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A Structural Model of Integrative Emotion Regulation, Perseverance, and Passion Among Student's Grit

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Abstract

Madrasah students face challenges maintaining motivation and sustained interest amid the demands of dual education, so the ability to regulate emotions is crucial for maintaining consistent interest (passion) and perseverance in pursuing long-term goals. This study aims to test the structural model of the relationships among Integrative Emotion Regulation (IER), Passion (PAS), and Perseverance (PER) among madrasah students. The study administered a survey to 152 madrasah students in Serang and Cilegon City, used the Grit-S and Emotion Regulation Inventory instruments, and analyzed the data using Structural Equation Modeling (SEM). The results showed that the hypothesized model provided a good fit with the empirical data ($\chi^2 = 0.781$, CFI = 1.000, RMSEA = 0.000), in which IER was a positive predictor of passion, and passion had a strong and significant direct effect on perseverance ($\beta = 0.346$). This study found that adaptive emotion regulation enables students to process emotional experiences constructively, laying the foundation for stable interests and persistent effort. This research significantly demonstrates that integrative emotion regulation is a psychological foundation that shapes students' passion and persistence in achieving long-term goals. The implications of this research indicate the need to develop regulation skills through guidance services to ensure students' consistency and ability to cope with high academic demands.
Keywords: grit, emotion regulation, perseverance, passion, SEM

Introduction

Grit is an issue that has attracted global attention in the education sector, including in Indonesia. Research on grit has increased since the phenomenon of learning loss following COVID-19 (Chen et al., 2024; Ghanizadeh, 2022; Lytle & Shin, 2023), which is characterized by a loss of interest in learning, minimal engagement in academic activities, and decreased motivation to learn (Parahita et al., 2023). The results of the 2022 Programme for International Student Assessment (PISA) also stated that almost half of students in OECD countries, including Indonesia, experience difficulty motivating themselves to complete schoolwork at least once a week (OECD, 2023). Even countries with the best educational scenarios during the pandemic experienced a decline in learning due to the shift to distance learning (Chen et al., 2024; Engzell et al., 2021).

Many educational researchers believe that grit is a more effective predictor of success than talent or intelligence, particularly for long-term learning goals. Grit is a combination of passion and perseverance applied to achieving long-term goals (Duckworth, 2016). Individuals with high grit spend more time practicing, refining, and improving their skills (Schimschal et al., 2021). As a skill, grit enables individuals to persist in the face of complex challenges, remain consistent, and focus on goals even at the risk of failure. Specifically, academic grit is an individual's ability to persevere despite facing difficulties in their learning process (Duckworth & Quinn, 2009;

Küçükaydın, 2025). Grit is a personal characteristic that distinguishes each person from others, enabling them to strive and achieve success in learning (Christopoulou et al., 2018).

Several previous studies have recommended the importance of developing grit in madrasah students. Grit contributes to the formation of subjective well-being in madrasah students, which is characterized by a healthy emotional state (Badi'ah, 2021). Grit in Islamic boarding school students can be encouraged by fostering hope and optimism (Putra et al., 2024). Furthermore, students with higher levels of grit, supported by a growth mindset, can adapt and succeed in the dual demands of the Islamic boarding school environment and formal education (Nurfadila & Khasanah, 2025). Anwar & Julia recommend that Islamic boarding schools and madrasahs should develop their educational models to provide optimal mental health services, thereby maintaining the students' resolve (2022).

A preliminary study of Islamic boarding school students showed that they have long-term goals, but are easily distracted in achieving them. Students acknowledged that their biggest challenge is a bad mood, and that when faced with unexpected situations, they need time to regain their original purpose. In the context of grit, this condition leads to procrastination and a lack of perseverance.

Based on the study, the ability to regulate emotions plays a crucial role in maintaining the consistency of interest (passion) and perseverance in students' pursuit of long-term goals. Emotional regulation in grit plays a crucial role in managing emotions, cultivating positive attitudes, and resilience, which are essential traits for overcoming challenges (Zheng et al., 2022). Effective emotion regulation enhances the positive impact of grit on psychological well-being, particularly cognitive reappraisal, which mediates the relationship between grit dimensions (persistence of effort and adaptability to situations) and thriving (Valdez & Datu, 2021). However, Lee's findings explain that negative emotions do not mediate the relationship between student passion and grit, and indirectly influence grit (Lee, 2022).

These discrepancies in findings indicate the need for a more comprehensive, empirically based theoretical model to confirm the relationship between these variables, particularly in the context of madrasah and Islamic boarding school students in Indonesia. Based on this alignment, this study aims to identify the best structural model (model fit) that explains the relationship between emotional regulation, arousal, and persistence in madrasah students. The context of emotional regulation used in this study is Integrative Emotion Regulation, which is an adaptive pattern of emotional regulation.

Method

The study used a correlational survey method to test a structural model explaining the relationship between integrative emotion regulation (IER), perseverance (Per), and passion (Pas), with Per and Pas being the main dimensions of GRIT. The sample was 152 madrasah students in Serang and Cilegon (N=152). The sampling technique was stratified random sampling.

Data were collected through an online questionnaire. Passion (Pas) and Perseverance (Per) were measured using the Grit-S short form developed by Duckworth & Quinn (2009) which has been adapted in various countries (Russia, Philippines, Malaysia, Oman, China, and India), including Indonesia. Meanwhile, Integrative Emotion Regulation (IER) was measured using the Emotion Regulation Inventory developed by Roth et al. (2009), which measures three types of emotional regulation: integrative, suppressive, and dysregulated.

Data were analysed using Structural Equation Modelling (SEM) to assess causal pathways between variables, identify mediating relationships, and evaluate the model's goodness-of-fit to

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the empirical data. This analysis can help in identifying mediation relationships, and provide a more in-depth evaluation so that the proposed theoretical model can be assessed as a good model based on the criteria in Table 1 below.

Table 1. Good Of Fit Model's Criteria

Index	Excellent Fit
Chi-square	Close to 0
P-value	≥0.05
GFI	≥0.9
AGFI	≥0.9
TLI	≥0.9
CFI	≥0.9
RMSEA	≤0.08
CMIN/DF	≤2

The most frequently used goodness-of-fit (GOF) test criteria always consider the representation of three GOF groups: absolute, incremental, and parsimonious. The GOF conclusion in this study refers to the Hair view, that it is sufficient to use 4–5 GOF criteria to assess the suitability of a model, provided that each of the goodness of fit criteria, namely absolute fit indices, incremental fit indices, and parsimony fit indices, is represented (Haryono Siswoyo, 2020; Latan, 2012).

Results

The results of this study focused on testing the structural model, which revealed a direct causal relationship between the hypothesized observation variables: Perseverance (PER) and Integrative Emotional Regulation (IER) towards Passing (PAS). The hypothesized structural model was tested using AMOS 21 with a maximum likelihood procedure and a variance-covariance matrix as input. The resulting model, shown in Figure 1 below, proved to be a good fit model.

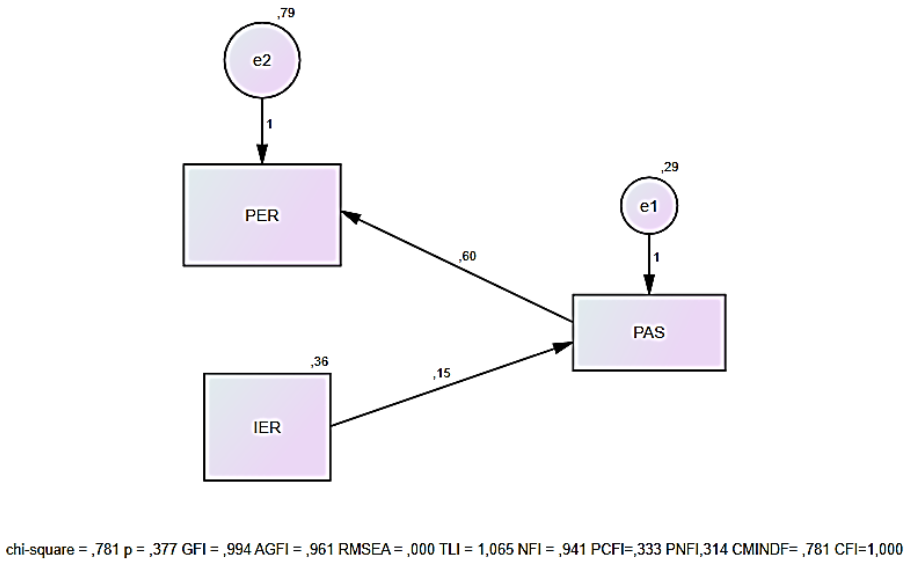


Figure 1. Model Output by Amos

The research findings at figure 1 indicate that all hypothesized relationships (path coefficients) are acceptable fit model. Specifically, the results of the GOF analysis are presented in the following table 2.

Table 2. Good Of Fit Model Analysis

Index	Cut off Value	Result	Conclussion
Chi-square	Close to 0	0.781	Good fit
P-value	≥0.05	0.377	Good fit
GFI	≥0.9	0.994	Good fit
AGFI	≥0.9	0.961	Good fit
TLI	≥0.9	1.065	Good fit
CFI	≥0.9	1.00	Good fit
RMSEA	≤0.08	0.00	Good fit
CMIN/DF	≤2	0.781	Good fit

The analysis results show that the model has excellent GOF based on $\chi^2 = 0.781$, $p = 0.377$, CFI = 1.000, TLI = 1.065, RMSEA = 0.000, CMIN/DF = 0.781. That model is optimal and requires no further modification. These results support the theoretical model that intergrative emotional regulation (IER) serves as the foundation for grit formation (PAS & PER), where individuals who are able to manage emotions adaptively will be more persistent and ultimately have a stronger passion for their goals.

A path analysis was performed on the model to determine the influence of each variable. The results of the analysis are presented in Table 3 below.

Table 3. Path Analysis

Path	Standardized Direct Effect	Standardized Indirect Effect	Standardized Total	P
IER → PAS	0.163	0.000	0.163	0.138
PAS → PER	0.346	0.000	0.346	<0.001
IER → PER	0.00	0.057	0.057	**

Based on Table 3, the path estimation results show that Integrative Emotion Regulation (IER) has a positive direct effect on Passion (PAS) with a coefficient of $\beta = 0.163$ ($p = 0.138$), although it is not statistically significant. The path from Passion (PAS) to Perseverance (PER) shows a strong and significant direct effect ($\beta = 0.346$, $p < 0.001$). Meanwhile, the indirect effect of IER on PER through PAS is $\beta = 0.057$, with a total effect of $\beta = 0.057$. These results indicate that the contribution of IER to PER is fully mediated through the passion variable.

These results confirm that emotion regulation acts as a psychological capital that enables the emergence of passion, both directly and through increased perseverance. Individuals with better emotion regulation skills tend to demonstrate higher levels of passion toward their goals. Emotion regulation helps individuals maintain affective stability when facing obstacles, thus enabling the emergence of long-term interest and commitment to personally valuable activities. Furthermore, the ability to regulate emotions can strengthen passion both directly and through increased perseverance, although the mediating effect is relatively weak.

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Discussion

SEM analysis shows that the ability to manage emotions can increase a person's perseverance and passion to achieve long-term goals. These results confirm previous studies showing that individuals with higher emotional regulation tend to exhibit higher levels of grit (Abdelshafy et al., 2025; Kalia et al., 2022). The ability to effectively regulate emotions helps individuals cope with stress and maintain motivation, which are key to perseverance and consistent of interest (Valdez & Datu, 2021). Student can ensure an unwavering commitment to a primary goal and provides a strong foundation for all their endeavours.

In this study, the type of emotional regulation that was measured specifically was integrative emotional regulation. From a self-determination perspective, IER focuses on emotions as carriers of information brought to awareness and involves processing emotions through choice and free will. IER focuses not on manipulating, suppressing, or reframing emotions, but rather on understanding their significance for an individual's life and goal achievement (Roth et al., 2019). This type aligns with the PERMA framework for flourishing, which begins with an attitude of acceptance and mindfulness towards emotions (Brenning et al., 2023).

The main findings indicate that Integrative Emotion Regulation (IER) has a positive effect on Passion (PAS) ($\beta = 0.15$). Although the effect is relatively small, the positive direction of the influence strengthens the theoretical argument that individuals who are able to understand, accept, and integrate their emotions tend to maintain more stable interests in long-term activities. This study emphasizes that adaptive emotion regulation allows one to maintain psychological autonomy, which in turn supports the development of more consistent passion. This finding also suggests that passion is influenced not only by motivational factors but also by healthy emotion regulation processes.

In this study, IER serves as a carrier of information and self-awareness for students, and involves processing emotions through choice and free will. IER focuses on understanding the significance of situations and feelings for an individual's life and goal achievement.

The presented model has a low significance value. This finding indicates that IER only acts as an initial supporting factor, not a primary driver. An increase in IER does increase PAS, but the increase is not drastic. This finding opens the opportunity for further research to explore other exogenous variables besides IER, or to add moderators that can strengthen the relationship between IER and PAS. The IER pattern aligns with the PERMA framework for thriving, which begins with an attitude of acceptance and awareness of emotions. The main findings indicate that IER has a positive effect on Passion (PAS), although the effect is relatively small and not statistically significant. The results reinforce the view that individuals who are able to understand and integrate their emotions tend to maintain more stable interests in long-term activities. This study emphasizes that adaptive emotion regulation allows one to maintain psychological autonomy, supporting the development of more consistent passion. The low significance value indicates that increasing IER does not drastically increase Grit without a strong emotional connection to the goal.

However, based on Seo's (2022) conceptual framework, emotional regulation and grit are parallel variables, acting as leverage points in maintaining motivation amid academic stress and achieving long-term goals. Emotional regulation is necessary for individuals to determine appropriate actions and strategies for achieving goals, as controlled emotions enable individuals to focus on goals and make rational decisions. Thus, emotional regulation serves as an internal control for maintaining consistent interest and effort, as well as providing resilience from failure.

Integrative emotional regulation relates to students' responses to failure, including coping and learning from failure. Based on an evaluation of the model, IER is a mediating variable

between failure and students' likelihood of future engagement (Sharabi & Roth, 2025). Students' failures result in negative emotions and a tendency to avoid and withdraw from learning activities. Emotional regulation differentiates students from generating affective reactions and maintaining positive motivation (Tulis et al., 2016). When facing failure, students reflect on their emotions and assess other actions needed to encourage efforts to achieve learning targets, so this model is called an adaptive model.

When facing goal-related setbacks, IER positively predicts goal progress because IER increases goal-related efforts(Benita et al., 2021) . This research recommends that madrasah education programs should pay attention to students' IER capacity to strengthen focus on learning goals and maintain persistence in the face of high madrasah learning demands. Most studies suggest strengthening grit through emotional regulation by developing cognitive appraisal skills, which are related to perseverance and adaptability (Abdelshafy et al., 2025; Kalia et al., 2022). Students need to be facilitated to monitor, identify, reflect, and adjust their emotional states in learning situations (Asikainen et al., 2018).

Future research should explore other exogenous variables or moderating factors that might strengthen the relationship between IER and grit components. Future research is recommended to consider variables such as growth mindset or self-efficacy, which may interact with emotion regulation to create a stronger impact on students' Grit. Additionally, because this study used a cross-sectional design, the use of longitudinal studies would be valuable to see how integrative emotional stability actually shapes students' resilience in the face of academic failure over time.

Conclusion

A structural model linking Integrative Emotion Regulation (IER), Passion (PAS), and Perseverance (PER) as GRIT dimensions among madrasah students has demonstrated excellent goodness-of-fit. Key findings confirm that IER serves as an important psychological foundation; students' ability to adaptively process and accept emotions positively influences the formation of passion (PAS), which, in turn, significantly and strongly influences students' levels of persistence (PER) in achieving long-term goals. Although the direct effect of IER on passion was not statistically significant, path analysis showed that IER's contribution to persistence was fully mediated through passion. This indicates that emotion regulation acts as an internal control mechanism that maintains affective stability in the face of failure or academic stress, allowing students to maintain consistent interests, which are the main fuel for their persistence. Guidance services for madrasah students are recommended to create service and training programs that focus on improving the ability to monitor, identify, reflect on, and adjust their emotional conditions in various learning situations..

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