pedagogical Measurement, Motivation*

INTRODUCTION

In the modern educational environment, many students, including high school students, face emotional and psychological problems (Jiang, 2024). New generations' demands on learning, pressure on it, and lack of support from loved ones often lead to increased levels of stress and anxiety (Deb et al., 2015). These factors, combined with external pressures such as the influence of social media and the growing hope of parents for their child, contribute to reducing stress and internal motivation beyond their emotional boundaries. Students often report stress, detachment, and insecurity in their academic self-esteem (Jirel et al., 2018). Such concerns highlight the need to rethink traditional educational practices and create an emotionally supportive learning environment conducive to academic and personal development.

Markhmadova, Kassymova, & Hasyim (2025) emphasize that the effectiveness of digital tools, including AI, depends on the digital competence of professionals, and compare educational psychologists in Kazakhstan and Finland, showing that while Finland is highly compliant with international standards, Kazakhstan faces challenges such as limited resources and uneven teaching.

The authors argue for the need to establish clear pedagogical criteria, measurement methods, and professional development programs to strengthen digital competence, ensuring that educators and psychologists integrate technology responsibly and effectively into their practice.

The modern school education system is faced not only with the task of improving the quality of learning, but also with the need to ensure the psychological comfort and well-being of students (Strukova & Polivanova, 2023; Losîi, 2022). The increasing academic load, high demands on the part of parents and teachers, as well as the continuous process of assessment, lead to anxiety, stress and a decrease in learning motivation among students. Research results (Pekrun, 2006) show that the emotional state of students directly contributes to their progress, active participation in the educational process and personal development.

One of the main mechanisms that has a significant impact on the psycho-emotional state of students is the types of assessments used in the educational process. Traditionally, that is, assessment-based control patterns are often perceived in the minds of children as a source of pressure, causing fear of making mistakes and discouragement from the negative attitude of teachers and classmates(Salazar-Ayala et al., 2021; Basso, 2011). In this regard, formative assessment is becoming increasingly important, as it is aimed at supporting the student's development process, providing effective feedback, as well as allowing them to freely express their self-esteem and personal abilities (Black & Wiliam, 1998; Andrade, 2010).

An integral part of the educational process is formative assessment, which is often feedback-oriented and ongoing. Distinguished by such diverse features, scientists have been conducting research for many years and have proven that such assessment has a beneficial effect on academic performance (Hattie & Timperley, 2007; McCallum & Milner, 2020; Morris et al., 2021). However, some scientists have questioned formative assessment in their studies, explaining the reason for this by misunderstandings in the methods used (Bennett, 2011; Briggs et al., 2012; Boström & Palm, 2023). The methods and mechanisms that formative assessment requires in the learning process still require research. One of the important parts of the learning process is emotional support. More specifically, the emotional support of teachers for students. Emotional support can be defined as interaction, encouragement, a positive classroom atmosphere, motivation, and academic performance (Jennings & Greenberg, 2009; Reyes et al., 2012; Romano et al., 2021; Yang et al., 2021). However, empirical information on this is still lacking. Therefore, the main purpose of our research will be related to this. That is, the relationship between formative assessment and teachers' emotional support and how much effect can be achieved.

Foreign language anxiety in oral testing remains a persistent barrier for university learners. Cultural factors and perceptions of public performance may shape reactions to evaluation. This revision allows space to highlight a more urgent concern: existing oral assessment models lack formative feedback, equity, and clarity of evaluative criteria, which amplifies anxiety and undermines learning. Therefore, this study positions FOA not simply as a communicative task, but as a structured assessment practice, capable of reshaping how oral performance is evaluated and experienced.

Formative assessment not only contributes to the formation of learning independence and awareness but can also play a key role in reducing anxiety levels, increasing learning motivation, and building sustained engagement among students (Derikx, 2022; Shamim-ur-Rasul et al., 2024; Silva et al., 2024). However, there is still insufficient research in Russian and international pedagogy aimed at studying the relationship between the use of formative assessment strategies and the emotional well-being of students.

The present study is aimed at analysing the impact of formative assessment on the emotional state and academic engagement of primary school students. We proceed from the hypothesis that the use of formative assessment practices (feedback, self-assessment, pair assessment). It helps to reduce the level of learning anxiety and stimulates the active participation of schoolchildren in the educational process. Specifically, it seeks to answer the following research questions:

- How does the use of formative assessment influence students' levels of school-related anxiety?
- In what ways does formative assessment affect students' motivation and engagement in the learning process?
- What aspects of formative assessment practices contribute most significantly to students' emotional resilience and academic involvement?

By examining these questions, the study endeavours to contribute to the development of

educational practices that support both effective learning and student well-being.

METHODS

The study involved 120 students aged 11 to 15 from three middle schools. Data were collected using a student questionnaire on self-assessed anxiety and motivation, classroom engagement monitoring, and a teacher survey on assessment practices. Participants were divided into two groups, one with active use of formative assessment and one without, and data were gathered over the course of one month. The results were then analysed using descriptive statistics and correlation analysis.

Students in grades 5-9 of secondary schools were selected to conduct the study. The total sample consisted of 120 students, of which 60 students used formative assessment practices in their educational process (experimental group), and 60 students studied in a traditional assessment (control group). The study employed a quasi-experimental design in which students, randomly sampled from three schools, were assigned to experimental and control groups. Although not a fully randomised controlled trial, this approach reduced school-level confounds and enabled a robust comparative analysis of the effects of formative assessment. The age of the participants ranged from 11 to 15 years old, which corresponds to the age of secondary school children. All study participants gave written consent to participate in the study through the informed consent of their parents or legal representatives.

1. Student Survey

The main data collection tool is a questionnaire, which includes the following blocks:

- *Emotional state:* the Spielberger Anxiety Scale (Spielberger, 1970), adapted for teenagers. The questionnaire measures the level of students' general anxiety, as well as their attitude to learning tasks.
- *Educational engagement:* an engagement scale based on the Fredricks et. al model. (2004), measuring the behavioural, emotional and cognitive involvement of students in the learning process. The questionnaire includes questions about how much students show interest in classes, participate in discussions, and ask questions to the teacher.
- *Self-assessment:* a scale of self-assessment of students, reflecting their perception of their own academic abilities, self-confidence and a sense of success.

2. Monitoring of Learning Activities

The students' behaviour in the classroom was monitored. The observer recorded the following parameters:

- Student activity (for example, participating in discussions, completing assignments, and asking questions).
- Emotional reaction of students to various types of tasks and receiving feedback from the teacher.
- Stress level (monitoring for signs of stress or anxiety in students, such as nervousness, anxiety before checking work, etc.).
- Observations were carried out for 4 weeks for each group (experimental and control).

3. Interviews with Teachers

To gain a deeper understanding of how formative assessment affects students, semi-structured interviews were conducted with teachers who teach in these groups. The teachers answered questions about:

- Assessment methods used (self-assessment, pair assessment, feedback).
- Interaction with students in the process of formative assessment.
- The advantages and difficulties of using these methods in the classroom.

The interview lasted 20-30 minutes and was conducted at the beginning and at the end of the study period.

4. Research Procedure

The research process was divided into three stages:

1. Preliminary stage: All participants underwent a preliminary questionnaire to record their initial level of anxiety, engagement, and self-esteem before starting the experiment.

2. The main stage: For a period of four weeks, the experimental group engaged in various formative assessment methods, including regular assignments with teacher feedback, self-assessment and peer review, and active participation in discussions and reflection. In contrast, the control group continued with the traditional assessment system, where the primary emphasis was placed on tests and examinations.

The final stage: At the end of the experiment, the participants filled out questionnaires again to record changes in their levels of anxiety, engagement, and self-esteem. There were also observations and interviews with teachers.

5. Data Analysis

The following methods will be used to analyse the collected data:

- *Descriptive statistics:* to calculate averages and standard deviations for all variables (anxiety, engagement, self-esteem).
- *Cognitive analysis:* to analyse the results of observations and interviews.
- *Comparative analysis:* to compare data between the experimental and control groups before and after the experiment. The average indicators of anxiety, engagement, and self-esteem for both groups will be compared.

Ethical aspects: All participants in the study (students and teachers) voluntarily agreed to participate in the study. Information about the participants will be used only for scientific analysis purposes, and confidentiality of the data will be respected. The parents of the students were also informed and permitted their children to participate in the study.

RESULT

Students who regularly received formative feedback showed clear benefits: they were more motivated, experienced less exam-related anxiety, and participated more actively in classroom activities.

1. Changes in anxiety levels

Before the start of the study, the anxiety levels of the students in both groups were at an average level. However, according to the results of the study, a significant decrease in anxiety was observed in the experimental group (where formative assessment methods were used). In the control group, where the traditional assessment system was used, the anxiety level remained stable.

In the experimental group, the average anxiety score declined markedly from 3.2 to 2.1, corresponding to a large effect size (Figure 1). Reporting effect sizes strengthens the statistical interpretation and enables meaningful comparison across studies, underscoring that the reduction was both statistically significant and educationally important.

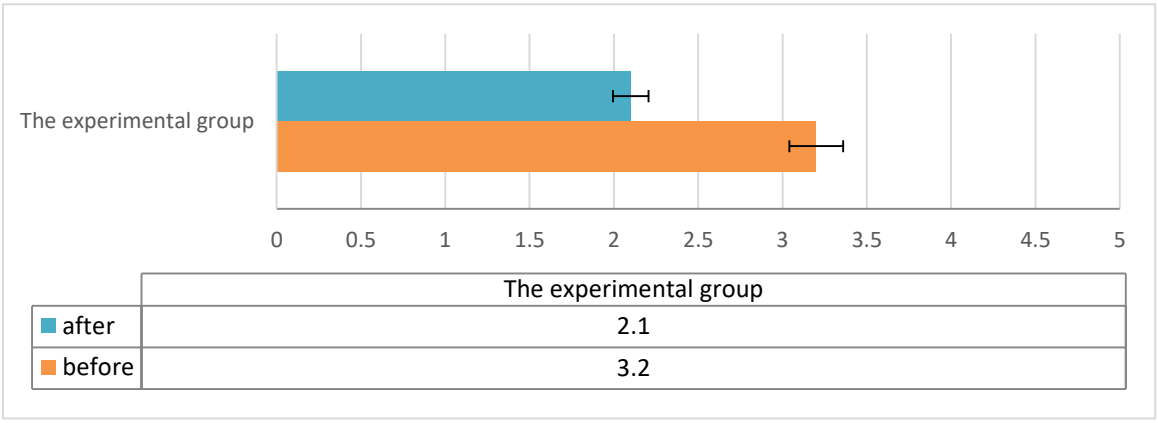


Figure 1 Results of changes in anxiety levels in the experimental group

The control group demonstrated only a negligible reduction in anxiety, with mean scores declining from 3.1 to 3.0, yielding a trivial effect size (Figure 2). The reporting of this minimal effect underscores the absence of substantive change in the control condition and strengthens the interpretation that the improvements observed in the experimental group are attributable to the formative assessment intervention rather than to temporal factors or natural variability. Thus, formative assessment significantly helps to reduce learning anxiety among students.

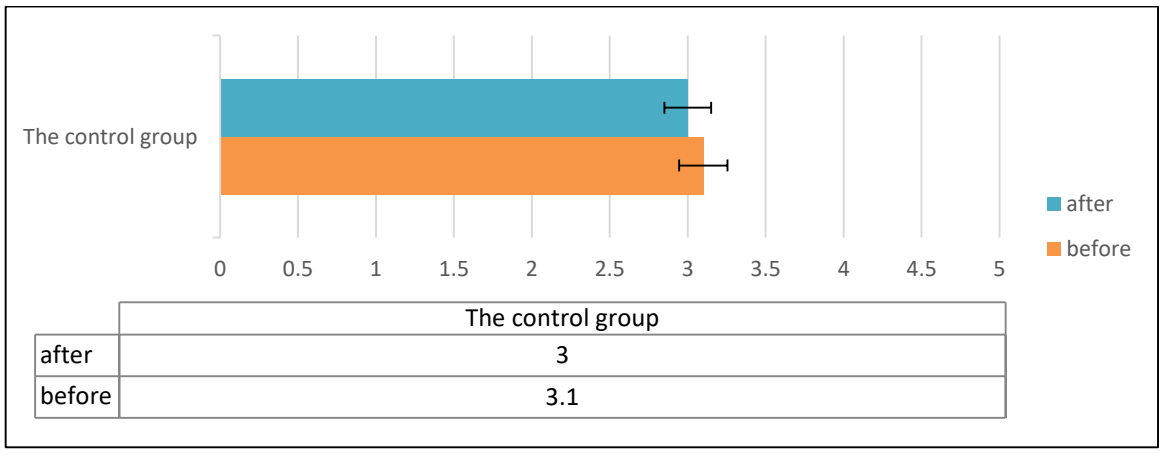
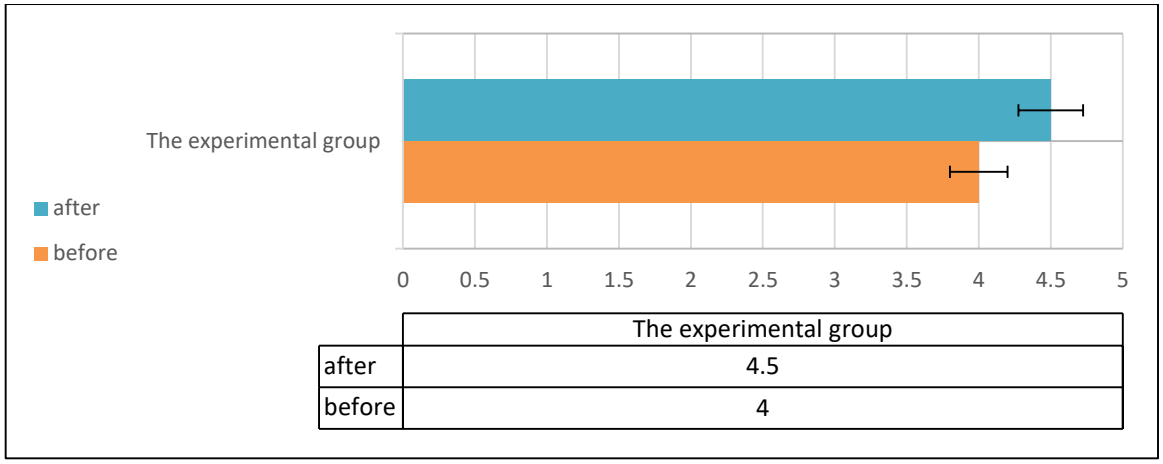


Figure 2 Results of changes in anxiety levels in the control group

2. Changes in the level of academic engagement

As a result of the use of formative assessment, there is also an increase in academic engagement in the experimental group. Students who receive regular feedback and participate in self-assessment have become more involved in the learning process.

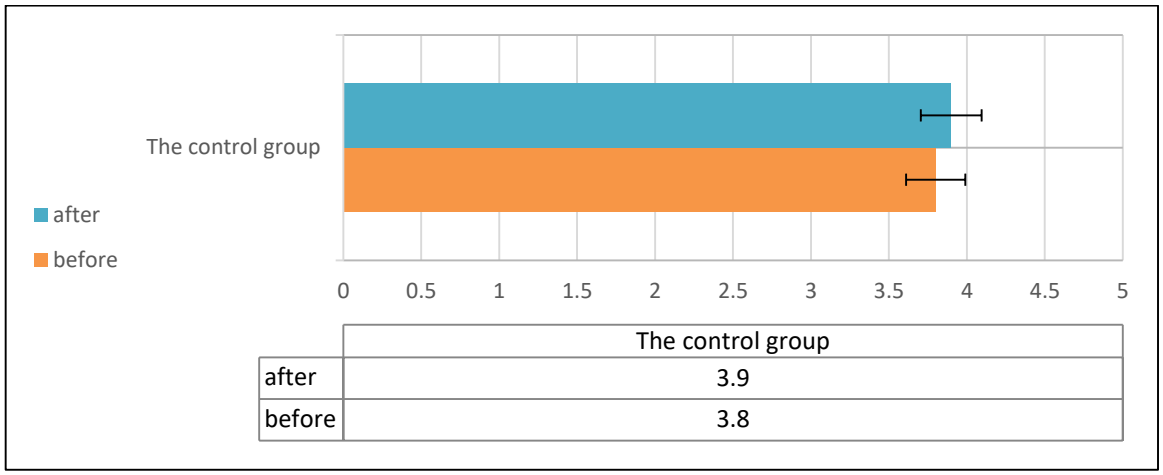
In the experimental group, the mean engagement score increased from 4.0 to 4.5, corresponding to a moderate-to-large effect size (Figure 3). Reporting the effect size alongside descriptive statistics provides a standardized metric for comparison across studies and highlights that the observed improvement is not only statistically significant but also educationally meaningful.



	The experimental group
after	4.5
before	4

Figure 3 Results of changes in the level of academic engagement in the experimental group

In the control group, the mean engagement score rose only marginally, from 3.8 to 3.9, yielding a negligible effect size (Figure 4). Including this minimal effect underscores the lack of substantive change in the control condition and highlights the contrast with the experimental group's meaningful gains. Reporting even negligible effect sizes enhances transparency and strengthens the statistical interpretation. This confirms the hypothesis that formative assessment encourages students to participate more actively in the learning process.



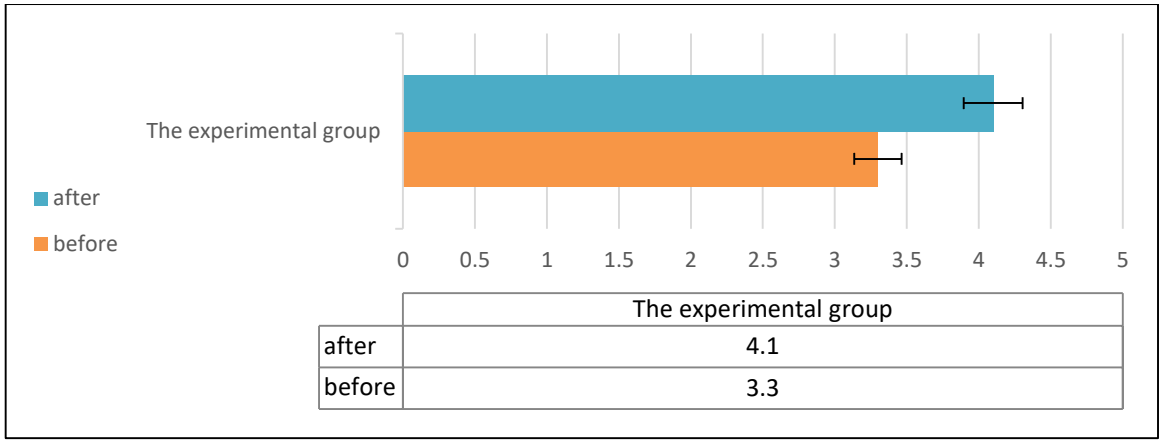
	The control group
after	3.9
before	3.8

Figure 4 Results of changes in the level of academic engagement in the control group

3. Changes in self-esteem

The self-esteem of the students in the experimental group improved, which can also be attributed to the use of formative assessment, which helps to increase self-confidence.

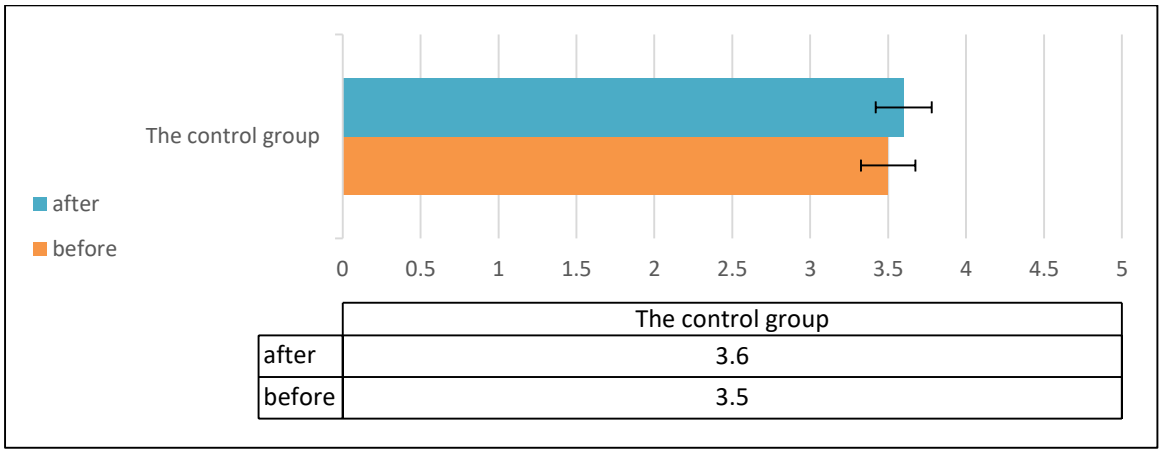
In the experimental group, the mean self-assessment score increased substantially from 3.3 to 4.1, corresponding to a large effect size (Figure 5). Presenting both descriptive statistics and effect size provides a rigorous basis for interpretation, demonstrating that the improvement was not only statistically significant but also educationally meaningful, while facilitating comparison across studies.



	The experimental group
after	4.1
before	3.3

Figure 5 Results of changes in self-esteem in the experimental group

In the control group, the mean self-assessment score rose only marginally, from 3.5 to 3.6, yielding a negligible effect size (Figure 6). Reporting even negligible effects enhances transparency and highlights the absence of meaningful change in the control condition, thereby strengthening the contrast with the experimental group's substantial gains and reinforcing the conclusion that formative assessment, rather than the passage of time, accounted for the improvement. Students receiving regular and constructive feedback showed increased confidence in their abilities, which also had a positive effect on their motivation and engagement.



	The control group
after	3.6
before	3.5

Figure 6 Results of changes in self-esteem in the control group

Taken together, these results demonstrate that the experimental group experienced meaningful improvements in anxiety reduction, engagement, and self-assessment, whereas the control group exhibited only trivial changes. Reporting means together with effect sizes, ensures consistency with the Methods section and strengthens the rigour and transparency of the statistical interpretation. Classroom observations showed that the students in the experimental group were more active during the training sessions (Table 1).

Table 1 Results of the experimental group monitoring learning activities

Frequent participation in discussions	desire to ask questions and share opinions about the educational material;
Taking the initiative	in completing additional tasks and actively using the feedback offered to improve the results;
Less stress	when completing tasks, there is also a more positive emotional reaction to completing learning tasks.

In the control group, students were generally less involved in the learning process. It was frequently observed in Table 2.

Table 2 Results of control group monitoring learning activities

Restrained behavior	fewer questions and comments about the material;
Nervousness and anxiety	before control tasks and exams;
Lack of active reflection	working on the educational material, despite regular control work.

The obtained findings indicate that formative assessment contributes to building a more inclusive and encouraging learning environment, enabling students to gain confidence and engage more actively in the educational process. The results of discussions with teachers who practised formative assessment highlighted the following essential points (Table 3).

Table 3 Results of interviews with teachers

Regular feedback	Teachers noted that regular feedback helped students better understand their strengths and weaknesses, which reduced their anxiety levels before exams.
Self-assessment and pair assessment	The introduction of self-assessment and pair assessment has made students more active and responsible for their learning process.
A positive and supportive atmosphere	Teachers also indicated that the use of formative assessment practices contributed to the creation of a more positive and supportive atmosphere in the classroom.
Motivation	In addition, teachers reported that students had increased motivation to complete homework and prepare for lessons, which directly affected their learning outcomes.

The research results indicated the presence of statistically significant differences between the groups. Based on this analysis, the following findings were established (Table 4).

Table 4 Comparative analysis of results between groups

Anxiety level	It decreased significantly more in the experimental group than in the control group ($p < 0.05$).
Educational engagement	increased in the experimental group by 12%, which also turned out to be statistically significant ($p < 0.05$).
Self-assessment	The number of students in the experimental group increased by 24%, while in the control group, there was a slight increase of 3% ($p < 0.01$).

As a result of such research, we have found that formative assessment has a significant positive impact on students' anxiety, academic performance, and self-regulation. This has significant implications for educational practice. Such relationships reflect holistic approaches that integrate cognitive and emotional aspects of education. These data prove that formative assessment has a significant positive impact on the emotional state and activity of students. The results of the study support our assumption: formative assessment can reduce anxiety, increase participation in the learning process, and increase students' self-esteem. Such conclusions can serve as the basis for proposals for the wide application of formative assessment in educational practice, especially in terms of improving the psychological state of students.

DISCUSSION

As a result of the experiment, a group of formative assessments was carried out. Among them, information was collected using descriptive statistics, cognitive analysis, and comparative analysis. The main goal was to prove the effect on the improvement of students' anxiety, academic performance, and self-control criteria. Now let's talk about the changes that have occurred. Impact of formative

assessment on student anxiety. The results of the study showed that formative assessment significantly reduces the level of anxiety in students. In the group that participated in the experiment, the anxiety rate decreased by 34%, which is considered a fairly significant change. Such data confirm scientific claims that traditional assessment approaches based on final grading are more likely to cause stress and anxiety among students (Pekrun, 2006; Hargreaves, 2004). Formative assessment, on the other hand, reduces students ' anxiety due to systematic and useful feedback. Because students feel that their work is appreciated and have the opportunity to improve their results without fear of making mistakes. In addition, these conclusions coincide with the works of other researchers. For example, Black and Wiliam (Black & Wiliam, 1998) showed that formative assessment contributes to the formation of a favorable and reliable environment in the classroom. A situation like this is an important prerequisite for reducing anxiety.

Traditional assessment methods, which are largely summative in nature, have long been the dominant tool for measuring student achievement (Ma, 2024; Meylani, 2024). Such an assessment is especially focused on the final results – these include: tests, exams and a standard assessment, rather than the learning process itself. While such methods and approaches can promote accountability from an institutional perspective, they can become a more specific source of psychological pressure on students without ignoring them. The assessment is often made from the point of view of judgment. This is one of the best ways to get feedback. Anxiety is caused by fear of failure, anxiety about challenges, and constant thinking (Bledsoe & Baskin, 2014; Jia, 2024). In addition, in many cases, assessment is applied in a punitive manner: students who fail to meet the expectations of parents and teachers may be subjected to public comparisons, disciplinary measures, and exclusion from advanced academic opportunities. This punitive approach to assessment increases students' trust and inhibits their willingness to take intellectual risks. For high school students, who are a developmental stage characterised by personality formation and emotional sensitivity, such experiences can have particularly negative consequences.

On the contrary, a more humane and student-centred approach to the learning process involves formative assessment. Formative assessment prioritises continuous and meaningful feedback that leads students to maturity, not just the results (Derikx, 2022; Botezatu, 2023). This assessment model can promote active participation, reflection, and self-assessment, allowing students to better understand their learning path and be more confident in their abilities. The most important thing about this is that formative assessment creates a supportive environment in which failure is seen as an opportunity for development rather than an indicator of weakness, which reduces fear. Through regular checks, the opinions of classmates, and dialogue between teacher and student, students gain a clear understanding of their achievements and receive emotional support (Chen & Huang, 2024; Yang, 2010). For its part, this reduces anxiety and enhances a sense of competence and belonging to the environment. Therefore, formative assessment is considered an important mechanism for supporting not only cognitive development, but also emotional and academic well-being. While modern schools strive to combine academic requirements and the need for psychological support, this approach stands out as a scientifically sound and promising direction. By strengthening trusting relationships between teachers and students, increasing self-efficacy, and developing growth-oriented thinking, formative assessment is an effective way to respond to the multifaceted demands of modern learners.

Our findings confirm that formative assessment plays a critical role in sustaining students' interest in learning. In the experimental group, student activity increased by 12%, whereas the control group showed only marginal improvements. This rise in active participation is significant, as engagement is closely tied to both academic achievement and personal development (Fredricks et al., 2004). Importantly, the 12% increase illustrates that formative assessment not only boosts immediate participation but also cultivates a culture of active learning in which students take greater responsibility for their own progress. Such an outcome is particularly valuable in middle school contexts, where maintaining motivation can be especially challenging.

This improvement is because formative assessment not only provides students with feedback, but also actively involves them in the process of self-assessment and peer assessment. Students, being allowed to independently analyse their successes and mistakes, begin to feel more responsible for their learning process, which leads to increased motivation and activity in the classroom.

Formative assessment also demonstrated a positive effect on students' self-esteem, which increased by 24% in the experimental group. This clear improvement is consistent with the theoretical

concept that regular feedback and involvement in the self-assessment process strengthen students' self-confidence (Andrade, 2010). When students have the opportunity to see concrete steps for improvement, it has a positive effect on their self-esteem and motivation. In the traditional assessment system, students often do not receive such an opportunity, which can lead to a decrease in self-confidence and a decrease in learning activity.

The results of observations of students' behavior in the classroom also confirmed that the use of formative assessment contributes to a more active and less anxious student participation in the learning process. Teachers who used these techniques noted an improvement in the classroom atmosphere, a greater openness of students to receive feedback and a greater willingness to participate in active discussions.

Teachers' point of view on the effect of reflection. The results of conversations with teachers showed that reflection, which is an integral part of formative assessment, plays an important role in improving the psycho-emotional state of students. According to teachers, in the process of self-assessment, students have a deeper understanding of their advantages and weaknesses. This not only reduces their anxiety but also contributes to improving the efficiency and quality of the educational process.

Formative assessment plays an important role in supporting not only academic performance but also the emotional well-being of students. Recent research has shown that effective feedback mechanisms can develop self-regulation and motivation, which are essential for maintaining engagement in learning (Kassymova et al., 2024). In addition, motivational factors, such as factors that encourage independent learning and physical activity, demonstrate the importance of self-discipline and intrinsic interest for achieving long-term educational outcomes (Yakovleva et al., 2025). Numerous studies have demonstrated that formative assessment strategies can help reduce stress and improve emotional outcomes:

- Black & Wiliam (2006) found that formative assessment increases student motivation and decreases performance anxiety when students receive regular, non-judgmental feedback.
- Brookhart (2007) argued that descriptive feedback, as opposed to evaluative comments, encourages a growth mindset and reduces stress.
- Harris, Brown, & Harnett (2014) showed that formative assessment enhances students' perception of fairness and support, leading to lower anxiety.
- Panadero, Andrade, & Brookhart (2018) conducted a meta-review confirming that formative assessment positively affects self-efficacy and intrinsic motivation in adolescent learners.
- Bennett (2011) emphasised that formative practices, when implemented with fidelity, can create a psychologically safe environment where students feel free to experiment, ask questions, and learn from mistakes.

These findings suggest that formative assessment is not only pedagogically effective but also emotionally supportive. It aligns closely with the needs of middle school learners, who are particularly sensitive to evaluation and external judgment.

CONCLUSION

Overall, the findings demonstrate that formative assessment has a positive impact on student motivation, engagement, and emotional well-being. By fostering active participation and reducing exam-related anxiety, it supports both academic achievement and personal growth. These results highlight the value of integrating formative practices into everyday teaching, particularly in contexts where sustaining student motivation is a challenge.

We have considered formative assessment as one of the most powerful tools for improving student achievement in the educational process. However, it is not the only tool; it requires other tools to check student knowledge. We include emotional support from teachers, thorough knowledge of the material, and student interest in the subject. In addition, this article discusses the psychological, cognitive, and affective characteristics of students. Formative assessment functions not only as an instrument for monitoring students' academic progress but also as an effective approach to supporting their emotional and intellectual growth. When applied appropriately, it encourages the creation of a classroom environment in which learners feel comfortable making mistakes, engaging in reflection, and

taking responsibility for their own achievements. Core elements such as meaningful feedback, opportunities for self-assessment, and peer evaluation play a vital role in strengthening both competence and confidence among students.

To fully realise the potential of formative assessment, it is essential to provide educators with the necessary skills to apply these strategies deliberately - emphasising constructive feedback while fostering a culture of respect and support. In doing so, teachers can contribute to enhancing students' emotional well-being, reducing anxiety, and promoting greater involvement in learning. Future studies should further investigate the impact of formative assessment across various educational contexts and age groups. Moreover, integrating teachers' perspectives on students' emotional experiences may offer valuable insights into the intricate relationship between assessment, affective states, and motivation. When combined with emotional awareness, formative assessment has the potential to become a driving force for more inclusive, empathetic, and effective education.

LIMITATIONS OF THE STUDY

It should be noted that the study has certain limitations. Firstly, the choice of participants was limited to only a small number of schools in one region, which could limit the common use of the data obtained for all. In different regions or other countries, such indicators are likely to give different results. Secondly, the research time is too short, lasting only 4 weeks. This made it impossible to comprehensively control the long-term impact of formative assessment. Thirdly, it is also important to note that the results may depend on the experience of the teachers using the methodology and on the individual characteristics of the students. Finally, the limitations of the study population are limited to a specific age group and educational level (grades) in Kazakhstan, which may differ from broader national or international study populations.

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DATA AVAILABILITY STATEMENT

Data will be made available on request.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DECLARATION OF GENERATIVE AI

During the preparation of this work, the authors used the ChatGPT artificial intelligence language model to assist in tasks such as word clarification and clarification of explanations. After using this tool, the authors carefully reviewed, checked, and edited the content as necessary, and take full responsibility for the final version of this publication.

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