



From support to engagement: how counseling and parental involvement influence students through grit and motivation

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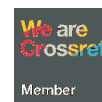
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Article



From support to engagement: how counseling and parental involvement influence students through grit and motivation

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ABSTRACT

Student engagement plays a pivotal role in academic success. This study aims to examine the effects of counseling satisfaction (SAT), school climate (SC), Islamic religiosity (REL), and parental involvement (PI) on students' grit and motivation (MOT), and to assess their indirect effects on SE through grit and MOT. The sample consisted of 338 (F = 214, M = 124) high school students from South Kalimantan, Indonesia, including 205 students from general high schools and 133 from Islamic high schools. The sample was selected using a convenience sampling technique. The data analysis method used in this study was Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicated that all exogenous variables significantly influence grit and MOT, except for the non-significant effects of SAT on MOT and SC on grit. Grit and MOT significantly mediated the effects of exogenous variables on student engagement. However, grit did not mediate the impact of SC, and motivation did not mediate the effect of SAT. PI significantly enhances student grit, which in turn strongly predicts SE, highlighting its key mediating role. However, the sampling technique used may have introduced potential bias and limited the generalizability of our findings. These findings suggest that school counseling programs should also focus on enhancing parental awareness and involvement in their children's education.

Keywords:

Counseling services satisfaction
Parental involvement
Religiosity
School climate
Student engagement

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Introduction

Academic achievement among Indonesian students remains relatively low at both regional and global levels. Within the Asian region, Indonesia ranks 12th in education quality, falling behind countries such as Vietnam, and is positioned 111th out of 189 countries in the 2019 Human Development Index (Pramana et al., 2021). According to the PISA rankings, Indonesia was placed 74th globally (Hidayat et al., 2024). Although there was a slight improvement in 2022, Indonesia still ranked 59th out of 81 countries in literacy, 67th in numeracy, and 65th in science (OECD, 2023). These statistics underscore the urgency of enhancing academic performance among Indonesian students.

One of the critical factors identified in improving student achievement is student engagement (Chau, 2023). A study of primary school students in Michigan demonstrated that instruction focused on student engagement is associated with academic achievement across all levels of socio-economic background (White et al., 2025). In Azerbaijan, studies have shown that student engagement positively influences outcomes such as GPA, perceived learning gains, and student satisfaction (Isaeva

et al., 2023). An Australian study found that engagement indirectly enhances subject mastery and achievement by reducing math anxiety, improving software skills, and increasing mathematical confidence (Everingham et al., 2017). In Indonesia, studies have also demonstrated that student engagement significantly contributes to academic success (Astuti et al., 2016; Mizani et al., 2022).

Previous studies have extensively explored student engagement and its influencing factors. Grit, in particular, has been identified as a significant predictor of students' behavioral engagement (Luan et al., 2025). Moreover, grit has been shown to mediate the relationship between various antecedents and educational outcomes (Tao et al., 2024). Importantly, grit is not an innate or fixed trait; rather, it is shaped by contextual and personal factors (Numasawa et al., 2024), including family background, school environment, and religiosity (Jandu & Pradhan, 2025).

Similarly, a growing body of research has demonstrated that both grit and academic motivation can be influenced by a variety of external variables. For instance, school counseling has been shown to enhance grit (Franchini et al., 2024; Salim et al., 2023), and student motivation siswa (R. Fadilla & Nur, 2024; Z. Fadilla, 2025). Additionally, a supportive and equitable school climate contributes to improvements in both grit and motivation (Maharani et al., 2024; Putri et al., 2025; Saidah et al., 2021). Religious values and parental involvement have also been identified as significant contributors to students' grit and academic motivation (Davin, 2020; Khilwa Khabibah et al., 2025; Muallifah et al., 2024). Furthermore, multiple studies have supported the mediating role of grit and motivation in linking contextual variables to educational outcomes (Gao et al., 2024; Guo et al., 2023; Longakit et al., 2025; Tao et al., 2024; Zhang & Hu, 2025; Zhou, 2023).

Despite these findings, prior research has rarely examined how multiple contextual factors—such as counseling service satisfaction, Islamic religiosity, school climate, and parental involvement—jointly contribute to the development of grit and motivation in a single, integrated framework. This represents a notable gap, particularly within the Indonesian high school context, where cultural, religious, and educational dynamics differ significantly from those in Western or other Asian settings. The lack of comprehensive models tailored to the Indonesian educational landscape limits our understanding of how these variables interact to shape student engagement.

To fill this gap, the present study proposes a theoretically grounded model that examines the influence of counseling service satisfaction (SAT), school equitable climate (SC), religiosity (REL), and parental involvement (PI) on students' grit and motivation, and how these two psychological constructs, in turn, mediate student engagement. This integrative approach seeks to provide a more contextualized understanding of the mechanisms that foster student involvement in Indonesian secondary education. Accordingly, the study addresses the following research questions: (1) RQ_1: Does counseling service satisfaction, religiosity, school climate, and parental involvement significantly influence students' grit and motivation?; (2) RQ_2 : Do grit and motivation significantly mediate the effects of counseling service satisfaction, religiosity, school climate, and parental involvement on student engagement?

Accordingly, the objectives of this study are: (1) RO_1: Verify the effects of counseling service satisfaction, religiosity, school climate, and parental involvement on students' grit and motivation; (2) RO_2: Examine the effects of counseling service satisfaction, religiosity, school climate, and parental involvement on student engagement, mediated by students' grit and motivation.

Previous literature has demonstrated that the quality of school guidance and counseling services is a critical factor in fostering students' emotional and behavioral development, including grit and academic motivation. The role of counseling has become increasingly essential as students face more diverse and complex challenges (Abay et al., 2025). Empirical evidence suggests that effective counseling interventions can reduce symptoms of student depression (Franchini et al., 2024). Moreover, as a form of student support, counseling has been found to positively influence academic motivation among high school students (Salim et al., 2023). Other studies have also indicated that group guidance can significantly enhance students' grit (Munawaroh & Wangid, 2022) and academic motivation (R. Fadilla & Nur, 2024; Z. Fadilla, 2025).

While prior studies have explored the relationships between counseling, grit, and motivation, these investigations have generally overlooked the specific role of counseling service quality or satisfaction as a central variable. Moreover, existing research has often been limited to single-school or single-type school settings, thereby lacking broader contextual diversity. Few studies have involved both Islamic and general schools within a wider regional scope. This gap highlights the need to examine how students' satisfaction with counseling services may influence their grit and motivation across different types of schools and within a provincial context. Therefore, this study formulates the following hypotheses: (1) H1: Counseling service satisfaction has a significant positive effect on student grit; (2) H2: Counseling service satisfaction has a significant positive effect on student motivation.

In addition, another school-related factor that has been associated with grit and motivation is a just school climate. A supportive and equitable school environment has been shown to significantly influence grit among students in integrated Islamic elementary schools (Saidah et al., 2021). Similarly, positive school environments have been linked to increased student motivation among ninth-grade junior high school students (Putri et al., 2025) and twelfth-grade Islamic high school students (Maharani et al., 2024). Although prior studies have examined the impact of school environment on student grit and motivation, these studies often treat the environment in a general sense without specifically addressing the equity school climate. Moreover, few studies have explored this relationship using a robust structural model such as Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly within a broader and more diverse educational context.

To address this theoretical gap, we formulate the following hypotheses: (1) H3: School climate has a significant positive effect on student grit; (2) H4: School climate has a significant positive effect on student motivation. In addition, religiosity has also been shown to influence both grit and motivation. Davin (2020) demonstrated that students with higher religiosity tend to exhibit greater grit in academic tasks. Similarly, Muallifah et al. (2024) found that students attending religious-based schools show higher levels of grit, (Khilwa Khabibah et al., 2025) highlighted that religiosity significantly contributes to subjective well-being, including academic motivation. Furthermore, Islamic teachings strongly emphasize the importance of perseverance, hard work, patience, and resilience in the face of challenges (Al-Qur'an, 3:200; 53:39; 39:53; 94:6; 9:105). Thus, Islamic religiosity may serve as an important psychological and behavioral resource that shapes students' emotional regulation and motivation.

In the Indonesian context, where Muslims constitute the overwhelming majority and Islamic values are deeply embedded in the national culture, religiosity is likely to play an even more influential role. As the country with the largest Muslim population in the world, Indonesia's educational environment—both within Islamic and general schooling systems—is heavily influenced by religious norms and beliefs. However, despite this growing body of evidence, empirical research examining the role of religiosity in shaping students' grit and academic motivation remains limited, particularly within the context of Islamic and general high school education in Indonesia. Most existing studies have focused primarily on university students, overlooking the formative high school years. This gap in the literature provides a strong rationale for further investigation into how Islamic religiosity concurrently influences grit and motivation among Indonesian high school students in both general and Islamic educational settings.

Therefore, this study proposes the following hypotheses: (1) H5: Religiosity has a significant positive effect on student grit; (2) H6: Religiosity has a significant positive effect on student motivation. Family-related factors have also been found to influence student grit and academic motivation. Supportive parental engagement in children's education represents a form of family-based social capital, which significantly contributes to students' academic success (Juhaidi et al., 2024). Moreover, such involvement helps to foster educational cultural capital within the family, shaping students' attitudes, aspirations, and persistence toward academic achievement (Juhaidi, 2023). Several studies have shown that parental involvement positively affects the development of grit in students (Adams & Vivekananda, 2023; Du et al., 2023). Moreover, parental involvement has

been shown to significantly enhance students' academic motivation, both at the primary level (Alfiansyah, 2019) and secondary level (Sampelan & Sengkey, 2022).

Despite these findings, empirical research specifically exploring the dual impact of parental involvement on both grit and academic motivation particularly in the unique Indonesian school context—remains limited. Existing studies often examine either grit or motivation in isolation, and few integrate both constructs within a unified framework. Furthermore, much of the literature focuses on general parenting styles rather than direct involvement in academic processes. Addressing this gap, the present study seeks to examine the extent to which parental involvement simultaneously influences students' grit and academic motivation.

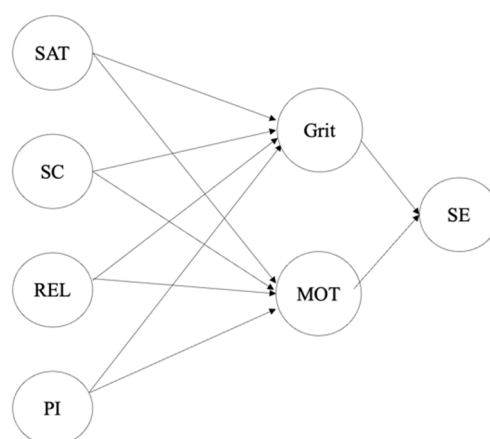
Therefore, the following hypotheses are proposed: (1) H7: Parental involvement has a significant positive effect on student grit; (2) H8: Parental involvement has a significant positive effect on student motivation.

Furthermore, recent studies have demonstrated the mediating role of grit in various educational contexts. For instance, grit mediates the effect of having a strong sense of purpose on academic performance (Guo et al., 2023). Similarly, Zhou (2023) found that grit mediates the influence of students' perceptions of teacher care on their overall well-being. Gao et al. (2024) also confirmed that teacher support significantly affects student engagement through the mediating role of grit. These studies indicate grit's potential as a key psychological mechanism through which various external and internal factors shape student engagement.

However, while the mediating role of grit has been explored in several domains, limited empirical evidence exists on how grit functions as a mediator in the context of school-based variables such as counseling service satisfaction, school climate, religiosity, and parental involvement especially within secondary education settings. Addressing this gap, the current study formulates the following hypotheses: (1) H9: Counseling service satisfaction has a significant positive effect on student engagement through grit as a mediator; (2) H10: School climate has a significant positive effect on student engagement through grit as a mediator; (3) H11: Religiosity has a significant positive effect on student engagement through grit as a mediator; (4) H12: Parental involvement has a significant positive effect on student engagement through grit as a mediator.

The mediating role of motivation has also been demonstrated in several studies. For instance, teacher support has been found to significantly influence student engagement through the mediating effect of learning motivation (Zhang & Hu, 2025). Similarly, academic motivation partially mediates the relationship between teacher emotional support and student engagement (Longakit et al., 2025). However, few studies have explicitly tested motivation as a mediating mechanism between various factors and student engagement. This study addresses this gap by proposing that SAT, SC, REL, and PI enhance students' motivation, which in turn fosters higher engagement levels. Therefore, we formulated the following hypothesis: (1) H13: Counseling service satisfaction has a significant positive effect on student engagement through motivation as a mediator; (2) H14: School climate has a significant positive effect on student engagement through motivation as a mediator; (3) H15: Religiosity has a significant positive effect on student engagement through motivation as a mediator; (4) H16: Parental involvement has a significant positive effect on student engagement through motivation as a mediator.

The conceptual framework illustrating the relationships among these variables is presented in Figure 1. The hypothesis testing results indicate that the majority of the proposed hypotheses are supported. On the other hand, the proposed model demonstrates a medium level of predictive capability. Nevertheless, this study is limited by the use of a non-probability sampling method. Theoretically, this research contributes to the literature in the field of school counseling by providing new insights into psychological factors, school environment, religiosity, and family dynamics that may influence student engagement in learning. Practically, the study offers valuable implications for school administrators and counselors in designing and developing school programs, particularly guidance and counseling services that align with students' expectations.



Note : SAT = Counseling service satisfaction, SC = Equity school climate, REL = Religiosity, PI = Parental involvement, MOT = Learning motivation, SE = Behavioral student engagement

Figure 1 Theoretical framework

Methods

Research design

This study employed a survey design with an exploratory quantitative approach. Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized to analyze the data, as it is well-suited for examining latent constructs and aligns with the study's aim of generating theoretical insights. The research adopts a causal-predictive framework to analyze the relationships between exogenous and endogenous variables.

Participants

Participants in this study consisted of 338 high school students (female = 214, male = 124) from nine districts/cities in South Kalimantan, Indonesia. All respondents had previously accessed school counseling services. The sample size exceeded the minimum recommended by power analysis using G*Power software. With an effect size (f^2) of 0.1, an error probability of 0.05, six predictors, and a statistical power of 0.95, the minimum required sample size was 215 participants. A combination of convenience and snowball sampling techniques was employed to recruit participants. This approach was selected for its cost-effectiveness, speed, and ability to reach respondents across geographically dispersed areas. However, such sampling methods have limitations concerning generalizability due to potential sample bias and non-representativeness. To enhance sample credibility, the questionnaire was distributed at different times and responses were maximized, as recommended by Stratton (2021).

Measurement

The study adapted several validated instruments: satisfaction with counseling services was measured using items from (Gallant & Zhao, 2011); equitable school climate was assessed based on Braun et al. (2024), religiosity was measured using an instrument developed by (Boo, 2025), and parental involvement was adapted from (Rogers et al., 2014). Additionally, grit was measured using the scale developed by Duckworth et al., (2007) which remains relevant and has been cited in several recent studies (Garris et al., 2024; Numasawa et al., 2024; Wetzler et al., 2024). Motivation was adapted from (Pintrich et al., 1991) a widely used instrument for assessing students' learning strategies and academic motivation (Morais et al., 2025; Vogelsmeier et al., 2025), and behavioral engagement was measured using items from (Gunuc & Kuzu, 2015).

In this study, gender, parental education, and socio-economic background were examined as control variables. The analysis revealed that these control variables had no significant effect on grit and motivation (MOT). Therefore, they were excluded from the hypothesis testing.

The questionnaires were translated into Indonesian and reviewed by an Indonesian language and English expert to ensure clarity and comprehensibility. The process was conducted to ensure that respondents understood the questionnaire items, that the items were contextually appropriate, and that they aligned with the original English version. Further, the instrument was tested on five high school students to confirm the readability of the items. A pilot study involving 37 students was conducted, which revealed that several items did not meet reliability and validity criteria; these items were subsequently removed. This is in line with the recommendation by Hair et al. (2011), which suggests that items failing to meet validity criteria should be removed. Details of the revised items are presented in Table 1.

The validated questionnaire was distributed online to students via their teachers. The questionnaire link was shared through WhatsApp messages. Data collection was conducted from April 7 to May 16, 2025. The validated questionnaire was distributed online to students via their teachers using WhatsApp. Data were collected from April 7 to May 16, 2025. To minimize bias, participants remained anonymous, and no information identifying their schools was included.

Results and Discussion

Reliability and validity

This study conducted a reliability assessment using outer loading (OL), Cronbach's alpha (α), and composite reliability (CR). The initial results indicated that several indicators did not meet the required threshold for outer loading ($OL < 0.7$) and were therefore removed. Following the removal of these items, the reliability testing was repeated. The revised results demonstrated that all remaining indicators satisfied the reliability criteria for OL, α , and CR. The detailed results of the reliability testing are presented in Table 1.

Table 1. Reliability and Convergent Validity

	VIF	OL	α	CR rho-a	CR rho-c	AVE
GR_1*	1.778	0.353				
GR_10	2.244	0.838				
GR_11	2.616	0.867				
GR_12	2.178	0.830				
GR_2*	2.363	0.354				
GR_3*	1.676	0.557				
GR_4*	1.792	0.438	0.836	0.841	0.891	0.671
GR_5*	1.710	0.338				
GR_6*	1.720	0.319				
GR_7*	1.710	0.662				
GR_8*	1.852	0.676				
GR_9	1.826	0.736				
MO_1*	1.261	0.574				
MO_2	1.712	0.750				
MO_3	1.862	0.796				
MO_4	1.759	0.732	0.835	0.842	0.884	0.604
MO_5*	1.532	0.661				
MO_6	2.410	0.861				
MO_7	1.606	0.739				
PI_1	2.185	0.746				
PI_10	3.488	0.826				
PI_12	2.462	0.781	0.940	0.944	0.948	0.625
PI_2	3.103	0.828				

	VIF	OL	α	CR rho-a	CR rho-c	AVE
PI_3	2.356	0.779				
PI_4	2.417	0.769				
PI_5	3.425	0.789				
PI_6	3.591	0.796				
PI_7	3.250	0.799				
PI_8	2.645	0.774				
PI_9	2.952	0.808				
RE_1	2.248	0.803				
RE_2	3.414	0.879				
RE_3	1.721	0.789	0.897	0.909	0.924	0.710
RE_4	2.418	0.831				
RE_5	3.063	0.901				
SATC_1	1.795	0.794				
SATC_2	1.993	0.862	0.854	0.876	0.901	0.694
SATC_3	2.198	0.870				
SATC_4	1.897	0.804				
SC_1	2.180	0.801				
SC_2	2.542	0.829	0.862	0.895	0.904	0.702
SC_3	2.683	0.896				
SC_4	1.669	0.824				
SE_1	1.611	0.726				
SE_2*	1.471	0.586				
SE_3	2.216	0.796				
SE_4	2.232	0.816	0.880	0.882	0.907	0.583
SE_5	1.922	0.739				
SE_6	2.115	0.786				
SE_7	1.787	0.748				
SE_8	1.684	0.726				

Note: *Removed due to reliability and validity concerns.

Furthermore, this study assessed convergent validity using Average Variance Extracted (AVE) and evaluated discriminant validity through the Heterotrait-Monotrait Ratio (HTMT). The results indicated that all AVE values exceeded the threshold of 0.5 ($AVE > 0.5$), as presented in Table 1. Similarly, the assessment of discriminant validity showed that all HTMT values were below 0.9 ($HTMT < 0.9$), as shown in Table 2. These findings confirm that the indicators satisfy the criteria for both reliability and validity.

Multicollinearity issues in this study were examined using the Variance Inflation Factor (VIF). The results revealed that all VIF values were below 5.0 ($VIF < 5.0$), indicating no multicollinearity among the indicators. Therefore, all indicators in this study meet the requirements for reliability, validity, and collinearity, allowing for subsequent analysis to proceed.

Table 2. Discriminant Validity -the Heterotrait Monotrait Ratio (HTMT)

	GRIT	MOT	PI	REL	SAT	SC	SE
GRIT							
MOT	0.659						
PI	0.576	0.388					
REL	0.370	0.469	0.384				
SAT	0.448	0.365	0.492	0.228			
SC	0.357	0.360	0.371	0.224	0.625		
SE	0.814	0.712	0.601	0.362	0.527	0.517	

Note: $HTMT < 0.90$ indicates discriminant validity

Model fit

The model in this study demonstrates a good fit with no indication of misspecification, as evidenced by the standardized root mean square residual (SRMR) value being below the threshold of 0.08. Furthermore, the R-square values indicate that grit is influenced by the variables in this study by 32.2% (weak), MOT by 26.3% (weak), and SE by 56.8% (moderate). These effect sizes can be categorized as moderate, suggesting that the model possesses predictive capability, as presented in Table 3.

The PLS Predict procedure also confirms the model's predictive relevance, as shown by the $Q^2_{predict}$ values being greater than zero. Model quality assessment was further supported by comparing the root mean squared error (RMSE) values from the PLS-SEM with those from a linear model (LM). In most cases, the PLS-SEM RMSE values are lower than the LM RMSE values, for example: $0.610 < 0.632$, $0.612 < 0.631$, and $0.581 < 0.610$. This indicates that the model has medium predictive power in forecasting the effects of exogenous variables on endogenous variables (Shmueli et al., 2019). The detailed results are presented in Table 4.

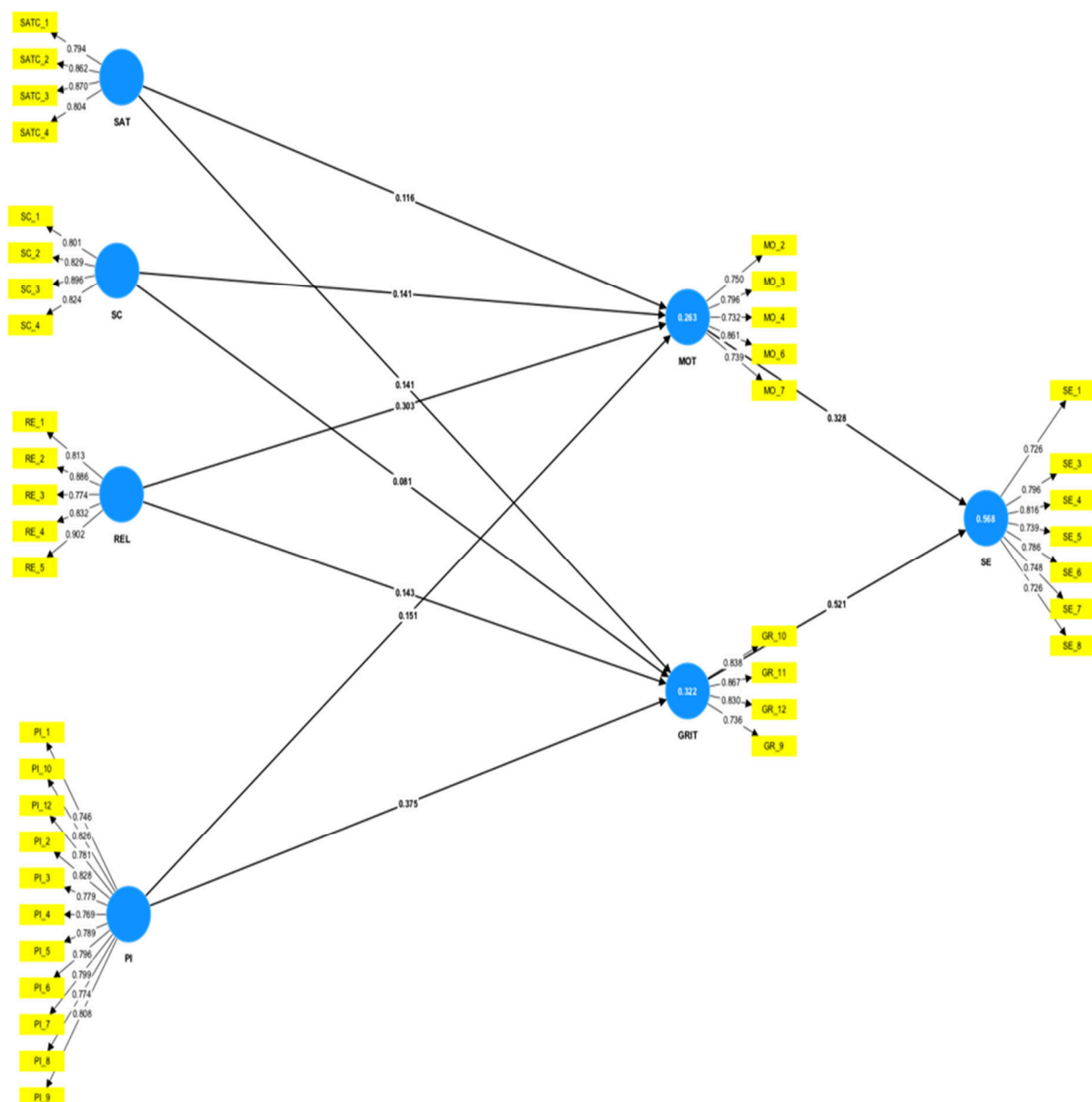


Figure 1 Structural Model

Table 3. Model Fit

	R ²	R ² adjusted	SRMR
GRIT	0.322	0.314	0.069
MOT	0.263	0.254	
SE	0.568	0.565	

Note: R² > 0.25 = Weak, >0.50 = Moderate, >0.75 = Substantial (Hair et al., 2022) ; SRMR < 0.080 (Sarstedt et al., 2016)

Table 4. PLS Predict Test Result

	Q ² predict	PLS-SEM_RMSE	LM_RMSE
GR_10	0.182	0.610	0.632
GR_11	0.215	0.553	0.583
GR_12	0.251	0.581	0.610
GR_9	0.144	0.608	0.648
MO_2	0.084	0.452	0.456
MO_3	0.165	0.511	0.524
MO_4	0.083	0.546	0.559
MO_6	0.184	*0.507	0.497
MO_7	0.156	0.562	0.568
SE_1	0.193	0.612	0.631
SE_3	0.204	0.512	0.518
SE_4	0.202	0.517	0.526
SE_5	0.269	*0.560	0.558
SE_6	0.167	0.522	0.541
SE_7	0.174	0.573	0.585
SE_8	0.202	0.553	0.569

Note : Q² > 0, *PLS-SEM_RMSE > LM_RMSE

Hypothesis verification

This study tested the hypotheses using the bootstrapping procedure with 15,000 subsamples and a significance level 0.05. Following the recommendations of Hair et al. (2011, 2019), statistical significance was determined by three criteria: the bias-corrected confidence interval (CIBC) excluding zero, a t-statistic greater than 1.96 ($t > 1.96$), and a p-value less than 0.05 ($p < 0.05$). The results indicate that PI exert a statistically significant influence on grit and MOT, as shown by the CIBC excluding zero, t-values exceeding 1.96, and p-values below 0.05. The effect of PI on grit was weak to moderate, while the effects of other variables tended to be weak or very weak. Thus, H1 and H2 were supported. Detailed results are presented in Table 5.

Our findings underscore the more pivotal role of parental involvement in fostering students' grit. Parents who are able to provide cultural and social capital tend to enhance their children's grit. This finding is consistent with prior studies that emphasize the critical role of parental support—particularly through cultural and social capital—in promoting children's educational success (Banda & Flowers, 2024; Du et al., 2023; Juhaidi et al., 2022, 2024). Conversely, our findings align with Shebani et al. (2025) which evidenced that parental involvement affects the children's learning motivation. Supportive parenting styles enhance children's learning motivation (Fadhilah et al., 2019).

This influence can be further understood through the lens of attachment theory, which underscores the significance of caregiver responsiveness in shaping children's emotional bonds and coping strategies (Edwards et al., 2025). Attachment relationships provide a safe haven in distress, a secure base for exploration, and involve proximity seeking (Thompson et al., 2022). They vary in security, ranging from secure to insecure forms such as anxiety and avoidance. Warm, sensitive caregiving promotes secure attachment, fostering emotional regulation, motivation, and persistence—

key aspects of grit. In contrast, inconsistent caregiving may lead to insecure attachment and weaken students' motivation and resilience in learning.

Moreover, this study also found that religiosity (REL) had a very weak effect on grit ($f^2 = 0.026$, $t > 1.96$, $p < 0.05$) and a weak effect on motivation (MOT) ($f^2 = 0.107$, $t > 1.96$, $p < 0.05$). Therefore, H3 and H4 were supported. These findings align with the nature of Muslim religiosity in Indonesia, which tends to emphasize ritual worship. For example, many Muslims prefer performing Umrah due to its potential to enhance social prestige (Araki, 2018), rather than engaging in social or community-based activities. Aspects such as perseverance, hard work, and the drive to improve academic competence are not typically regarded as central to Islamic teachings. This perspective has broader implications for national life and citizenship, which ideally should reflect Islamic values. As highlighted by S. S. Rehman and Askari (2010) Muslim-majority countries tend to fall short in embodying Islamic teachings in the social, communal, and civic spheres.

Furthermore, this study also demonstrated that student satisfaction (SAT) had a very weak effect on grit ($\beta < 0.2$, $f^2 < 0.02$), although the relationship was statistically significant ($t = 2.620 > 1.96$, $p = 0.009 < 0.05$), and showed no significant effect on motivation (MOT). Therefore, H5 was supported, while H6 was rejected. These findings suggest that school counseling programs are not effective in enhancing students' grit or learning motivation. Although students reported being satisfied with the counseling services they received, these programs still face challenges related to counselor competence and availability (Bahri, 2020). In addition, counseling services are frequently viewed unfavorably by students (Nugroho et al., 2021) due to their regular association with disciplinary measures. Current school counseling programs do not emphasize the cultivation of students' grit and enthusiasm for studying.

Table 5. Hypothesis Verification Test Result

	CIBC						Hypothesis
	β	f^2	2.50%	97.50%	t	p	
PI -> GRIT	0.375	0.148	0.270	0.472	7.295	0.000	H1 was confirmed
PI -> MOT	0.151	0.022	0.042	0.258	2.730	0.006	H2 was confirmed
REL -> GRIT	0.143	0.026	0.027	0.249	2.523	0.012	H3 was confirmed
REL -> MOT	0.303	0.107	0.162	0.441	4.211	0.000	H4 was confirmed
SAT -> GRIT	0.141	0.018	0.036	0.247	2.620	0.009	H5 was confirmed
SAT -> MOT	0.116	0.012	-0.006	0.234	1.904	0.057	H6 lacked support.
SC -> GRIT	0.081	0.007	-0.014	0.175	1.647	0.100	H7 lacked support.
SC -> MOT	0.141	0.018	0.014	0.266	2.211	0.027	H8 was confirmed
PI -> GRIT -> SE	0.195	NA	0.130	0.263	5.753	0.000	H9 was confirmed
PI -> MOT -> SE	0.049	NA	0.014	0.096	2.397	0.017	H10 was confirmed
REL -> GRIT -> SE	0.075	NA	0.014	0.133	2.468	0.014	H11 was confirmed
REL -> MOT -> SE	0.099	NA	0.055	0.157	3.815	0.000	H12 was confirmed
SAT -> GRIT -> SE	0.074	NA	0.019	0.134	2.519	0.012	H13 was confirmed
SAT -> MOT -> SE	0.038	NA	0.000	0.086	1.760	0.078	H14 lacked support.
SC -> GRIT -> SE	0.042	NA	-0.007	0.097	1.571	0.116	H15 lacked support.
SC -> MOT -> SE	0.046	NA	0.006	0.099	1.955	0.051	H16 was confirmed

Note: $f^2 > 0.02$ small effect size, $f^2 > 0.15$ medium effect size, $f^2 > 0.35$ large effect size (Cohen, 1988)

The analysis of the effect of school climate (SC) revealed that SC did not significantly influence grit ($\beta = 0.081$, $f^2 = 0.007$, $t < 1.96$, $p > 0.05$) and had only a minimal effect on MOT ($\beta = 0.141$, $f^2 = 0.018$, $t < 1.96$, $p > 0.05$). Therefore, H7 was rejected and H8 was accepted. These results do not support previous studies that highlighted the role of school climate in enhancing grit and MOT (Park et al., 2018). A school climate that fosters a sense of connection with students has been found to promote grit. However, our findings align with those of Albert (2016), who concluded that a motivational school climate did not significantly affect grit among student-athletes. However, our study is

consistent with the findings of Darmawan et al., (2021), which concluded that the physical and psychological school environment significantly influences students' learning motivation.

The findings of this study revealed weak effects of PI, REL, and SAT on grit, as well as limited influence of PI, REL, and SC on MOT. These results suggest the presence of other influential variables that may better explain variations in grit and MOT. Prior studies have highlighted the pivotal role of teacher support in fostering learner grit (Hejazi & Sadoughi, 2023; Liu et al., 2025). Teachers' appreciation, encouragement, and enthusiasm have been shown to strongly influence students' grit, particularly in foreign language learning contexts (Derakhshan et al., 2025). Additionally, parental autonomy support has been positively associated with basic psychological needs and grit (Du et al., 2023). while self-compassion has demonstrated a direct and positive relationship with grit (Jarukasemthawee et al., 2021). Other research has also identified factors that significantly affect MOT. For instance, gamified grading systems have been found to reduce barriers to student MOT (Partridge & Schneiter, 2025), and the use of digital learning tools in classrooms has been associated with enhanced MOT (Reyes et al., 2024). Moreover, timely and constructive feedback has been shown to positively impact MOT (Fisher et al., 2025).

In this study, grit significantly mediates the effects of PI, REL, and SAT on SE. However, the magnitude of these mediation effects was minimal and can be considered negligible ($\beta < 0.2$). Furthermore, MOT mediates the effects of PI, REL, and SC on SE. These findings contribute to the existing literature that has established the mediating role of grit across various contexts (Cutillas et al., 2024; Lim et al., 2024; Zhao et al., 2023). and also support previous studies that have confirmed the mediating role of motivation (A. U. Rehman et al., 2020; Zhenrong et al., 2023).

In this study, grit and MOT were found to be statistically significant mediators in the relationship between SAT, SC, REL, and PI on SE. However, the magnitude of these mediation effects was relatively small and can be considered negligible ($\beta < 0.2$). Furthermore, neither motivation nor grit mediated the effects of SAT and SC on SE. These findings contribute to the growing body of literature supporting the mediating role of grit across various contexts (Cutillas et al., 2024; Lim et al., 2024; Zhao et al., 2023). Our finding consistent with previous studies confirming the mediating role of motivation (A. U. Rehman et al., 2020; Zhenrong et al., 2023).

However, the very weak mediating roles of grit and motivation suggest the presence of other potential mediating variables. For instance, social media engagement has been identified as a mediator in the negative relationship between fear of missing out (FOMO) and student engagement (Lin et al., 2024). Similarly, social media use has been found to mediate the relationship between the learning environment and student engagement (Moges et al., 2023). Moreover, expectancy and task value beliefs have also been shown to mediate the effect of online course quality on student engagement (Vo & Ho, 2024).

Study limitation and future study

This study has several limitations. First, all data were collected solely through student self-reports, which may introduce common method bias and limit the depth and objectivity of the findings. This reliance on a single data source may also restrict the richness of insights into the topic, resulting in a less comprehensive understanding of the phenomena under investigation. Second, the data were collected from a single province, which limits the geographic scope of the findings and restricts their generalizability to the broader context of Indonesia. Educational environments and cultural factors may vary significantly across regions. Third, the use of convenience sampling may have resulted in a non-representative sample, introducing potential selection bias and thereby limiting the generalizability of the results. To enhance external validity, future studies are encouraged to employ probabilistic sampling methods. Another limitation of this study is that it did not examine potential differences in effects based on gender (female vs. male) or school type (Islamic vs. general schools). As a result, the analysis may overlook important variations in student experiences and outcomes that could be influenced by these factors.

Consequently, subsequent research should employ probability sampling methods across a wider geographic area to enhance the generalizability of the findings. The use of mixed-method approaches is also recommended to gain a more comprehensive understanding of student engagement and its underlying determinants. Future studies should examine the influence of additional factors such as social media participation, teacher support, self-efficacy, and other relevant characteristics that may significantly impact grit, motivation, and student engagement. Furthermore, multigroup analysis is suggested to explore potential differences in effects across subgroups, such as gender and school type. Future research is encouraged to explore and compare alternative structural models to further enhance theoretical validity.

Conclusion

This study demonstrates that PI, REL, and SAT have a statistically significant but weak influence on grit. Similarly, PI, REL, and SC show a low impact on MOT. Moreover, grit significantly mediates the effects of PI, REL, and SAT on SE, while MOT mediates the effects of PI, REL, and SC on SE. These findings underscore the pivotal role of PI in enhancing students' grit, which in turn plays a crucial role in improving SE. Therefore, school counseling programs should also prioritize efforts to increase parental awareness and engagement in supporting students' educational development.

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