The role of teacher support, self-efficacy, and academic emotions in predicting primary school students learning performance within a formative assessment model

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Article Info	ABSTRACT
	This study investigates the influence of teacher support, academic self-efficacy, and academic emotions on the learning performance of elementary school students through the development of a formative assessment model. A supportive classroom environment is essential for fostering student motivation, emotional regulation, and optimal academic achievement. The study involved 240 students from public elementary schools in Cirebon, Indonesia, using a structured quantitative survey. Research instruments measured teacher support, academic self-efficacy, academic emotions, and student performance. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), a variance-based structural equation modeling approach, with SmartPLS 3.0 software. Results show that teacher support has a strong direct effect on learning performance ($\beta = 0.845$; $f^2 = 2.524$), and also exerts indirect effects through positive academic emotions ($\beta = 0.134$) and academic self-efficacy ($\beta = -0.034$). The structural model explains 75.9% of the variance in student performance ($R^2 = 0.759$). These findings emphasize the critical role of teacher support and students' psychological factors in formative assessment, suggesting that integrating socio-emotional variables can improve learning effectiveness in primary education. *This is an open access article under the <u>CC BY-SA</u> license.*

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1. INTRODUCTION

English In the field of education, students' learning success is not merely the result of cognitive factors, but it also involves complex psychosocial processes associated with teachers' support, student self-efficacy, and academic emotions felt during the teaching and learning process (Prihastyanti & Sawitri, 2020). Such three aspects are critically significant now, considering that the learning paradigm is shifting, so that the learners becomes a more active framework (Fitrianik, 2020). Here, the teacher is no more a mere transmitter of knowledge; he/she is not only a facilitator of learning but also an emotional guide and academic caregiver, who provides for an environment for the holistic growth of learners intellectually, emotionally and socially in the long run contributing to the development of a resilient, independent and prepared character to take on future demands and pressures (Kundu, 2020).

The impact of teacher support on student outcomes is well documented in the literature, particularly through the lens of Social Support Theory (Lakey & Cohen, 2015), which highlights how perceived empathy, responsiveness, and care from teachers enhance student motivation and reduce academic stress. Complementing this, Bandura's Social Cognitive Theory (1995) emphasizes self-efficacy students' beliefs in their capabilities to complete academic tasks as a critical psychological mechanism shaped by social experiences such as encouragement, modeling, and emotional feedback. While both theories recognize the significance of social

interactions in shaping academic outcomes, they operate on different psychological levels: Social Support Theory focuses on external, relational factors, whereas Social Cognitive Theory targets internal, belief-based processes.

Integrating these frameworks in the context of primary education introduces both opportunities and challenges. At this developmental stage, children's capacities for self-regulation, abstract reasoning, and autonomous learning are still emerging, raising questions about the extent to which self-efficacy can be fully internalized without substantial external scaffolding (Hanni & Sembiring, 2022). Although theoretical integration holds promise, limited empirical research has critically examined whether these frameworks reinforce or conflict with each other when applied to young learners. Most studies tend to isolate variables or focus on older student populations, leaving a gap in understanding how these constructs interact in early education contexts.

To address this theoretical and practical void, the present study investigates the interrelationships among teacher support, academic emotions, and academic self-efficacy in predicting student learning performance specifically within a formative assessment model tailored to the primary school setting. Formative assessment, by design, provides continuous feedback that supports both cognitive growth and emotional engagement, making it a suitable framework for integrating psychosocial factors. While Social Support Theory emphasizes relational aspects such as teacher empathy, emotional warmth, and supportive classroom interactions (Lakey & Cohen, 2015), Bandura's Social Cognitive Theory highlights internal psychological mechanisms, particularly students' beliefs in their capabilities to perform academic tasks (Bandura, 1995). However, in the context of primary education, these theoretical lenses may not function independently; children at this stage still depend heavily on external guidance to regulate emotions and form academic self-beliefs (Hanni & Sembiring, 2022). Thus, these theories are more complementary than divergent, especially when applied to younger learners whose psychosocial development is shaped by teacher behavior. Therefore, this study is guided by the following research questions: (1) What are the direct relationships among teacher support, academic self-efficacy, academic emotions, and students' learning performance? and (2) Do academic self-efficacy and academic emotions serve as mediating variables in the relationship between teacher support and learning performance? Grounded in this conceptual framework, the study specifically aims to examine both the direct and indirect influences of teacher support on students' academic performance by considering the mediating effects of academic emotions and self-efficacy within a formative assessment approach tailored to primary education settings.

2. LITERATURE REVIEW

Teacher support has three aspects of measurement; (1) involvement, this measurement is about the extent to which learners perceive their teachers to pay attention, make time for them; (2) structure, this measurement is about the extent to which learners perceive their teachers to be consistent in applying rules, providing meaningful help for their academics; (3) autonomy support, this measurement is about the extent to which learners perceive their teachers to provide flexibility for learners to regulate their actions (Rohinsa, 2023). This teacher support research will have an impact on the emotional state of learners, specifically, feelings that are both positive and negative (Lei et al., 2018). Nevertheless, earlier research tend to only explain the relationship between two variables without integrating all three into a single comprehensive model that can be used in classroom practice at the elementary school level.

The importance of teacher support in learning has long been emphasized across various educational theories. Social Support Theory (Lakey & Cohen, 2015) posits that learners' perceptions of support from teachers such as empathy, care, and responsiveness can significantly boost motivation, alleviate stress, and enhance academic achievement. Teachers who provide emotional warmth, structured guidance, and opportunities for autonomy create a positive and supportive classroom climate that facilitates student engagement (Ulfa, 2016). In the context of primary education, this role becomes even more critical, as children at this developmental stage are still forming foundational skills in emotional regulation and self-directed learning. They rely heavily on adult authority and scaffolding to develop self-efficacy and manage academic challenges effectively (Ummah & Usriyah, 2024). While Social Support Theory emphasizes interpersonal influences, Bandura's Social Cognitive Theory (1995) offers a complementary intrapersonal lens, highlighting that self-efficacy is cultivated through social interactions such as modeling, encouragement, and emotional experiences suggesting that teacher support not only shapes the external climate but also directly contributes to the internal belief systems of young learners.

In addition to teacher support, academic self-efficacy is recognized as a fundamental psychological construct in the field of educational research. Bandura (1995) defines self-efficacy as a learner's confidence in their capacity to organize and execute actions required to accomplish specific academic tasks. This internal belief system significantly shapes students' academic behaviors, influencing how they respond to learning difficulties, manage their emotional states, and maintain motivation over time. Learners with strong self-efficacy are more likely to exhibit persistence, adaptability, and active participation in classroom activities, whereas those with lower self-efficacy are more susceptible to academic stress and disengagement (Afrin et al., 2020). Importantly, self-efficacy is not an innate or static trait; rather, it develops gradually through various sources such as successful

performance experiences, observational learning, verbal reinforcement, and emotional encouragement elements typically nurtured in teacher-facilitated learning environments (Elisabhet et al., 2023). This is particularly relevant in primary education settings, where children are still acquiring essential skills for cognitive control and emotional self-regulation. self-efficacy becomes especially critical to ensure long-term academic growth and personal confidence.

Recent developments in theoretical and empirical research have highlighted the dual role of academic self-efficacy not only as an outcome influenced by teacher support, but also as a mediator that connects external classroom interactions with students' internal academic outcomes. When students perceive high levels of teacher support, they tend to build stronger beliefs in their academic abilities, which subsequently enhances their learning engagement and achievement (van Rooij et al., 2017). This mechanism illustrates how interpersonal dynamics and intrapersonal processes work together to influence educational success, especially within early learning contexts where emotional support and structured guidance from teachers are crucial. Drawing from this understanding, academic self-efficacy is posited to function as a mediating variable in the link between teacher support and learning outcomes. This theoretical rationale underpins the conceptual framework illustrated in Figure 1.

Academic emotions are emotional experiences related to learning and teaching that range from happiness to despair, boredom to anxiety and anger (Pekrun et al., 2020). Researchers generally classify academic emotions into two main categories, namely positive academic emotions (PAE) and negative academic emotions (NAE), although there are still different views on the clear boundaries between the two categories. Pekrun et al. (2020) suggested that factors that provide primary emotional impact include feelings of relief, hope, happiness, and pride. Meanwhile, emotions that fall under secondary emotional affect include shame, anxiety, boredom, anger and hopelessness. Other studies have expanded the scope of PAEs by adding dimensions such as calmness and contentment, and expanded NAEs to include symptoms of depression and fatigue. In addition, PAEs can also include affective experiences such as arousal and pleasure, while NAEs can refer to feelings of threat and fear (Zhao et al., 2024). This suggests that teacher support has an indirect impact on students' emotional experiences in addition to its direct impact on academic outcomes. Previous studies have tended to examine the relationship between academic emotions and learning outcomes or teacher support separately. This observation points to an intriguing avenue for further research, particularly in elementary schools, as very few studies position academic emotions as mediators within theoretical frameworks and structural models, which have unique social-emotional dynamics and vulnerabilities.

Performance in the learning process is commonly evaluated through indicators such as exam results or academic achievement. The use of more accurate definitions and methods of evaluating learning outcomes contributes to a deeper understanding of causal relationships in educational contexts. However, performance in learning involves not only objective metrics such as efficiency, effectiveness and achievement of learning objectives, but also includes subjective dimensions such as learners' level of learning satisfaction. Such subjective aspects are essential elements, not only as outcomes, but also as an integral part of the learning process itself (Uran et al., 2019).

With reference to comprehensive objective and subjective indicators, this study explores 5 main dimensions of learning performance: academic achievement, learning satisfaction, competence and social interaction, private knowledge development, and enter-output ratio. educational achievement displays freshmen' success charge in assembly learning goals; learning satisfaction describes their subjective notion of getting to know needs being met; social competence and interaction reflects freshmen' capacity to express themselves and communicate effectively inside the context of their learning; personal knowledge relates to the mastery of unique content as well as the broadening of horizons through energetic engagement in their learning; while the enter-output ratio reflects the comparison among novices' inner aid contribution and the gaining knowledge of advantages they benefit (Zhao et al., 2024). however, previous studies on performance in learning tend to focus on unique aspects, such as the relationship between academic emotions and learning performance, the correlation between academic self-efficacy and learning outcomes, and the relationship between lecturer help or involvement and academic performance, which generally show consistent results.

Based on the theoretical integration of Social Support Theory (Lakey & Cohen, 2015) and Social Cognitive Theory (Bandura, 1995), as well as previous empirical studies (Sahertian et al., 2024), this study proposes a conceptual model that examines both direct and indirect effects of teacher support on students' learning performance through academic self-efficacy and academic emotions. The model is designed to address the lack of integrative formative assessments in primary education that account for psychosocial variables. Accordingly, the following hypotheses are formulated and visually represented in Figure 1:
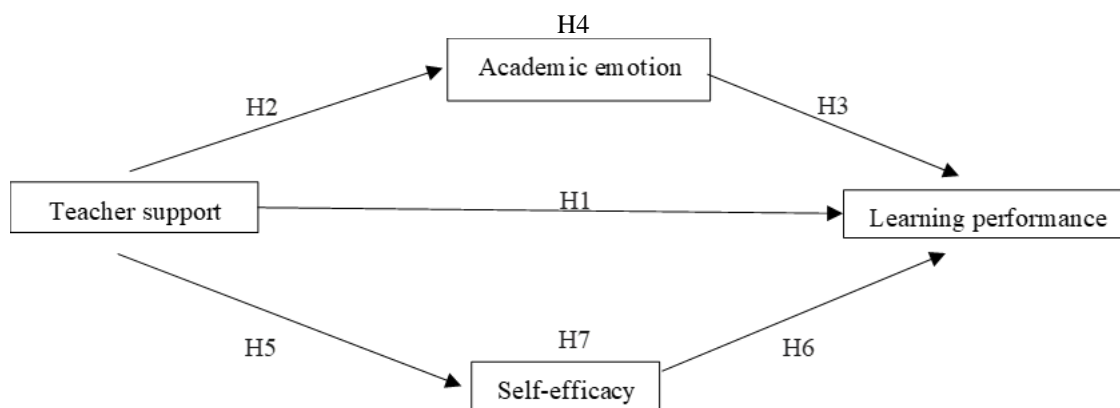
One of the specific elements thought to be crucial in establishing a connection between student learning performance and teacher support is academic emotion. According to Bandura (1995) social cognitive theory, academic emotions play a significant role in the dynamics of the learning process by boosting energy, focusing attention, eliciting reactions to significant events, and promoting action-oriented intents. These emotions significantly affect the cognitive, motivational and behavioral aspects of learners. The level of attention and support teachers give to students' needs, the clarity and management of learning objectives, effective time management, and the creation of a harmonious and inclusive classroom atmosphere all affect students' emotional responses to the learning process. Quantitative studies on academic burnout reveal that weak classroom management, low teaching quality, and lack of teacher support are external factors that can trigger negative academic emotions (Zhao et al., 2024).

Hypothesis 2. Teacher support is associated with an increase in students' positive academic emotions and a decrease in their negative academic emotions.

Hypothesis 3. Students' positive academic emotion is positively related to students' learning performance on the one hand, and students' negative academic emotion is negatively related to students' learning performance on the other hand.

Hypothesis 4. The relationship between teacher support and learning performance will be mediated through academic emotion.

Academic self-efficacy is recognized as a significant psychological component that might mediate the impact of teacher support on students' learning results, in addition to academic emotions. According to Bandura (1995) social cognitive theory, a supportive learning environment helps shape students' psychological processes, which then promote their active participation in academic tasks. Consequently, academic self-efficacy, as an internal psychological construct, is considered pivotal in explaining how teacher support impacts students' academic performance.

Hypothesis 5. There will be a positive relationship between faculty support and students' academic self-efficacy.

Hypothesis 6. There will be a positive relationship between students' academic self-efficacy and learning performance.

Hypothesis 7. The relationship between teacher support and student learning performance will be mediated through students' academic self-efficacy.

3. METHOD

3.1 Participants and Procedures

This study employed a quantitative survey design involving students from three public primary schools located in Cirebon City, West Java, Indonesia. A total of 240 students from grades IV, V, and VI were selected using a purposive sampling method. This non-probability sampling technique was chosen based on the assumption that it allows researchers to intentionally select participants who are considered most relevant to the research objectives and have sufficient experience in the learning context being examined. The participants consisted of 69 students from SDN Kebon Baru 1, 130 students from SDN Kebon Baru 4, and 41 students from SDN Kebon Baru 6. The sample included students from various grade levels and classroom environments, thereby providing

a diverse representation of elementary learners' perceptions, emotional experiences, and academic beliefs in face-to-face classroom settings.

Prior to data collection, the researchers coordinated with school principals and classroom teachers to gain access and support for participant recruitment. After obtaining verbal consent from the school authorities and classroom facilitators, printed questionnaires were distributed directly to the students during regular class hours. Students completed the survey under the supervision of both the researcher and their class teachers to ensure understanding and minimize response bias. All students were informed that their participation was voluntary, and their responses would be kept strictly confidential. No personal identifiers were recorded.

This study adhered to ethical research protocols, including respect for participants' autonomy, data privacy, and child protection guidelines. The research process was carried out in compliance with the Institutional Research Ethics Committee of Institut Prima Bangsa Cirebon's ethical guidelines, ensuring that all interactions with participants followed principles of informed consent, beneficence, and data confidentiality.

3.2 Instrumentation

This study utilized a set of four psychometric instruments to measure the main constructs: teacher support, academic emotions, academic self-efficacy, and learning performance. All instruments were adapted from previously validated sources and modified linguistically for developmental appropriateness in primary school settings. This research employs a formative measurement model to assess three core constructs: teacher support, academic self-efficacy, and students' academic emotions within the context of offline learning at the elementary school level. The tool utilized in this investigation was modified from previously validated tools commonly applied in earlier research, with modifications made to suit the characteristics of elementary students and the conditions of face-to-face classroom learning.

Teacher support is conceptualized as students' perception of the extent to which their teachers provide emotional, instructional, and motivational support during the learning process. In this study, teacher support was measured across three key dimensions: involvement (teachers' personal attention and care), structure (clarity of rules and instructional guidance), and autonomy support (opportunities for student independence). The instrument used was adapted from the questionnaire developed by Rohinsa (2023), and linguistically modified to suit the developmental level and classroom context of elementary school students. All items were revised using simplified vocabulary and school-related scenarios to ensure clarity and age-appropriate understanding. Responses were rated using a four-point Likert scale, where positively worded items were scored from 1 (Strongly Disagree) to 4 (Strongly Agree), while negatively worded items were reverse-coded. Higher total scores on this instrument indicate stronger perceived teacher support. The following instruments are presented for the teacher support variable in Table 1, this scale has perfect reliability with an overall reliability (Cronbach's alpha) of 0.741.

Tabel 1. Teacher Support Instruments

Aspect	Indicator	Statement
Involvement	Teachers recognize students personally	My teacher knew me and my friends.
		My teacher doesn't know me yet.
	The teacher shows concern when students experience negative emotions	When I was sad, my teacher noticed me.
	Teachers are interested in students' personal lives	My teacher was less interested in listening to my story.
	The teacher shows appreciation for students' attendance	My teacher seemed happy when I was present in class.
Structure	The teacher responds to students' mistakes in a constructive way	If I was wrong, my teacher explained patiently.
		If I was wrong, my teacher would get angry.
	Teachers provide assistance when students have difficulty learning	My teacher helps me if I don't understand the lesson.
	The teacher clearly explains the rules and expectations	My teacher tells me what I can and cannot do.
		My teacher doesn't tell the class rules clearly enough.

Autonomy Support	The teacher provides opportunities for students to try and think independently	My teacher encouraged me to try to complete the task by myself first.
		My teacher hasn't given me the opportunity to try it myself.
		When doing assignments, my teacher gives me time to try by myself.
	The teacher respects and accepts students' opinions	My teacher is willing to listen to my opinion.
		My teacher scolded me when I dissented.

Academic emotions were measured using a 15-item questionnaire adapted from King (2014), grounded in the control value theory by Pekrun et al. (2011). This instrument assesses students' emotional responses in three academic settings: classroom learning, self-study, and examinations. Both good (such joy, hope, and pride) and negative (like boredom, fear, and irritation) feelings are captured. All items were rated using a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), with reverse coding applied to negatively phrased statements to ensure scoring consistency. The items were linguistically simplified and contextually adapted for developmental appropriateness at the primary school level. Reliability testing indicated acceptable internal consistency with a Cronbach's alpha of 0.767.

Tabel 2. Academic Emotion Instrument

Aspect	Indicator	Statement
Positive emotions	Students feel happy when learning new things at school and unhappy when they have to do assignments in class.	I feel happy when learning new things at school.
		I don't feel so happy when I have to do assignments in class.
		I always do my homework and assignments on time.
	Students believe that one day they will become smart by continuing to study, but they may feel doubtful about their abilities even though they have tried hard.	I believe that one day I will become smart by continuing to study.
		I doubt that I can become smart, even though I have studied hard.
		My grades often fall short of my expectations.
	Students feel proud when they get good grades and complete their assignments well.	I feel proud when I get good grades and finish my assignments well.
		I try to stay focused when doing my homework.
Negative emotions	Students feel angry when they have to study difficult subjects.	I feel angry when I have to study difficult subjects.
	Students feel nervous or afraid when questioned by the teacher in front of the class.	I feel nervous or afraid when the teacher asks me questions in front of the class.
	Students feel embarrassed when they cannot answer questions correctly.	I feel embarrassed when I can't answer questions correctly.
	Students feel like giving up when lessons are very difficult.	I feel like giving up when the lessons are very difficult.
		I often forget to do the assignments given by the teacher.
		I feel that studying at school is sometimes boring and uninteresting.

	Students feel that learning at school is sometimes boring and uninteresting.	I don't really care if I haven't finished my homework.

The academic self-efficacy instrument was adapted from Bandura (1995) theoretical framework, which defines self-efficacy as one's confidence in their capacity to plan and carry out the actions needed to achieve specific academic goals. This scale consisted of 15 items designed around three dimensions: (1) magnitude students' confidence in handling tasks of varying difficulty; (2) strength their persistence and resilience when facing academic challenges; and (3) generality their perceived ability to apply academic skills across different learning contexts (Amin, 2022). All items were linguistically modified to align with the cognitive and developmental level of primary school students (Hanni & Sembiring, 2022), and responses were collected using a four point likert scale, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), with reverse scoring applied to negatively worded items.

Tabel 3. Self-Efficacy Instrument

Aspect	Indicator	Statement
Magnitude	Belief in the assigned task as a learning challenge	I am happy when I can complete a difficult task.
		I am reluctant to try tasks that I don't understand.
	Belief in one's ability to overcome obstacles in the level of difficulty of the task at hand	I am confident that I can complete the task despite obstacles.
		Difficult tasks make me lazy to study
Strength	Possess a fighting spirit and do not give up easily when encountering obstacles in completing tasks	When the task is difficult, I keep trying until I finish it.
		I quickly become discouraged if my grades are poor.
	Possess a strong work ethic and strive to perform at the highest level	I give up immediately if the task is difficult.
		I keep trying even if the task is very difficult.
	Committed to completing academic assignments well	I feel happy when my work is good.
		I always try to complete all my tasks well.
	Strong self-confidence in one's potential to complete assignments	I am confident that I can complete the task without help from others
		I lack confidence when given difficult tasks.
Generality	Displaying an attitude that shows self-confidence throughout the learning process	I enjoy trying different assignments.
	Having strong self-confidence in one's potential to complete tasks	I feel afraid when trying new things in class.
	Using life experiences as a stepping stone to achieve success	My learning experiences have made me more confident.

Students' learning performance was measured using a 15-item instrument adapted from Zhao (2024), which was developed based on educational objectives outlined in Indonesia's national development framework and supported by prior research on academic achievement. The scale assesses three core components: understanding of theoretical knowledge, the ability to apply knowledge in real-life contexts, and the development of independent thinking skills. All items were linguistically simplified and contextualized for primary school learners, and the scale was revalidated in this study through expert review and factor analysis to ensure its suitability for the target population. Responses were collected using a four-point Likert scale, with positively worded items scored from 1 (Strongly Disagree) to 4 (Strongly Agree), and reverse scoring applied to negatively worded items. Although the

third component contains more items, this was retained due to its broader behavioral indicators and acceptable psychometric properties.

Table 4. Learning performance instruments

Aspect	Indicator	Statement
Mastery of Theoretical Knowledge	Students understand the basic concepts of the lessons taught	I understand the lessons explained by the teacher.
		I don't quite understand the teacher's explanations during class.
	Students can explain the lesson material.	I am able to explain the lesson content to my friends.
		I am not yet able to explain the lesson material well.
Application of Knowledge/Skills	Students can use lesson materials in real-life activities or assignments	I use what I learn at school to help with my daily tasks.
		I find it difficult to apply what I learn in my daily life.
	Students can demonstrate their skills in solving problems and completing assignments.	I complete the exercises given by my teacher with ease.
		I often make mistakes when doing my teacher's assignments.
Independent Thinking Skills	Students can complete tasks without assistance.	I complete my schoolwork independently.
		I study independently and complete my assignments without being told to.
		I need help from others to complete my schoolwork.
		I rarely review my textbooks at home.
	Students think critically and find solutions to the problems given.	I try to find the answers myself when I encounter difficult questions.
		I give up when I encounter difficult questions.
		I take notes or summarize the material I have studied.

Table 5. Descriptive Statistics and Correlations

Variables	Means	*SD*	*TS*	AE	SE	LP
TS	3.867	0.371	1	0.232**	0.385**	0.863**
AE	3.610	0.518		1	0.571***	0.310**
SE	3.861	0.465			1	0.367
LP	3.919	0.403				1

Notes. TS = Teacher Support; AE = Positive Academic Emotions; SE = Academic Self-Efficacy; LP= Learning Performance. **Correlations are significant at the 0.01 level, two-tailed.

The data analysis process in this study commenced with the use of SPSS version 26.0 to compute Cronbach's alpha coefficients, assessing the preliminary reliability of each measurement indicator. Descriptive statistics, including means and standard deviations, were also calculated, alongside Pearson correlation coefficients between constructs to explore the overall data distribution and inter-variable relationships. To test the proposed model, the study employed the Partial Least Squares–Structural Equation Modeling (PLS-SEM) technique using SmartPLS version 3.0 (Hayat et al., 2020). PLS-SEM was selected due to its suitability for analyzing complex models and non-normally distributed data, making it ideal for exploratory research designs

(Urbach & Frederik, 2010). Following analytical procedures recommended by Hair et al. (2019), the evaluation was conducted in two primary stages. The first involved assessing the formative measurement model by examining multicollinearity using the Variance Inflation Factor (VIF), determining indicator significance and relevance through bootstrapping, and validating content based on both theoretical foundations and empirical evidence. The second stage focused on evaluating the structural model, which entailed analyzing the relationships between latent variables using path coefficients, t-statistics, and p-values, as well as calculating the effect size (f^2) and the coefficient of determination (R^2) to determine the model's overall predictive power.

4. RESULTS AND DISCUSSION

The mean scores, standard deviations, and bivariate correlations between the study's main variables are displayed in Table 5 during the first stage of the analysis. The findings show that student learning outcomes, academic emotions, academic self-efficacy, and teacher support are positively correlated. These results are consistent with earlier studies, who emphasized the critical role that teacher support plays in influencing student engagement and academic success. In particular, there was a somewhat positive link between teacher support and academic emotions ($r = 0.232$) and academic self-efficacy ($r = 0.385$), as well as a very high positive correlation between teacher support and learning performance ($r = 0.863$). Furthermore, academic self-efficacy was positively associated with both academic emotions ($r = 0.571$) and learning outcomes ($r = 0.367$), suggesting that strong self-beliefs contribute to emotional well-being and academic success. Academic emotions were also positively correlated with learning performance ($r = 0.310$), who emphasized the motivational benefits of positive emotional experiences during learning. Taken together, the variables demonstrated positive interrelationships, with correlation coefficients ranging from moderate to high, reflecting a cohesive and theoretically grounded model structure.

4.1. Measurement Model

SmartPLS version 3.0 software was utilized to psychometrically evaluate the tools used to assess learning performance, academic self-efficacy, academic emotions, and teacher support (Hayat et al., 2020). To verify convergent validity, item loadings had to be greater than 0.70, and average variance extracted (AVE) and indicator reliability had to be greater than 0.50. Discriminant validity was assessed using the Fornell-Larcker criterion and cross-loading checks. Each latent construct's square root of the AVE should be higher than its correlations with other latent constructs, according to the Fornell-Larcker technique. According to Hair et al. (2019), each object must put more stress on its intended build than on any other. Cronbach's alpha and composite reliability values between 0.60 and 0.70 were considered suitable for exploratory research, even though values between 0.70 and 0.90 demonstrated good internal consistency (Hair et al., 2019).

With a composite reliability (CR) of 0.819 and cronbach's alpha of 0.741, the teacher support (TS) construct shows acceptable internal consistency. However, its AVE value (0.394), along with similar patterns in academic self-efficacy (AVE = 0.372), academic emotions (AVE = 0.405), and learning performance (AVE = 0.345), indicates insufficient convergent validity across constructs. These findings suggest that most items do not adequately capture the latent variables. Thus, future research should refine the instruments by enhancing clarity, developmental appropriateness, and construct representativeness for primary students.The complete test results are presented in Table 6.

Table 6. Summary of Measurement Model Quality.

Latent Variables	Indicators	Loadings	CITC	Cronbach's a	CR	AVE	Fornell-Larchkey validity	Cross-Loadings
TS	TS_2	0.530	0.470	0.741	0.819	0.394	No	Yes
	TS_5	0.677						
	TS_6	0.590						
	TS_9	0.690						
	TS_11	0.688						
	TS_12	0.657						
	TS_13	0.541						
SE	SE_4	0.732	0.691	0.719	0.803	0.372	Yes	Yes
	SE_5	0.552						
	SE_6	0.661						
	SE_9	0.601						

	SE_12	0.635						
	SE_14	0.554						
	SE_15	0.503						
AE	AE_2	0.758	0.632	0.767	0.824	0.405	Yes	Yes
	AE_6	0.668						
	AE_7	0.544						
	AE_9	0.533						
	AE_10	0.712						
	AE_13	0.625						
	AE_14	0.581						
LP	LP_1	0.686	0.676	1.000	0.758	0.345	No	Yes
	LP_3	0.610						
	LP_6	0.591						
	LP_7	0.574						
	LP_9	0.586						
	LP_10	0.456						

Notes. TS = Teacher Support; AE = Positive Academic Emotions; SE = Academic Self-Efficacy; LP = Learning Performance.

4.2. Structural Model

The structural model is assessed after the validity of the measurement model has been established. The degree to which the external latent variables influence the variation in the endogenous latent variable is measured by the coefficient of determination (R^2) (Hair et al., 2019).

Table 7. Structural Model Assessment

variables	AE		SE		LP	
	Path coeff	f 2 effect size	Path coeff	f 2 effect size	Path cpeff	f 2 effect size
TS	0.232	0.057	0.385	0.173	0.845	2.524
AE	-	-	-	-	0.134	0.050
SE	-	-	-	-	-0.034	0.003
R2 Variables	0.054	-	0.148	-	-	0.759

Notes. TS = Teacher Support; AE = Positive Academic Emotions; SE = Academic Self-Efficacy; LP = Learning Performance.

Table 7 presents the R² values for each endogenous variable, where positive academic emotion (AE) has an R² of 0.054, academic self-efficacy (SE) reaches 0.148, and learning performance (LP) stands at 0.759. Interpreting these values, the explanatory power for AE and SE is considered weak, whereas the R² for LP reflects a strong to moderate level of explanation (Hair et al., 2019). Additionally, the effect size (f²) was employed to evaluate the magnitude of influence between constructs. Teacher support (TS) showed a small effect on AE with an f² of 0.057, a moderate effect on SE with f² = 0.173, and an exceptionally large effect on LP with f² = 2.524. In contrast, AE's impact on LP yielded an f² of 0.050 (small), and SE's influence on LP was minimal, with an f² of 0.003, indicating an extremely weak and statistically insignificant effect. These findings suggest that teacher support has a significant direct influence on pupils' academic performance, whereas its indirect effects mediated by emotional and efficacy-related variables are relatively limited.

This analysis yielded both direct and indirect effect estimates within a mediation framework, as detailed in Table 8 and illustrated in Figure 2. Using a bootstrapping procedure with 5,000 subsamples following Hair et al. (2019), the structural model assessment based on the PLS-SEM approach (Becker et al., 2012) revealed that teacher support (TS) had a pronounced direct effect on learning performance (LP) (β = 0.845). Mediation analysis showed that positive academic emotion (AE) had a statistically significant indirect effect (β = 0.134), whereas academic self-efficacy (SE) showed a negligible contribution (β = –0.034). These findings validate hypotheses H1 through H7 and indicate that both direct and indirect pathways particularly through students' emotional

engagement are critical in enhancing academic performance. This aligns with Social Cognitive Theory (Bandura, 1995), which highlights the role of environmental support in shaping learners' motivation and self-regulation, as well as Social Support Theory (Lakey & Cohen, 2015), which emphasizes the relational context of teacher-student interactions. The findings also corroborate prior research (Zhao et al., 2024; Uran et al., 2019), showing that teacher support boosts students' academic attitudes, confidence, and emotional well-being factors that collectively foster a classroom climate conducive to effective learning.

Table 8. Significace Analysis of Total, Derect and Indirect Effects.

Paths	Paths coefficients (β)	t-value	p-value	2.50%	97.50%
Exclude mediator					
TS → LP	0.426	24.855	0.000	0.392	0.459
Include mediator					
TS → SE	0.318	16.172	0.000	0.280	0.358
TS → AS	0.342	18.280	0.000	0.306	0.379
TS → AE	0.363	19.253	0.000	0.326	0.400
SE → LP	0.296	15.885	0.000	0.260	0.331
AE → LP	-0.185	10.154	0.000	-0.221	-0.150
AE → LP	0.201	9.826	0.000	0.161	0.242
TS → LP	0.195	11.397	0.000	0.162	0.230
TS → AE → LP	-0.063	9.257	0.000	-0.077	-0.050
TS → AE → LP	0.073	8.977	0.000	0.058	0.090
	Indirect effect	Derect effect	Total effect	2.50%	97.50%
TS → SE → LP	0.094		0.094	0.079	0.111
TS → AE → LP	-0.063		-0.063	0.077	-0.050
TS → AE → LP	0.073		0.073	0.058	0.090
TS → LP direct effects		0.195	0.195		
SUM of direct and indirect effects			0.425		

Notes. TS = Teacher Support; AE = Academic Emotions; SE = Academic Self-Efficacy; LP = Learning Performance.
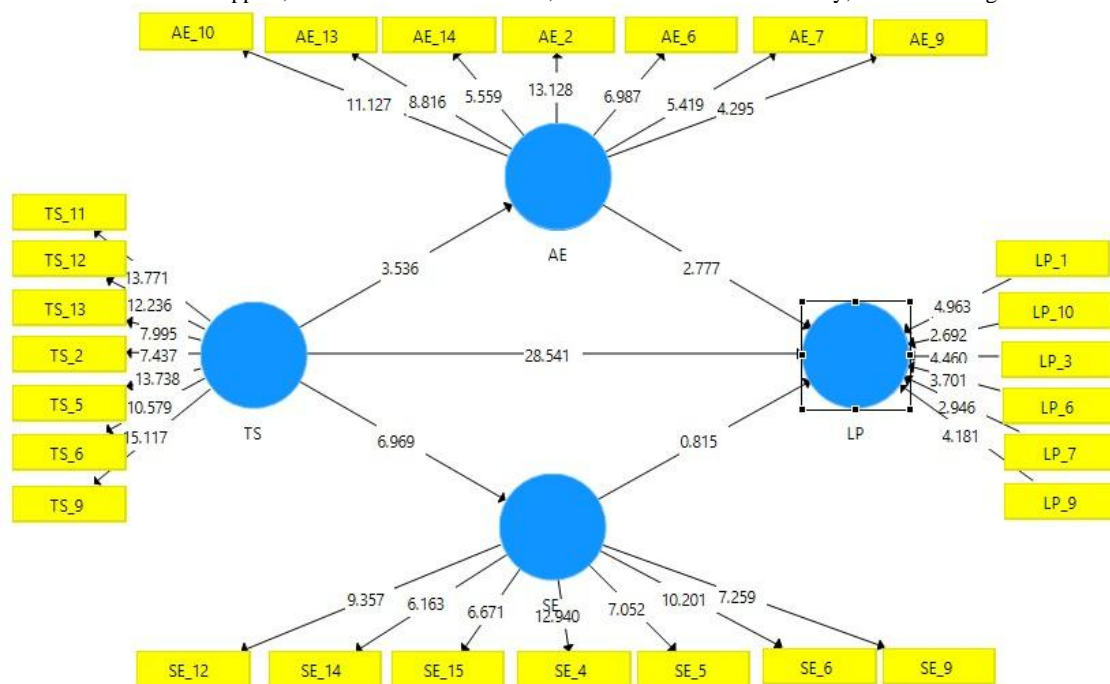

Figure 2. Structural model of the relationship between teacher support, academic emotion, self-efficacy, and learning performance

In line with the findings of Zhao et al. (2024), the results of this study show that academic emotions serve as a mediator between students' performance in online learning and instructor support. Significant instructor support is associated with higher academic self-efficacy, more positive emotions, and fewer negative emotions in students, all of which increase participation in online learning activities. When learners feel confident and emotionally motivated, they are more capable of maintaining focus, showing interest in the material, and remaining actively involved throughout virtual lessons. Additionally, adequate teacher support helps students cope with negative emotions arising from academic challenges, thereby sustaining their motivation to complete tasks successfully (Uran et al., 2019). Consequently, academic emotions serve a vital mediating role in the relationship between teacher support and academic performance, highlighting the importance of integrating psychoeducational approaches in digital learning environments (Zhao et al., 2024).

The study's findings demonstrate how crucial academic emotions are in moderating the link between student learning outcomes and instructor support. Although teacher support exerts a dominant direct influence on academic performance (β = 0.845; f^2 = 2.524), its indirect contribution through academic emotions is also statistically significant (β = 0.134; f^2 = 0.050). This reinforces the notion that a positive emotional climate in the classroom can effectively enhance student engagement and motivation (Zhao et al., 2024). In the context of primary education, students are still in the process of developing emotional regulation and cognitive control, making emotional scaffolding from teachers particularly critical (Ummah & Usriyah, 2024). Negative emotions such as anxiety or fear often remain unexpressed in children but may significantly disrupt learning processes (Citrandini & Hernawati, 2016). Therefore, the teacher's role in building a warm, inclusive, and emotionally supportive learning atmosphere is essential. Classrooms that are emotionally safe and responsive have been shown to improve student comfort, facilitate active participation, and foster intrinsic learning motivation (Ahmed et al., 2013). In light of these findings, Hypotheses H2 to H4 are supported, and the results underscore the need for further research exploring how instructional practices and emotional dynamics interact to influence learning outcomes in early education (Zhao et al., 2024).

Although academic self-efficacy is conceptually positioned as a key mediator linking teacher support to student academic performance, the empirical results of this study reveal otherwise. The indirect effect through self-efficacy was minimal and statistically insignificant (β = –0.034; f^2 = 0.003), indicating that it does not play a substantial mediating role in this model. This outcome diverges from the core proposition of Bandura (1995) social cognitive theory, which posits that beliefs about one's competence are central to motivation and achievement. One possible explanation lies in the developmental characteristics of elementary school students, whose self-regulatory and reflective capacities are still emerging and thus more dependent on external cues and socio emotional scaffolding (Hanni & Sembiring, 2022). Rather than functioning as a bridge, self-efficacy in this context may act more as a supplementary factor. Consequently, interventions that prioritize emotionally supportive environments and direct teacher engagement may yield more immediate and impactful effects on students' academic outcomes. While self-efficacy remains a theoretically important construct, its operational significance in early educational settings warrants further contextual exploration.

Furthermore, although the results show a correlation between teacher support and academic self-efficacy, this relationship is not strong enough to support a claim of substantial mediation. Instead, the data show that the contribution of self-efficacy is more additive in nature and not the main channel linking teacher support to academic achievement. Therefore, strengthening self-efficacy remains important as an aspect of student personal development, but it cannot be considered the sole key mechanism. In the context of elementary school students who are still developing cognitively and emotionally, consistent, empathetic, and structured teacher support appears to have a more direct impact on engagement and learning outcomes. These findings align with those of Ayllón et al. (2019), who state that teacher support can strengthen students' self-confidence, although its impact varies depending on age and educational context. The practical implications of these findings emphasize the need for teachers to create a warm and emotionally supportive learning environment as the primary foundation for fostering children's motivation and perseverance in learning.

This study also shows a positive relationship between teacher support and students' academic self-efficacy. These findings are consistent with the research by Ayllón et al. (2019), which emphasizes that supportive teacher interactions can strengthen students' beliefs in their academic abilities. Teacher support in the form of attention, encouragement, and positive reinforcement has the potential to shape students' perceptions of their own capabilities, particularly in the context of elementary school learning. However, although this relationship is statistically significant, its contribution to academic achievement is relatively weak compared to the direct pathway from teacher support to learning outcomes. In this model, academic self-efficacy only contributes minimally as a mediator, so its role is more appropriately viewed as an additional factor rather than a primary pathway in students' academic achievement. This perspective aligns with Lei (2018), who states that academic

self-efficacy serves as a psychological mechanism linking social factors such as teacher support to learning engagement, although its level of influence may vary depending on the developmental stage of the students. Therefore, while it is important to support the development of self-efficacy, these findings emphasize that direct and consistent teacher interventions have a stronger impact on improving student learning outcomes at the elementary education level.

This study contributes to the expanding body of literature by examining the relationships among teacher support, academic emotions, academic self-efficacy, and learning performance in primary school students within a face-to-face learning environment. While many prior studies focus predominantly on secondary and higher education, this research underscores the critical importance of establishing strong teacher support from the early stages of education to cultivate students' self-efficacy and positive academic emotions. Teacher support characterized by care, trust, and constructive feedback has consistently been shown to enhance students' academic confidence and motivation, which in turn positively impacts learning outcomes (Wu et al., 2022). Furthermore, when students perceive their classroom as emotionally supportive, they are more likely to experience pleasant academic emotions that foster engagement and sustained learning effort (Ahmed et al., 2013). These findings align with Bandura (1995) social cognitive theory, which emphasizes the reciprocal relationships between personal characteristics (such as emotions and efficacy beliefs), the social environment (teacher support), and learning behaviors. Taken together, the results reinforce the theoretical proposition that teacher support influences academic achievement both directly and indirectly through psychological mediators, particularly in the context of early education.

5. CONCLUSION

This study affirms that teacher support plays a pivotal role in shaping students' academic performance at the primary school level. Among the psychosocial constructs examined, emotional and instructional support from teachers emerges as the most influential factor in fostering students' learning success. While academic emotions function as a partial bridge in this relationship reflecting the importance of students' affective experiences during learning academic self-efficacy does not appear to serve as a significant mediating pathway in this context. These results suggest that younger learners rely more heavily on relational and emotional cues from their teachers than on their own internal belief systems to navigate academic challenges. Nevertheless, the study acknowledges certain methodological limitations. The psychometric properties of several measurement instruments require further refinement, particularly in terms of how well they capture the underlying constructs. The developmental stage of primary students may also pose challenges in self-reporting complex psychological variables such as self-efficacy and emotional regulation. Additionally, the use of a non-random sampling method and limited geographic coverage may constrain the broader applicability of the findings. From a practical perspective, this research highlights the urgent need to enhance teachers' emotional and social competencies. Teacher education programs should emphasize the development of classroom empathy, positive reinforcement strategies, and emotional scaffolding techniques, particularly for early grade teachers. At the policy level, there is a pressing call to embed these relational competencies into national standards for teacher training and professional development. Future research is encouraged to test this model in more diverse educational and cultural settings, and to adopt longitudinal approaches that can trace how the role of psychological mediators evolves over time. A deeper exploration into how and when academic self-efficacy begins to exert stronger influence across developmental stages would also provide valuable insights for designing age-appropriate interventions that balance both external support and internal motivation.

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