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Teacher Professionalism and Learning Environment in Enhancing Student Motivation: An SDG 2030 Perspective

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Abstract

Objective: This study aims to analyze the influence of teacher professionalism, school environment, and student stress level on learning motivation. This study tested the direct relationship between variables in one integrated structural model. The focus of the research is on the context of pesantren education in Indonesia. **Theoretical framework:** Based on the theory of learning motivation, the concept of teacher professionalism, and the theory of the learning environment as determinants of learning quality. The conceptual model places professionalism and the school environment as the main predictors of student motivation. **Literature review:** Previous studies have discussed the relationship between the school environment and teacher professionalism, as well as stress and motivation to learn separately. However, the integration of the three variables in a single SEM model in Indonesia is still limited. **Methods:** A quantitative approach is used with Structural Equation Modeling (SEM) analysis. The sample consisted of 201 students of the Baitur Rohmah Islamic Boarding School Muhammadiyah. **Results:** Teacher professionalism has a significant and dominant effect on learning motivation ($\beta = 0.360$). The school environment also had a positive effect ($\beta = 0.202$). Teachers play an important role in shaping a conducive learning environment. **Implications:** Strengthening teacher professionalism is a key strategy to increase motivation and the quality of education. Collaboration with the government and relevant institutions supports the achievement of quality education (SDGs 4). **Novelty:** The novelty of the research lies in the integration of teacher professionalism, the school environment, and student stress in one structural model. This study enriches the empirical literature in the context of pesantren education in Indonesia.

Keywords: learning motivation, quality education, sdgs 4, teacher professionalism, school environment.

INTRODUCTION

Learning motivation is a key factor in determining student success in school [1]. However, various reports indicate that student learning motivation in Indonesia tends to decline [2]. Data from a UNICEF report (2021) shows that more than 60% of Indonesian students feel less enthusiastic about participating in learning activities, either due to boredom, academic pressure, or an unsupportive learning environment [3]. This decline in motivation is certainly a serious warning for the world of education, as the resulting impact not only affects unmotivated students

but also risks lowering their academic performance [4]. Furthermore, long-term loss of interest in learning can lead to psychological problems in students [5].

In the context of the Sustainable Development Goals (SDGs), particularly SDG 4: Quality Education, increasing learning motivation is a crucial aspect in establishing a quality education [6]. According to Iñigo Aldalur, education focuses not only on providing access to learning but also on how the learning process can stimulate students' interest, engagement, and fighting spirit [7]. Therefore, learning motivation must be viewed as a crucial indicator in producing a globally competitive generation [8].

According to Deci & Ryan's Self-Determination theory, motivation is shaped by internal factors such as self-psychology and external factors such as teachers or the school environment [9]. Teachers are not only figures who master the material, but are also able to manage the class, create positive interactions, and be an inspiration for students [10]. On the other hand, a conducive learning environment, both in terms of facilities and psychological climate, will increase student comfort in learning [11]. However, internal factors, such as high stress in students, result in low motivation [12]. Therefore, it is important to analyze how these three factors influence student learning motivation within the framework of developing quality education according to the SDGs agenda.

The novelty of this study lies in the integration of teacher professionalism and learning environment as key determinants of student learning motivation within the SDG 2030 framework, particularly SDG 4 on Quality Education. Unlike previous studies that examine these variables separately, this research offers a more holistic and interconnected perspective by linking internal and external motivational factors with global education objectives. The implications of this study suggest that educational institutions should prioritize continuous professional development for teachers while simultaneously creating supportive, inclusive, and engaging learning environments. Such integrated strategies can effectively enhance student motivation, improve academic outcomes, and contribute to the realization of sustainable, equitable, and high-quality education in line with SDG targets [12].

LITERATURE REVIEW

Teacher Professionalism

Teacher professionalism is a fundamental concept in education, demonstrating the quality, competence, and dedication of a teacher in carrying out their duties. The term "professional" is derived from a word that implies expertise or specialized work that can only be performed by someone with specific training and abilities [13]. In the context of education, teachers are defined as individuals responsible for the learning process of students, both individually and in groups, both inside and outside the classroom [14]. Teacher professionalism can then be defined as the specialized skills required to optimally carry out teaching functions [15]. A professional teacher is required to possess superior competencies, particularly those related to mastery of material, pedagogical skills, and a deep understanding of student characteristics [16].

According to Law No. 14 of 2005, professional teachers are those who possess in-depth knowledge, high competence, a commitment to developing students, and full responsibility in carrying out their duties. Indicators of teacher professionalism encompass at least several important aspects, namely: (1) mastery of teaching materials, (2) ability to conduct effective learning, (3) understanding of student characteristics, (4) skills in utilizing learning media and technology, and (5) ability to assess student learning progress [17]. Thus, teacher professionalism is not only seen from a cognitive perspective, but also from pedagogical, affective, and personal integrity skills in education.

Various studies have shown that teacher professionalism has a significant influence on student learning motivation. For example, research by Setyorini and Khuriyah [18] and Maulidiya et al. [19] found a strong positive relationship between teacher professional competence and increased student learning motivation. Other research by Sunarti and Rummyani

[20] also confirms that teacher skills in selecting learning methods, strategies, and media play a significant role in fostering learning motivation. Furthermore, teacher professionalism not only influences motivation but also the school environment [21] and can reduce student stress levels [22]. Thus, professional teachers are not only key to improving academic outcomes but also to creating a conducive learning climate and supporting the achievement of sustainable education goals (SDG 4: Quality Education).

School environment

The environment is generally defined as everything surrounding an individual that can influence their life and behavior [23]. The environment can be divided into several dimensions: the physical environment, which encompasses natural conditions; the cultural environment, such as language, art, economics, and religion; and the social environment, which encompasses family, organizations, and society [24]. In the context of education, schools are viewed as a form of formal environment that specifically organizes the learning process [25]. The school environment plays a crucial role because it is a place where students acquire knowledge, develop morals, and improve skills through various activities both inside and outside the classroom [26].

The school environment is not merely a physical space for learning; it also encompasses various instruments that interact to create a conducive learning atmosphere [27]. School facilities, the quality of interactions with teachers, peer support, and the location and physical condition of the school are key components that determine the quality of the learning environment [28]. Furthermore, aspects of classroom climate, open communication between teachers and students, and social support from the entire school community also influence learning effectiveness [29]. A positive school environment can foster a sense of comfort and safety and increase student engagement [30]. Meanwhile, an unsupportive environment can reduce motivation and even increase academic stress [31]. Therefore, the quality of the school environment must be viewed as a strategic factor in achieving the goal of quality education (SDGs 4).

Several previous studies have reinforced the importance of the school environment in increasing learning motivation. Ayu and Sianipar et al. found that a good learning environment has a positive and significant impact on student learning motivation [32]. These findings indicate that the more conducive the school environment in terms of facilities, classroom climate, and social interaction, the greater the students' motivation to engage in the learning process [33].

Student Stress Levels

Stress is a condition in which an individual feels threatened, both physically and psychologically [34]. In the context of education, the stress experienced by students is known as academic stress, which is the pressure that arises from the demands of school and learning activities [35]. Academic stress can be defined as a state of pressure, anxiety, or worry experienced by students due to academic workloads, whether in the form of assignments, exams, or expectations from the surrounding environment [36]. This condition not only affects mental health but also has an impact on decreasing student achievement, motivation, and engagement in the learning process [37]. Thus, academic stress is seen as an important issue in educational psychology studies because it is closely related to the quality of learning in schools.

Academic stress can be experienced by all students, although the level varies depending on the individual's character and the school environment [38]. Several factors that cause stress include pressure from parents, mounting schoolworkloads, a busy academic schedule, and the quality of communication with peers [39]. In addition, consecutive exams, low appreciation from teachers and parents, and high expectations from the surrounding environment are also significant stress triggers [40]. This shows that academic stress is multidimensional and influenced by a combination of internal and external factors that must be managed comprehensively.

Several studies have shown that academic stress negatively impacts students' learning motivation. Owusu et al. and Mentang and Londa found that high levels of academic stress tend to decrease students' interest and drive to learn, while low levels can increase learning motivation [41]. Interestingly, several recent studies have also highlighted the existence of challenge stressors, meaning that certain levels of academic stress can actually function positively as a motivator if handled with appropriate coping strategies [42]. Thus, schools and teachers need to manage the learning environment so that academic stress does not become a barrier, but rather a challenge that can increase student motivation and achievement.

Learning Motivation

Learning motivation is an important psychological aspect that serves to direct, stimulate, and maintain a person's behavior so that they remain focused on learning goals [43]. McDonald defines motivation as a change in energy within an individual characterized by the emergence of a sense of passion for action [44]. Similarly, learning motivation is also understood as a drive that arises from internal and external stimuli, prompting individuals to engage in learning activities consistently [45]. Thus, learning motivation is not only the initial driving force but also serves as a driving force that maintains the continuity of the learning process until goals are achieved.

According to the theory of Pranasari and Noersanti, factors influencing learning motivation can be grouped into intrinsic and extrinsic factors [46]. Intrinsic factors originate from within the individual, such as passion, desires, ideals, and hopes for academic success. Extrinsic factors, on the other hand, originate from outside the individual, such as appreciation from teachers or parents, a conducive learning environment, and interesting and challenging learning activities [47]. Previous research has shown that these two factors interact in determining students' motivation levels. For example, students with strong intrinsic drive tend to remain motivated even when the external environment is less supportive, whereas students with low intrinsic drive rely heavily on external support to maintain their interest in learning [48].

METHODOLOGY

Population, Sampling, And Sampel

The population in this study was students of the Baitur Rohmah Muhammadiyah Islamic Boarding School, which is a private school in Banyuwangi District, West Java, with a total of 300 students. Sampling was carried out using convenience sampling techniques, namely selecting subjects based on certain objectives to obtain data that is in accordance with the focus of the study [49]. The sample used in this study amounted to 201 students. This refers to Ling Ding's theory, quoted by Priyanath, that the minimum sample limit that can be used in Structural Equation Modeling (SEM) analysis is around 150 respondents or more [50].

Research Design

This research is included in the research that uses a quantitative approach with SEM (structural equation modeling) analysis. SEM analysis is a multivariate analysis that aims to analyze the relationship between variables (latent and manifest) [51]. The choice of SEM is based on several scientific considerations. First, SEM allows the analysis of complex relationships. Second, SEM can test measurement models and structural models simultaneously, thus providing more comprehensive validation of the developed theoretical model [52]. This research began by reviewing and applying existing theories, then developing research instruments based on theories found in Scopus-indexed journals or international journals. Next, researchers collected data using Google Forms from students for 1 month. After the research data were collected, researchers conducted data analysis, starting with validity and reliability tests, Exploratory Factor Analysis (EFA) tests, Confirmatory Factor Analysis (CFA) tests, and hypothesis testing. In the final step, researchers concluded from the research.

Instrument Validity and Reliability Test

The research instrument was tested for validity and reliability to ensure that each item accurately measured the intended construct and consistently reflected the underlying dimensions. The pilot test involved 40 respondents outside the main study. Validity was tested using a corrected item-total correlation, with a minimum threshold of 0.30 [53]. Reliability was assessed using Cronbach's Alpha with a minimum threshold of 0.5-0.7 [54].

Instrumen, Validitas, dan Reliabilitas Penelitian

In this study, the author raised several variables, including:

Teacher Professionalism

The teacher professionalism variable in this study is represented by eight questionnaire items, covering several important indicator dimensions, including: mastery of teaching materials, ability to conduct effective learning, understanding student characteristics, skills in utilizing learning media and technology, and the ability to assess student learning progress [55]. Examples of statements in this variable questionnaire include: "The teacher explains the material in detail," "The teacher uses teaching media such as PPTs, textbooks, videos, and others." The teacher professionalism variable questionnaire was first tested on 40 respondents using the Corrected Item-Total Correlation technique. The results are as follows:

Table 1. Corrected Item–Total Correlation and Reliability Coefficient of Profesionalisme Guru

Variables	Corrected Item-Total Correlations	Cronbach's Alpha
PG1	.510	0.820
PG2	.426	
PG3	.627	
PG4	.610	
PG5	.384	
PG6	.571	
PG7	.626	
PG8	.588	

The results of the analysis in Table 1 show that the items in the teacher professionalism variable have met the validity test standards with a corrected item-total Correlation value of > 0.3 . In addition, the reliability test for this variable meets the minimum standards, with a Cronbach's Alpha value of > 0.7 , so that the teacher professionalism instrument is adequate for use in the main study.

School Environment

The school environment variable in this study is represented by 7 questionnaire items, covering several important indicator dimensions, including: school facilities, quality of interaction with teachers, peer support, and the location and physical condition of the school. Examples of statements in this variable questionnaire are "Friends at school help each other in learning" and "The school provides complete facilities." The school environment variable questionnaire was first tested on 40 respondents using the corrected item-total Correlation technique. The results are as follows:

Table 2. Corrected Item–Total Correlation and Reliability Coefficient of Lingkungan Sekolah

Variables	Corrected Item-Total Correlations	Cronbach's Alpha
LS1	.395	0.809
LS2	.497	
LS3	.502	
LS4	.714	
LS5	.547	
LS6	.556	
LS7	.605	

The analysis results in Table 2 show that the items in the school environment variable have passed the validity test standards with a Corrected item-total Correlation value of >0.3 . Furthermore, in the reliability test, this variable has also met the minimum standards, with a Cronbach's Alpha value of >0.7 . Therefore, the school environment instrument is adequate for use in the main study.

Student Stress Level

The student stress level variable in this study was represented by a 10-item questionnaire, encompassing several important indicator dimensions, including: busyness or excessive activity, high parental expectations, competition with peers, and limited learning resources [56]. Examples of statements in this variable questionnaire include: "Teachers give a lot of homework," "There is competition among friends for grades," and "I increase my study time at home." The student stress level questionnaire was first tested on 40 respondents using the Corrected Item-Total Correlation technique. The results are as follows:

Table 3. Corrected Item–Total Correlation and Reliability Coefficient of Tingkat Stress Siswa

Variables	Corrected Item-Total Correlations	Cronbach's Alpha
S1	.393	0.661
S2	.404	
S3	.306	
S4	.169	
S5	.301	
S6	.351	
S7	.380	
S8	.432	
S9	.219	
S10	.284	

The analysis results in Table 3 show that the majority of items in the Student Stress Level variable have passed the validity test standard with a Corrected Item-Total Correlation value of >0.3 . However, 3 items have a value below 0.3, namely S4, S9, and S10. However, this value is still above the r-table value (0.138) determined by DeVellis, R. F. Furthermore, in the reliability test, this variable has also met the minimum standard, with a Cronbach's Alpha value of >0.6 . So, the Student Stress Level instrument is still accepted for use in the main study.

Learning Motivation

The student stress level variable in this study was represented by eight questionnaire items, covering several important indicator dimensions, including: desire to succeed, internal drive to learn, clear goals, recognition or appreciation, and engagement in engaging learning [57]. Examples of statements in this variable questionnaire are "I continue to study hard so that my grades are good," and "I aspire to be the best in my class." The student learning motivation questionnaire was first tested on 40 respondents using the Corrected Item-Total Correlation technique, with the following results:

Table 4. Corrected Item–Total Correlation and Reliability Coefficient of Motivasi Belajar Siswa

Variables	Corrected Item-Total Correlatic	Cronbach's Alpha
M1	.342	0.736
M2	.430	
M3	.415	
M4	.534	
M5	.543	
M6	.307	
M7	.393	
M8	.520	

The analysis results in Table 4 show that the items in the student learning motivation variable have passed the validity test standards with a Corrected item-total Correlation value of >0.3 . Furthermore, in the reliability test, this variable has also met the minimum standards, with a Cronbach's Alpha value of >0.7 . Therefore, the student learning motivation instrument is adequate for use in the main study.

Data Analysis

Data analysis in this study was conducted using SPSS version 24 and AMOS version 24 through a series of statistical procedures. Before the main survey, a pilot test was conducted with 40 respondents. The primary purpose of this initial test was to ensure the instrument was suitable for use in the main study. The researcher used the Corrected Item-Total Correlation method with a minimum threshold of 0.30 to test instrument validity. Reliability testing used Cronbach's Alpha with a minimum threshold of 0.50 [58].

In the next stage, validity and reliability were retested using the full sample of 156 respondents. Exploratory Factor Analysis (EFA) was used to test construct validity and identify the factor structure. A standard factor loading value of ≥ 0.50 is considered valid, while items with lower values are considered for deletion [59]. Internal consistency reliability was tested using Cronbach's Alpha, with a coefficient of ≥ 0.70 considered acceptable for social science research.

Next, Confirmatory Factor Analysis (CFA) was conducted to evaluate the measurement model. The goodness of fit of the model was tested using various fit indices. Referring to Hu and Bentler and Hair et al, acceptable thresholds are: $\chi^2/df < 3.00$, GFI > 0.80 , CFI > 0.90 , TLI > 0.90 , and RMSEA < 0.06 . Then, Structural Equation Modeling (SEM) analysis was conducted to test the relationship between the hypothesized variables. Path coefficients were examined, with a p-value < 0.05 indicating statistical significance.

RESULTS AND DISCUSSION

This study involved 201 students from the Baitur Rohmah Muhammadiyah Islamic Boarding School, which comprises two levels: MTs Baitur Rohmah and MA Baitur Rohmah. A demographic analysis of the respondents revealed 92 male students (45.8%) and 109 female students (54.2%). Age-wise, 93 students were 14 years old (46.3%), 98 students were 15-17 years old (48.8%), and 10 students were 18-20 years old (5%). Regarding distance from home, 92 students (45.8%) lived less than 10 km from school, 40 students (19.9%) lived within 11-20 km, 34 students (16.9%) lived within 21-30 km, and 35 students (17.4%) lived less than 30 km. After conducting demographic tests to determine respondent characteristics, the researchers tested the validity and reliability of the research instrument. Exploratory Factor Analysis (EFA) was used to test construct validity and identify factor structure, and Cronbach's Alpha was used to test reliability.

Table 5. Measurement Model Exploratory Factor Analysis (EFA)

Variabels:	Compinent				Variance Extracted Explained	KMO
	1	2	3	4		
PG4	.475	.505	.000	.000	91.027	.787
PG5	.000	.714	.100	.108		
PG6	.410	.567	.170	.000		
PG7	.295	.704	.180	.226		
M3	.000	.000	.729	.000	100.000	.715
M4	.000	.154	.775	.000		
M5	.127	.235	.652	.161		
M8	.334	.184	.552	.127		
S4	-.152	.000	.000	.616		
S9	.000	.300	.000	.694	45.911	.585
S10	.336	-.355	.210	.628		
LS2	.743	.000	.000	.123	100.000	.735
LS4	.790	.153	.263	.000		
LS6	.582	.224	.276	-.102		
LS7	.693	.113	.263	-.102		
Total					54.872	.839

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 5 iterations.

Table 6. Reliability Test (Cronbach's Alpha)

No	Variabel	Cronbach's Alpha
1.	Teacher Professionalism (4 items)	.704
2.	School Environment (4 items)	.673
3.	Academic Stress (3 items)	.407
4.	Learning Motivation	.776
Total (15 items)		.780

The results of the Exploratory Factor Analysis (EFA) test on four variables are shown in Table 5. They show that the KMO value per variable and overall in this model is greater than 0.5 and has exceeded the specified minimum limit [60]. The total explained variance reached 56.872%, thus meeting the minimum standard of 50%. This variance value was obtained after eighteen items, including four items on the teacher professionalism variable, four items on the learning motivation variable, seven items on the student stress level variable, and three items on the school environment variable. The removal of this item was still acceptable because the Variance Extracted Explained result was still above 50%.

Furthermore, the results of the reliability test analysis are shown in Table 6. The total Cronbach's Alpha value was 0.780, meaning that all variables in this study met the data reliability standard of ≥ 0.7 . However, one variable, student stress level, had a Cronbach's Alpha of 0.407. This condition is a limitation of the study, possibly due to the limited number of items and the diversity of respondents' responses. However, because this study was exploratory in nature and the number of items on this variable was relatively limited, this reliability value is still tolerable. Furthermore, several studies confirm that alpha values in the range of 0.40–0.60 are sometimes acceptable, especially during the development stage of new instruments [61]. Therefore, this variable was retained in the analysis, but considered a limitation of the study that needs to be considered in future studies.

After completing the validity analysis using EFA and reliability using Cronbach's Alpha, the researchers proceeded to the Confirmatory Factor Analysis (CFA) stage. The CFA analysis aims to test convergent and discriminant validity. The following are the goodness-of-fit (GOF) values for this research model:

Table 7. Confirmatory Factor Analysis (CFA)

GOF Index	Acceptable Value	CFA Model	Result
χ^2 (Chi-square)		113.806	Good Fit
Df (degree of freedom)		85	
χ^2/df	< 3	1.339	Good Fit
GFI	> 0.8	0.926	Good Fit
CFI	> 0.9	0.954	Good Fit
TLI	> 0.9	0.943	Good Fit
RMSEA	< 0.06	0.041	Good Fit

Table 7 shows the results of the CFA analysis using Amos.25 software. The results of the analysis indicate that this research model has met the standards. This is because all categories have a good fit or are accepted. The X^2/DF value is < 3.0 , which is 1.339; the GFI value is > 0.8 , which is 0.926; the CFI value is > 0.9 , which is 0.954; the TLI value is > 0.9 , which is 0.943, and the RMSEA value is < 0.06 , which is 0.041. With these results, according to Hu & Bentler's theory, the CFA model shows good fit or good and reliable compatibility.

Structural Equation Modeling (SEM) Results

SEM analysis aims to test the causal relationship between exogenous and endogenous variables. The results of this analysis are displayed in Table 8, as follows:

Table 8. SEM Results for Testing the Hypothesis

Hypothesis	Path	β	S.E.	P-Value	Result
H1	PG \rightarrow LS	0.678	0.627	***	Supported
H2	LS \rightarrow M	0.202	0.188	0.161	No Supported
H3	S \rightarrow M	0.434	0.684	0.036	Supported

H4	PG →M	0.360	0.309	0.024	Supported
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* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8 shows that the average hypothesis of this study is fulfilled. The results of the first hypothesis show that teacher professionalism has a positive and significant impact ($p < 0.001$) on the school environment with a standard coefficient value (β) of 0.678, or with an impact of 67.8% (strong influence). The second hypothesis is rejected, with the result that the school environment does not have a significant impact on student motivation, with a p-value of 0.161 > 0.05 . The hypothesis is not accepted, with a p-value of 0.036 < 0.05 , so that student stress levels have a significant impact on student learning motivation with a standard coefficient value (β) of 0.0434 or 43.4% (moderate impact). Finally, the fourth hypothesis is accepted, with a p-value of 0.024 < 0.05 , so that teacher professionalism has a positive and significant impact on student learning motivation with a standard coefficient value (β) of 0.360 or 36.0% (moderate impact).

Analysis of the Impact of Teacher Professionalism on the School Environment

The analysis results show that teacher professionalism has a significant impact on the school environment, with a standardized coefficient (β) of 0.678 and a p-value < 0.001 . This indicates that teacher professionalism is not only a significant predictor but also a dominant factor in shaping the learning environment in schools. These results align with previous research by Zahela. Other research also found that professional teachers can improve interactions and create a conducive and supportive environment [62].

Theoretically, teachers are a crucial aspect of schools because they are the primary agents in connecting educational policies with actual teaching practices [63]. Professionalism in teachers is always reflected in their competence, ethics, moral integrity, and commitment. With all these qualities, teachers can appear charming and interact perfectly, both with students and with other teachers [64]. Therefore, creating professional teachers through training or supervision is a valuable investment in building a perfect educational environment.

Analysis of the Impact of School Environment on Learning Motivation

The analysis results indicate that the school environment variable does not have a significant impact on the school environment, with a standardized coefficient (β) of 0.202 and a p-value of 0.161. Not having a significant impact does not mean there is no impact, but rather that the magnitude is relatively small and therefore not strong enough to be proven statistically. This finding differs from the findings of other studies that report a significant influence of the school environment on learning motivation, such as research conducted by Barksdale, which showed that school facilities, classroom climate, and teacher support can significantly increase student motivation [65].

This finding aligns with research by Harefa et al., which also found that the influence of the school environment on learning motivation was moderate and insignificant [66]. This similarity in results can be explained by the theory that student learning motivation is often more determined by internal factors, such as interest, academic goals, and self-confidence, than external school conditions [67]. Thus, although the school environment remains important, its contribution to learning motivation is not always prominent, especially when students' internal factors are stronger.

Analysis of the Impact of Student Stress Levels on Learning Motivation

The analysis results show that student stress significantly impacts learning motivation, with a standardized coefficient (β) of 0.434 and a p-value of 0.036 < 0.05 . This finding indicates that the higher the level of stress experienced by students, the greater their learning motivation. This finding differs significantly from previous research, which reported a negative relationship between student stress and learning motivation. This means that high academic stress tends to

reduce student motivation and academic performance by causing emotional exhaustion and decreased concentration [68].

However, this finding aligns with the challenge stressor theory, which explains that academic stress, at a certain level, can be perceived as a challenge that encourages individuals to strive harder to achieve their goals [69]. Research by Putwain and Symes also found that some students facing exam pressure are actually more motivated to study because stress is viewed as a motivator, not a barrier [70]. This suggests that the influence of stress on learning motivation is contextual: it can be positive if managed well, but also potentially negative if it exceeds a student's adaptive capacity.

Analysis of the Impact of Teacher Professionalism on Learning Motivation

The analysis results show that teacher professionalism has a significant impact on learning motivation, with a standardized coefficient (β) of 0.360 and a p-value of $0.0324 < 0.05$. This finding confirms that the higher a teacher's professionalism as reflected in pedagogical competence, material mastery, and classroom management skills, the higher the student's learning motivation. These results are consistent with previous research conducted by Soran, which showed that professional teachers are able to create a conducive learning climate, thereby increasing student interest and motivation [71]. This similarity can be explained by the teacher's role as a facilitator and role model, where the presence of a competent teacher directly fosters student trust in the learning process and fosters intrinsic motivation [72].

Teacher professionalism is an important factor in increasing learning motivation because teachers not only act as conveyors of material but also as motivators who can foster students' self-confidence and enthusiasm in facing academic challenges through engaging learning [73]. Thus, teacher professionalism not only directly influences academic outcomes but also becomes the main foundation in building sustainable intrinsic motivation in students.

Analysis

This study can be analyzed through the lens of the Sustainable Development Goals, particularly SDG 4: Quality Education, which emphasizes inclusive, equitable, and quality education for all. The findings highlight that teacher professionalism is the most influential factor in enhancing student motivation, aligning with SDG targets on improving teacher quality and educational outcomes. Professional teachers contribute not only to knowledge delivery but also to fostering critical thinking, engagement, and lifelong learning competencies.

Interestingly, the limited impact of the school environment suggests that structural improvements alone are insufficient without strong human resources. This reinforces SDG principles that education quality depends on both infrastructure and human capital development. Moreover, the positive role of academic stress, when managed effectively, reflects the importance of resilience and adaptive learning, which are essential competencies in 21st-century education. From an SDGs perspective, this study implies that policy interventions should prioritize continuous teacher training, psychosocial support systems, and student-centered pedagogies. Such integrated strategies can accelerate progress toward sustainable education systems that are not only accessible but also engaging, adaptive, and transformative in achieving long-term development goals.

CONCLUSION

The findings of this study demonstrate that teacher professionalism plays a significant and dominant role in enhancing student learning motivation, while the school environment shows a relatively weak and statistically insignificant effect. This result highlights that teachers, as the central actors in the educational process, have a more substantial influence on students' motivation compared to physical facilities or social conditions within the school. This is particularly relevant to the achievement of the SDGs, especially SDG 4, which emphasizes the

importance of quality education through effective teaching practices. Professional teachers are able to integrate subject mastery, pedagogical competence, and a deep understanding of student characteristics, which collectively foster strong intrinsic and extrinsic motivation among learners. Their ability to design engaging learning experiences, provide meaningful feedback, and create positive classroom interactions significantly contributes to sustaining students' interest and enthusiasm for learning. Therefore, strengthening teacher professionalism should be prioritized as a key strategy in improving educational quality and student outcomes. Although the school environment does not show a significant direct effect, it still plays an important supportive role. A well-managed environment, including adequate facilities, a positive classroom climate, and harmonious relationships among school members, can enhance the effectiveness of professional teachers and indirectly support student motivation. Thus, the environment should not be neglected but rather optimized as a complementary factor. The implications of this study underline the need for strong collaboration between governments, higher education institutions, and schools in developing teacher professionalism aligned with SDGs targets. Governments should implement sustainable policies and training programs, while universities must design curricula that prepare future educators with 21st-century competencies. Finally, future research is recommended to include additional variables such as parental involvement, digital learning technologies, and psychological factors to provide a more comprehensive understanding of student motivation in the evolving educational landscape.

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Author Contribution

All authors contributed substantially and equally to this research and manuscript preparation. Contributions included conceptualization, data collection, data analysis, funding acquisition, manuscript drafting, translation, and final editing. Each author played a specific role as coordinator, member, or supporting contributor in ensuring the completion of this study. All authors have carefully reviewed, revised, and approved the final version of the manuscript and agree to be accountable for all aspects of the work presented.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this research. This study was conducted independently without any commercial or financial relationships that could be interpreted as potential conflicts. The funding support received did not influence the research design, data collection, analysis, interpretation, or decision to publish. All authors confirm that the manuscript reflects an objective and unbiased presentation of the findings in accordance with academic and ethical standards.

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