

W. XU¹, H. RETNAWATI¹, C.S. UGWUANYI²¹ Yogyakarta State University² University of the Free State

✉ e-mail: xuwenxin0124@163.com

SELF-EFFICACY-SUPPORTIVE CLASSROOM ASSESSMENT AND LEARNING ENGAGEMENT

Abstract. Self-efficacy is an important motivational belief associated with students' effort, persistence, and engagement. From a self-efficacy perspective, teacher feedback and classroom assessment may provide students with information about their learning progress, performance, and opportunities for improvement. This cross-sectional study examined the relationships among perceived teacher feedback, classroom assessment conditions, and learning engagement among 100 Grade 11 students from two classes in a general high school in China. Data were collected using a 14-item questionnaire and analyzed using descriptive statistics, reliability and validity tests, Pearson correlation, and multiple linear regression. The results showed that teacher feedback was positively associated with learning engagement ($r = 0.71$, $p < 0.01$), as were classroom assessment conditions ($r = 0.66$, $p < 0.01$). In the multiple regression model, the two classroom variables jointly accounted for 58% of the variance in learning engagement ($R^2 = 0.58$), with teacher feedback showing the larger standardized regression coefficient ($\beta = 0.46$). These findings indicate that students who perceive more supportive teacher feedback and classroom assessment conditions also tend to report higher levels of learning engagement. Self-efficacy was not directly measured in this study; therefore, it is used as a theoretical perspective for interpreting classroom conditions rather than as an observed or mediating variable. Given the cross-sectional and self-report design, the findings should be interpreted as associations rather than causal relationships.

Keywords: self-efficacy; teacher feedback; classroom assessment; learning engagement; high school students.

Introduction

Educational assessment has gradually moved beyond simply reporting exam results, shifting towards supporting student learning through feedback, interaction, and opportunities for improvement. In this shift, the truly crucial question is not merely the number of assessment methods employed, but whether assessment can instill in students the confidence that they understand task requirements, employ effective strategies, and make progress. In other words, the value of a self-efficacy-supportive classroom assessment environment lies not only in measurement results but also in the support it provides for students to develop positive judgments of competence and sustained engagement [1; 2]. Accordingly, this study examines perceived teacher feedback and classroom assessment conditions in relation to learning engagement.

Self-efficacy refers to learners' judgments about their ability to organize and complete the actions required to accomplish a specific task [3], influencing task selection, effort, persistence, and

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responses to difficulties. According to social cognitive theory, mastery experiences, vicarious experiences, social persuasion, and interpretations of emotional and physiological states are the primary sources of information for forming self-efficacy. Clear standards, credible feedback, successful experiences, exemplary demonstrations, and opportunities for improvement in the classroom can provide students with efficacy-relevant information [4; 5]. In the present study, the term 'self-efficacy-supportive' is used as a theory-based interpretive descriptor rather than as the name of an independently validated psychological construct. The study does not assume that teacher feedback or classroom assessment directly measures students' self-efficacy. Instead, selected questionnaire items are interpreted in relation to Bandura's four sources of self-efficacy. Accordingly, the two classroom-condition variables represent students' perceptions of environmental features that may provide efficacy-relevant information. Self-efficacy itself was not directly measured, and no direct inference is made regarding students' actual levels of self-efficacy.

The senior high school stage is a critical period characterized by rapidly increasing academic demands and the sustained development of students' motivational beliefs. When students believe that task standards are clear, feedback is helpful for improvement, and effort leads to progress, they are more likely to actively participate in classroom activities and persevere through difficulties. Conversely, if assessment primarily emphasizes grade ranking, errors, and uncontrollable abilities, students may develop lower levels of competence and reduced engagement. From a self-efficacy perspective, teacher feedback and self-efficacy-supporting classroom assessment environments are important contextual inputs, while learning engagement refers to the behavioral, emotional, and cognitive responses students exhibit under these conditions [6; 7]. Although the relationship between self-efficacy and learning engagement has been supported by numerous studies, sufficient empirical evidence remains lacking regarding which assessment conditions in typical high school classrooms can support students' efficacy beliefs and engagement. Existing research often analyzes self-efficacy as an individual variable in isolation or focuses on assessment methods, but rarely examines how students' perceived teacher feedback and self-efficacy-supporting classroom assessment environments jointly relate to their learning engagement. This study does not include an independent self-efficacy scale in its data; therefore, it does not directly estimate self-efficacy levels or test for mediating effects. The focus is on identifying classroom conditions with self-efficacy-supporting characteristics and examining the relationship between these conditions and learning engagement.

This study analyzes questionnaire data from 100 Grade 11 students in a general high school in China. The original teacher feedback and classroom assessment items are examined from a self-efficacy perspective to identify classroom conditions that may provide efficacy-relevant information. The study then examines the relationships between these perceived classroom conditions and students' learning engagement. Self-efficacy itself is not directly measured and is therefore treated as a theoretical perspective rather than an observed or mediating variable. The research questions are as follows:

Question 1: What are the levels of students' perceived self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environment, and learning engagement?

Question 2: What are the relationships between the two types of perceived classroom conditions and high school students' learning engagement?

Question 3: To what extent are self-efficacy-supportive teacher feedback and classroom assessment environment statistically associated with variation in high school students' learning engagement when examined simultaneously?

This paper first reviews relevant research on self-efficacy theory, self-efficacy-supporting feedback, self-efficacy-supporting classroom assessment environment, and learning engagement; then it introduces the research subjects, operational definitions of variables, research tools, and analytical process; subsequently, it reports reliability, descriptive statistics, correlation, and regression results; finally, based on two existing studies by the authors, it discusses the practical

significance, research boundaries, and future directions of self-efficacy-supporting classroom assessment environments.

Literature review

Self-efficacy-supporting classroom assessment environments and formative feedback

Self-efficacy-supporting classroom assessment environments focus on how assessment information influences students' judgments of their own abilities and the likelihood of their actions. Formative assessment emphasizes acquiring evidence during the learning process and adjusting instruction accordingly to help students close the gap between current performance and target performance [1]. When teachers break down goals into achievable stages, explain success criteria, and allow students to improve based on feedback, assessment provides mastery experience and controlled progress information, thus creating a learning environment more conducive to the development of self-efficacy.

Teacher feedback is a core component of self-efficacy-supporting assessment. Effective feedback not only tells students whether the results are correct but also clarifies goals, explains current progress, and provides actionable next steps [4]. Self-assessment and peer assessment also help students judge their learning outcomes against standards, observe peer strategies, and adjust subsequent actions, thus providing mastery and vicarious information; however, these effects depend on clear standards, teacher demonstration, and ongoing support [2, 6]. Feedback is not inherently positive. A meta-analysis by Wisniewski et al. [7] found that the effectiveness of feedback varies significantly depending on information quality, task characteristics, and learner comprehension. Feedback that only emphasizes errors, personality, or social comparisons may weaken students' sense of control; feedback that focuses on tasks, strategies, and progress is more likely to lead students to the judgment that "improvement can be achieved through action." Therefore, a self-efficacy-supportive classroom assessment environment should not be measured solely by the frequency of feedback, but should also examine whether the feedback is specific, credible, understandable, and actionable.

In a typical high school classroom, self-efficacy-supportive assessment should possess at least four characteristics: transparent learning objectives and standards; progressively increasing task difficulty; feedback focusing on strategies and improvement; and opportunities for students to use feedback, correct errors, and try again. These conditions enhance the predictability of success and the controllability of the learning process, providing a psychological foundation for sustained student engagement.

This study operationalizes self-efficacy-supportive assessment under two classroom conditions. First, self-efficacy-supporting teacher feedback includes students' perceptions of the clarity of teacher feedback, instructional guidance, and fairness of assessment. Second, a self-efficacy-supporting classroom assessment environment includes assessment activities, classroom interaction, and learning feedback. Learning engagement includes classroom participation, effort, and collaborative learning. It is important to emphasize that the first two dimensions measure classroom conditions that support the formation of self-efficacy beliefs, not direct scores of students' self-efficacy.

In summary, formative assessment provides a practical framework for information gathering and feedback in the classroom, while self-efficacy theory explains why students exhibit different engagement responses to different assessment methods. Based on this, this paper considers teacher feedback and a self-efficacy-supporting classroom assessment environment as conditions supporting self-efficacy and examines their relationship with learning engagement.

Self-Efficacy and Learning Engagement

Bandura's social cognitive theory [3] posits that mastery experience, vicarious experience, social persuasion, and interpretation of emotional and physiological states are the primary sources of self-efficacy. In a self-efficacy-supportive classroom assessment environment, successful task completion provides evidence of mastery; examples and peer work provide vicarious information;

teacher feedback exerts a social persuasive effect; and a supportive assessment environment helps reduce anxiety that hinders learning.

Academic self-efficacy is stably associated with achievement-related behaviors, but this influence varies across subject areas and the level of measurement specificity. A systematic review by Honicke and Broadbent [8] found a moderate relationship between academic self-efficacy and academic performance, with effort regulation and deep processing being important pathways. Therefore, self-efficacy is particularly relevant to learning engagement, which includes sustained behavioral, affective, cognitive, and proactivity engagement [9; 10].

Empirical studies support a positive correlation between self-efficacy beliefs and learning engagement. Sökmen [11] found that self-efficacy helps explain the link between learning environment and learning engagement. Fu et al. [12] further investigated 204 interns from five vocational colleges in Wenzhou, China, categorizing internship engagement into four dimensions: affective engagement, quality of effort, psychological adaptation, and peer interaction. The Cronbach's α for self-efficacy and the four engagement dimensions were 0.902, 0.918, 0.892, 0.849, and 0.847, respectively, showing good internal consistency. The results showed that self-efficacy was significantly positively correlated with affective engagement, quality of effort, psychological adaptation, and peer interaction, with correlation coefficients of 0.455, 0.426, 0.376, and 0.400, respectively (all reaching the 0.01 significance level); in the regression model, self-efficacy explained 20.7%, 18.1%, 14.1%, and 16.0% of the variance in the four engagement dimensions, respectively. This study not only demonstrates that self-efficacy is related to overall engagement but also indicates that its effects manifest in different forms of participation, such as emotion, effort, adaptation, and interaction [12].

Self-efficacy also exhibits task and situation specificity. Zhorabekova et al. [13] analyzed 15 academic emails written by students in Kazakhstan's higher education context, focusing on three common types of emails: extension applications, grade reconsideration requests, and requests for exam or task instructions. The study found that students used direct, conventional indirect, and non-conventional indirect strategies depending on the purpose of their request. However, overall, many emails were direct and informal, lacking appropriate salutations, background information, softening phrases, and supportive expressions; these problems were particularly pronounced in high-intensity requests such as grade reconsideration. The study also pointed out that writing self-efficacy is not only related to whether students dare to complete email tasks but also to their ability to utilize language, rhetoric, and metacognitive strategies, reduce writing anxiety, and persist in revision. Therefore, authentic tasks, clear examples, politeness strategy instruction, positive teacher feedback, and repeated practice can simultaneously develop pragmatic competence and writing self-efficacy [13]. This research demonstrates that a self-efficacy-supportive classroom assessment environment not only provides outcome-based judgments but can also be an important source of information influencing domain-specific efficacy beliefs through task design and feedback methods.

It is crucial to distinguish between self-efficacy itself and self-efficacy-supporting conditions. The former is a student's judgment of their ability to complete a specific task, which typically requires direct measurement using validated domain-specific scales; the latter is the classroom environment that may provide information for such judgments. This study only measures the latter, thus enabling us to examine the relationship between supportive classroom conditions and learning engagement, but it cannot estimate students' true levels of self-efficacy, nor can it prove that self-efficacy plays a mediating role.

Self-Efficacy-Supporting Teacher Feedback, Self-Efficacy-Supporting Classroom Assessment Environment, and Learning Engagement

This paper's analytical framework comprises self-efficacy-supporting teacher feedback, a self-efficacy-supporting classroom assessment environment, and learning engagement. Teacher feedback conveys standards, strategies, and progress information to students; a self-efficacy-supporting classroom assessment environment determines whether students receive practice,

interaction, success experiences, and opportunities for revision; and learning engagement reflects the behavioral, emotional, and cognitive efforts students make under these conditions [1; 4].

This study defines students' perceived fairness in teacher feedback, guidance, and assessment as "self-efficacy-supporting teacher feedback." Clear, credible, and improvement-oriented feedback can enhance students' sense of competence and willingness to persevere; conversely, vague, unenforceable, or assessments that only address individual abilities fail to provide effective action information and may even weaken students' sense of control [7].

A self-efficacy-supporting classroom assessment environment includes assessment activities embedded in daily teaching, classroom interaction, progress feedback, and opportunities for improvement. Effective formative practice makes learning objectives clearly visible, continuously acquires learning evidence, and gives students opportunities to try again based on feedback. With clearly defined evaluation criteria and procedures, self-assessment and peer assessment can also provide opportunities for peer demonstration and self-regulation [2; 6].

Learning engagement is multidimensional. Fredricks et al. [9] divided it into behavioral, affective, and cognitive engagement; Reeve and Tseng [10] further proposed active engagement to reflect students' constructive participation in the teaching process. Learning engagement scales also emphasize teacher support, peer support, and future goals [14]. These perspectives suggest that learning engagement is suitable as an outcome variable for examining how students respond to self-efficacy-supportive classroom assessment environments.

The self-efficacy perspective can connect classroom conditions with learning engagement, but the three should not be confused: teacher feedback and the assessment environment are situational inputs, self-efficacy is a student's judgment of ability, and learning engagement is the performance of action and effort. Theoretically, self-efficacy may transmit the influence of supportive assessment on learning engagement, but this mechanism can only be tested when self-efficacy is directly measured using longitudinal or experimental designs [5].

Therefore, this study directly examines the relationship between self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environments, and learning engagement. The quantitative study by Fu et al. [12] shows that self-efficacy can explain some of the variation in different components of learning engagement; the textual analysis by Zhorabekova et al. [13] demonstrates how specific tasks, feedback, and strategy support are related to students' quality of action. Both studies support this study's focus on classroom support conditions, but their self-efficacy results cannot replace the direct measurements in this study's sample.

In conclusion, a self-efficacy-supportive classroom assessment environment, by providing clear goals, evidence of progress, demonstrating effective strategies, and creating opportunities for success, may help students form positive judgments of competence and associate them with higher learning engagement.

This study primarily addresses three shortcomings: First, research on self-efficacy-supporting assessment in regular high school classrooms is relatively insufficient; second, teacher feedback and self-efficacy-supporting classroom assessment environments are often discussed separately, with less emphasis on their relationship with learning engagement; and third, some studies fail to clearly distinguish between direct measurements of self-efficacy and measurements of self-efficacy-supporting conditions.

To address these shortcomings, this study operationalizes the two existing classroom assessment dimensions into self-efficacy-supporting conditions, examines their relationship with learning engagement, and clearly defines the scope of its conclusions.

Research methods and materials

This study employed a cross-sectional questionnaire design to examine the relationships among self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environment, and high school students' learning engagement. The study included 100 Grade 11 students from two parallel classes in a general high school in China. Both classes followed the same

curriculum standards, teaching content, and pace to reduce differences in the learning environment. Because the questionnaire did not include an independent self-efficacy scale, the study did not interpret any results as direct scores of students' self-efficacy.

The questionnaire was developed with reference to formative assessment research [15; 16; 1], feedback research [4], and learning engagement theory [9; 14]. The self-efficacy-supporting classroom assessment environment items were reinterpreted based on the sources of information on self-efficacy. The initial questionnaire contained 22 items, which were reviewed by three educational assessment experts for clarity of expression, dimension fit, and applicability to high school students. Based on expert feedback, items with high repetition or weak differentiation were modified, merged, or deleted, resulting in 14 final items.

A pre-test was then conducted with 8 Grade 11 students to verify the clarity and applicability of the questionnaire. The official questionnaire contained 14 items across three dimensions: Self-Efficacy-Supportive Teacher Feedback (classroom feedback, instructional guidance, and perceived fairness), Self-Efficacy-Supportive Classroom Assessment Environment (assessment activities, classroom interaction, and learning feedback), and Learning Engagement (classroom participation, effort, and collaborative learning). The first two labels are theory-based operational interpretations of classroom conditions and do not imply that the items directly measure students' self-efficacy. To strengthen theoretical transparency, the teacher-feedback and classroom-assessment items were mapped to Bandura's sources of self-efficacy information where conceptually appropriate. Items concerning progress and successful task completion were primarily linked to mastery information; items involving modeling or peer comparison were linked to vicarious information; and items concerning guidance, encouragement, and evaluative feedback were primarily linked to social persuasion. Contextual features such as clarity and fairness were treated as conditions that may facilitate the interpretation of efficacy-relevant information rather than as direct indicators of a specific source. Learning-engagement items were treated as a separate outcome dimension and were not mapped to sources of self-efficacy.

The official survey was conducted in a regular high school in China from March to April 2026. The questionnaire was distributed electronically under teacher supervision. Participation was entirely voluntary and anonymous, and informed consent was obtained from all participants. A total of 100 questionnaires were distributed and all were returned, resulting in a 100% response rate. The sample included 46 boys (46.0%) and 54 girls (54.0%), aged 16-18. Because participants came from the same school and grade level, the sample was highly homogeneous.

All items were rated using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Data analysis was performed using IBM SPSS Statistics 27.0. Before the main analyses, internal consistency and the suitability of the item correlation matrix for factor analysis were assessed. Internal consistency was assessed using Cronbach's α for the 14-item questionnaire. Sampling adequacy and factorability were assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Descriptive statistics were used to summarize the measured constructs, followed by Pearson correlation and multiple linear regression to examine statistical associations among the variables. Before regression analysis, the assumptions of linearity, normality, homoscedasticity, independence of errors, and multicollinearity were examined. Potential extreme observations were screened using standardized scores, with values exceeding ± 3 standard deviations considered potential outliers. Variance Inflation Factor (VIF) and tolerance statistics were used to assess multicollinearity. The significance level was set at $p < 0.05$.

Results and discussion

Reliability and Factorability. The internal consistency and factorability of the questionnaire were examined before the main analyses. The 14-item questionnaire demonstrated high internal consistency (Cronbach's $\alpha = 0.924$). Factorability was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value was 0.89, indicating good sampling adequacy. Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 412.60$, $df = 91$, p

< 0.001), indicating that the item correlation matrix was suitable for factor analysis. The three measured dimensions were self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environment, and learning engagement; these dimensions do not constitute a direct statistical measure of students' self-efficacy.

Table 1 – Descriptive Statistical Results of Self-Efficacy-Supporting Classroom Assessment Environment and Learning Engagement

Variable	Mean (M)	Standard Deviation (SD)
Self-efficacy-supportive teacher feedback	4.18	0.54
Self-efficacy-supportive classroom assessment environment	4.06	0.59
Learning engagement	4.11	0.57

Table 1 shows that the mean values for all three dimensions were above 4.00, indicating that students generally reported positive perceptions of classroom feedback, assessment support, and their own engagement. Teacher feedback had the highest mean ($M = 4.18$), followed by learning engagement ($M = 4.11$), while the self-efficacy-supportive classroom assessment environment had a mean of 4.06. The standard deviations of all variables were below 0.60, indicating relatively concentrated responses. These descriptive results represent students' perceptions of classroom conditions and engagement and should not be interpreted as direct measurements of students' self-efficacy.

To further analyze the relationship between the two types of self-efficacy support classroom conditions, and learning engagement, Pearson correlation analysis was conducted on the three variables. The results are shown in Table 2.

Table 2 – Correlation Analysis of Self-Efficacy Supportive Classroom Conditions and Learning Engagement

Variables	Self-efficacy-supportive teacher feedback	Self-efficacy-supportive classroom assessment environment	Learning engagement
Self-efficacy-supportive teacher feedback	1		
Self-efficacy-supportive classroom assessment environment	0.63	1	
Learning engagement	0.71	0.66	1

$p < 0.01$

The results showed significant positive correlations among self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environment, and learning engagement. Teacher feedback was positively associated with learning engagement ($r = 0.71$, $p < 0.01$), and classroom assessment environment was also positively associated with learning engagement ($r = 0.66$, $p < 0.01$). Teacher feedback and classroom assessment environment were significantly correlated with each other ($r = 0.63$, $p < 0.01$). These results indicate that more positive perceptions of teacher feedback and classroom assessment conditions were associated with higher levels of student learning engagement. Because the data were cross-sectional, the correlations indicate statistical associations rather than causal relationships.

Before conducting the multiple regression analysis, the assumptions required for regression were examined. The data were screened for potential extreme observations using standardized

scores, with values exceeding ± 3 standard deviations considered potential outliers. No observations exceeded this threshold. Multicollinearity was assessed using Variance Inflation Factor (VIF) and tolerance statistics. All VIF values were below 5 and all tolerance values exceeded 0.20, indicating that multicollinearity was not a concern. The data were therefore considered suitable for the subsequent multiple regression analysis. Multiple regression analysis was then conducted to examine the statistical associations of the two classroom-condition variables with learning engagement. The results are shown in Table 3.

Table 3 – Multiple Regression Analysis of Learning Engagement

Predictor variable	Standardized coefficient β	t	p
Self-efficacy-supportive teacher feedback	0.46	5.84	<0.001
Self-efficacy-supportive classroom assessment environment	0.34	4.18	<0.001

The statistical results of the model are as follows:

$$R^2 = 0.58$$

$$F = 67.24$$

$$p < 0.001$$

The results show that both self-efficacy supportive teacher feedback and self-efficacy supportive classroom assessment environment were significantly associated with learning engagement. Among them, teacher feedback had the larger standardized coefficient ($\beta = 0.46$), and self-efficacy supportive classroom assessment environment was also statistically significant ($\beta = 0.34$). The model accounted for 58% of the variance in learning engagement ($R^2 = 0.58$).

To compare the overall levels of the three measured variables more directly, their mean scores are summarized in Table 4.

Table 4 – Comparison of Mean Scores Across the Three Variables

Variable	Mean (M)	Rank
Self-efficacy-supportive teacher feedback	4.18	1
Learning engagement	4.11	2
Self-efficacy-supportive classroom assessment environment	4.06	3

Both self-efficacy-supportive teacher feedback ($\beta = 0.46$, $t = 5.84$, $p < 0.001$) and self-efficacy-supportive classroom assessment environment ($\beta = 0.34$, $t = 4.18$, $p < 0.001$) were significantly associated with learning engagement in the multiple regression model. Together, the two classroom-condition variables accounted for 58% of the variance in learning engagement ($R^2 = 0.58$, $F = 67.24$, $p < 0.001$). Teacher feedback showed the largest standardized regression coefficient. These findings indicate that students who perceived more supportive teacher feedback and classroom assessment conditions also tended to report higher levels of learning engagement. However, because the study employed a cross-sectional self-report design, the regression coefficients should be interpreted as statistical associations rather than evidence that these classroom conditions caused changes in learning engagement.

In summary, self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environment, and learning engagement were all at relatively high levels and were significantly positively associated. In the multiple regression model, both classroom-condition variables were significantly associated with learning engagement, with teacher feedback showing

the larger standardized regression coefficient. These results describe statistical associations and do not establish causal effects.

This study examined the relationship between self-efficacy-supporting teacher feedback, self-efficacy-supporting classroom assessment environments, and high school students' learning engagement. All three dimensions were at high levels and significantly correlated. The two types of classroom support conditions together explained 58% of the variation in learning engagement, with teacher feedback showing a larger standardized regression coefficient. The results indicate that clear guidance, fair assessment, and improvement information provided by teachers may be more directly related to student participation and effort than general assessment activities. However, the cross-sectional design can only explain the variable associations and cannot determine the causal direction.

Self-efficacy-supporting teacher feedback scored the highest ($M = 4.18$, $SD = 0.54$), indicating that students generally recognized the fairness of teacher feedback, learning guidance, and assessment. This is consistent with formative assessment research, where feedback helps students clarify goals and follow-up actions [1; 4]. From a self-efficacy perspective, specific and achievable guidance helps students attribute progress to controllable strategies rather than fixed abilities, thus forming more positive judgments of competence [5].

Learning engagement was also at a high level ($M=4.11$, $SD=0.57$), consistent with the view that engagement includes behavioral, affective, cognitive, and agentic components [9; 10]. The score for the self-efficacy-supportive classroom assessment environment was slightly lower ($M=4.06$, $SD=0.59$), indicating that assessment tasks could be further enriched by adding successful experiences, strategy demonstrations, opportunities for revision, self-assessment, and peer feedback [2; 6].

Self-efficacy-supportive teacher feedback showed the strongest correlation with learning engagement ($r=0.71$), and the self-efficacy-supportive classroom assessment environment also showed a strong correlation with learning engagement ($r=0.66$). This direction aligns with Fu et al. [12], whose study found correlation coefficients of 0.376–0.455 between self-efficacy and affective engagement, effort quality, psychological adaptation, and peer interaction, explaining 14.1%–20.7% of the variance across each dimension. While the two studies differ in their subjects and variables, making direct coefficient comparison impossible, both indicate a close correlation between positive judgments of competence and supportive environments and various engagement behaviors. This study did not measure efficacy beliefs; therefore, it cannot determine whether they mediate or moderate these relationships.

In the regression model, self-efficacy-supportive teacher feedback ($\beta = 0.46$) and self-efficacy-supportive classroom assessment environments ($\beta = 0.34$) jointly explained 58% of the variance in learning engagement. The results highlight the practical significance of feedback quality and the assessment environment, but cannot provide a causal explanation. Future research could directly examine whether mechanisms such as transparent standards, actionable feedback, opportunities for modification, and successful task completion enhance students' self-efficacy, thereby promoting persistence and participation.

Therefore, schools should establish a self-efficacy-supportive classroom assessment environment: teachers should clearly define success criteria, provide feedback focused on tasks and strategies, arrange progressive challenges, and allow students to revise their work based on feedback. The academic email study by Zhorabekova et al. [13] provides concrete examples: when students lack salutations, contextual explanations, softening phrases, and request strategies, even if they complete writing tasks, pragmatic failures may occur; examples, strategy explanations, positive feedback, and rewriting opportunities can simultaneously support task performance and writing self-efficacy. The results of Fu et al. [12] indicate that the significance of self-efficacy may extend to multiple aspects such as emotional engagement, effort quality, psychological adaptation, and interaction. The writing study by Xu et al. [17] illustrates why direct measurement matters: it

examined writing self-efficacy in relation to writing performance, whereas the present study examines classroom perceptions in relation to engagement. Likewise, the formative-assessment study by Kassymova et al. [18] gives a reason to consider emotional experience alongside participation, but neither study establishes mediation in the current sample. These distinctions keep the theoretical discussion connected to evidence without treating different constructs as interchangeable.

This study has several limitations. The sample consisted of only one school and 100 students; all variables were measured via self-report at the same time point, making it impossible to exclude common method bias, reverse relationships, and situational confounding. More importantly, “self-efficacy-supportive” is an operational interpretation based on item content and theory; the original questionnaire did not directly measure students' academic self-efficacy. Therefore, this study cannot report the mean self-efficacy or test its mediating effect. Future research should incorporate validated domain-specific self-efficacy scales, re-examine construct validity, and employ longitudinal, experimental, or multi-level designs to verify the mechanism of action.

Conclusion

Both self-efficacy-supportive teacher feedback and self-efficacy-supportive classroom assessment environments were significantly positively correlated with high school students' learning engagement, jointly explaining 58% of the variance in learning engagement, with teacher feedback showing a stronger correlation and predictive effect. The results indicate that classroom conditions such as clear instruction, fair assessment, actionable feedback, interactive activities, and opportunities for improvement are closely related to students' active participation and sustained effort.

Self-efficacy theory provides a reasonable explanation for the above relationship: supportive assessment can provide students with the information that "effective action leads to progress," which may strengthen their judgment of competence and willingness to persevere. However, since this study did not directly measure self-efficacy, this mechanism remains a theoretical hypothesis rather than a mediating mechanism validated by the data in this study.

In practice, teachers should organize assessments around transparent goals, provide actionable and strategy-focused feedback, and create opportunities for students to utilize feedback through revision, self-assessment, and peer assessment. Assessment design should also focus on students' emotional experience, quality of effort, task adaptation, and collaborative interaction, and use authentic tasks, excellent examples, and progressively challenging tasks to accumulate successful experiences. At the research level, future studies should directly measure domain-specific self-efficacy to examine whether it mediates or moderates the relationship between self-efficacy-supportive classroom assessments and learning engagement.

Overall, this study shifts its analytical focus from the diversity of assessment formats to whether assessments support students in forming positive competence beliefs, and preliminarily reveals the close link between self-efficacy-supportive teacher feedback, self-efficacy-supportive classroom assessment environments, and high school students' learning engagement.

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Өзіндік тиімділікті қолдайтын сыныптық бағалау және оқуға қатысу

Аңдатпа. Өзіне деген сенімділік – оқушылардың күш-жігерімен, табандылығымен және қатысуымен байланысты маңызды мотивациялық сенім. Өзіне деген сенімділік тұрғысынан мұғалімнің пікірі мен сыныптағы бағалау оқушыларға оқу үлгерімі, көрсеткіштері және жетілдіру мүмкіндіктері туралы ақпарат бере алады. Бұл көлденең зерттеу Қытайдағы жалпы орта мектептегі екі 100 11-сыныптың 100 оқушысы арасында мұғалімнің пікірі, сыныптағы бағалау жағдайлары және оқуға қатысуы арасындағы байланыстарды зерттеді. Деректер 14 сұрақтан тұратын сауалнама арқылы жиналып, сипаттамалық статистика, сенімділік және валидтілік тестері, Пирсон корреляциясы және көптік сызықтық регрессия арқылы талданды. Нәтижелер мұғалімнің пікірі оқуға қатысумен оң байланысты екенін көрсетті ($r = 0,71$, $p < 0,01$), сондай-ақ сыныптағы бағалау

жағдайлары да ($r = 0,66$, $p < 0,01$). Көптік регрессия моделінде екі сыныптық айнымалы оқуға қатысудағы дисперсияның 58%-ын құрады ($R^2 = 0,58$), мұғалімнің пікірі үлкенірек стандартталған регрессия коэффициентін көрсетті ($\beta = 0,46$). Бұл зерттеу нәтижелері мұғалімнің пікірлерін және сыныптағы бағалау жағдайларын көбірек қабылдайтын оқушылардың оқуға деген белсенділігінің жоғары деңгейі екендігін көрсетеді. Бұл зерттеуде өзіндік тиімділік тікелей өлшенбеген; сондықтан ол байқалған немесе делдалдық айнымалы ретінде емес, сыныптағы жағдайларды түсіндіру үшін теориялық тұрғыдан пайдаланылады. Көлденең қима және өзіндік есеп беру дизайнын ескере отырып, зерттеу нәтижелері себеп-салдарлық байланыстар емес, ассоциациялар ретінде түсіндірілуі керек.

Кілт сөздер: өзін-өзі тиімді сезіну, мұғалімнің кері байланысы, сыныптағы бағалау, оқуға белсенді қатысу, жоғары сынып оқушылары.

Оценивание в классе, направленное на поддержку самоэффективности и учебная вовлеченность

Аннотация. Самоэффективность – важное мотивационное убеждение, связанное с тем, сколько усилий и настойчивости проявляют учащиеся, а также с уровнем их вовлеченности в учебный процесс. С позиции самоэффективности, обратная связь от учителя и условия оценивания в классе могут предоставлять учащимся информацию об их учебном прогрессе, результатах и возможностях для улучшения показателей. В поперечном исследовании изучались взаимосвязи между воспринимаемой учащимися обратной связью учителя, условиями оценивания в классе и учебной вовлеченностью. Выборку составили 100 учащихся 11-х классов (два класса) одной общеобразовательной школы Китая. Данные были собраны с помощью анкеты из 18 пунктов и анализировались методами описательной статистики, проверки надежности и валидности, корреляционного анализа (коэффициент Пирсона) и множественной линейной регрессии. Результаты показали наличие положительной связи между вовлеченностью в учебный процесс и как обратной связью от учителя ($r = 0,71$; $p < 0,01$), так и условиями оценивания ($r = 0,66$; $p < 0,01$). В модели множественной регрессии эти две переменные, характеризующие учебную среду, совместно объясняли 58% дисперсии вовлеченности в учебный процесс ($R^2 = 0,58$), причем стандартизованный коэффициент регрессии для обратной связи от учителя оказался выше ($\beta = 0,46$). Полученные данные свидетельствуют о том, что учащиеся, воспринимающие обратную связь от учителя и условия оценивания как более благоприятные и поддерживающие, как правило, демонстрируют более высокий уровень вовлеченности в учебный процесс. Самоэффективность не измерялась напрямую в ходе данного исследования; она выступает скорее теоретической рамкой для интерпретации условий учебного процесса, нежели наблюдаемой или опосредующей переменной. Учитывая одномоментный характер исследования и использование данных самоотчета, полученные результаты следует интерпретировать как свидетельство наличия взаимосвязей, а не причинно-следственных отношений.

Ключевые слова: самоэффективность; обратная связь от учителя; оценивание в классе; вовлеченность в учебный процесс; старшеклассники.

Information about the authors

Xu W. – The Corresponding Author, PhD Doctoral Student, Yogyakarta State University, e-mail: xuwenxin0124@163.com, Indonesia, Yogyakarta.

Retnawati H. – Professor, Yogyakarta State University, e-mail: heri_retnawati@uny.ac.id, Indonesia, Yogyakarta.

Ugwuanyi C.S. – Professor, University of the Free State, e-mail: christian.ugwuanyi@unn.edu.ng, South Africa, Bloemfontein.

Авторлар туралы мәлімет

Сю В. – корреспондент-автор, PhD докторант, Йогьякарта мемлекеттік университеті, e-mail: xuwenxin0124@163.com, Индонезия, Йогьякарта қ.

Ретнавати Х. – профессор, Йогьякарта мемлекеттік университеті, e-mail: heri_retnawati@uny.ac.id, Индонезия, Йогьякарта қ.

Угвуаньи К.С. – профессор, Еркін мемлекет университеті, e-mail: christian.ugwuanyi@unn.edu.ng, Оңтүстік Африка, Блумфонтейн қ.

Сведения об авторах

Сюй В. – автор-корреспондент, PhD докторант, Государственный университет Джокьякарты, e-mail: xiuwenxin0124@163.com, Индонезия, г. Джокьякарта.

Ретнавати Х. – профессор, Государственный университет Джокьякарты, e-mail: heri_retnawati@uny.ac.id, Индонезия, г. Джокьякарта.

Угвуаньи К.С. – профессор, Университет Свободного государства, e-mail: christian.ugwuanyi@unn.edu.ng, Южная Африка, г. Блумфонтейн.