

A Study of the Influence of Grit on Learners' Motivational Beliefs and Self-Regulated Learning Strategies

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ABSTRACT

Grit, defined as perseverance and passion for long-term goals, together with motivation have been increasingly recognised as a key non-cognitive factor influencing learners' sustained effort in learning and in the long run, academic success. Despite the acknowledged importance of grit, motivation, and self-regulated learning, undergraduates' ability to sustain these constructs is often constrained by personal stressors and heavy academic workloads, which can challenge even highly capable learners. Hence, this study was set out to examine the influence of grit on learners' motivational beliefs and self-regulated learning strategies. Using a quantitative research design, data were collected from learners through a set of questionnaires with 4 sections focusing on different variables namely demography, grit, motivational beliefs and self-regulated learning strategies with a total of 45 items. A total of 116 respondents participated in the study. The findings revealed moderate consistency of interest, and difficulty sustaining long-term focus. In addition, the analysis also shows generally positive motivational beliefs among learners and strong intrinsic value toward learning. In terms of self-regulated learning strategy, the cognitive and behavioural domains were shown to be moderate to highly used by the learners. Lastly, it was revealed that grit has a high significant association with learners' motivational beliefs and their use of self-regulated learning strategies. The findings suggest that grit plays an important role in fostering positive motivational dispositions and effective learning behaviours. This study contributes to the expanding body of research on non-cognitive factors in education and highlights the importance of nurturing grit to support learners' motivation and self-regulated learning.

Keywords: Grit; Motivation; Self-regulated Learning; Social Cognitive Theory

INTRODUCTION

Background of Study

In today's fast-paced digital world, learners are accustomed to easy access to information and quick responses and this is largely due to the use of social media and digital technologies. The introduction of technology-assisted learning tools, such as mobile devices, smartboards, MOOCs, tablets, laptops, has changed education in schools and institutions, further reinforcing fast-paced modes of interaction and consumption (Haleem, Javaid, Qadri & Suman, 2022).

This situation has shaped the learners' expectations for speed and convenience and immediate results. When information is available at the tip of their finger or at just one simple click, they will be exposed to their search. This process requires less thinking, thought process and effort. However, learning is a slow and effortful process that requires patience and persistence. Due to this mismatch, students are struggling with motivation and persistence in learning tasks.

This paper presents grit, motivation, and self-regulated learning as responses to the challenges mentioned above. Grit is defined as perseverance and passion for long term goals (Duckworth, 2007). It is the ability to sustain effort and interest over months, years or even decades. Motivation, on the other hand, is a kind of power that inspires, maintains and makes the behaviour point to a specific purpose (Wu, Foong & Alias, 2022). Research highlighted that motivation and grit heavily influence learners' perseverance and sustained effort in learning. In addition, self-regulated learning equips students with strategies to plan, monitor and evaluate their own learning under three main phases namely forethought phase, performance phase and reflection phase. This enables them to manage cognitive, behavioral and motivational processes effectively (Zimmerman, 2000).

The combination of grit, motivation and self-regulated learning creates a framework that strongly impacts students' academic achievement and long-term outcomes (Khairuddin, Amir Johan, Md. Ngadiran, Sukiman & Rahmat, 2025). Khairuddin et al. (2025) stated that grit fosters persistence, motivation fuels engagement and self-regulated learning provides learners with the tools and strategies needed for effective, independent learning. Despite growing research on this study, this topic remains highly relevant as the rapid pace of digital technologies continue to challenge the students' ability to sustain attention, maintain motivation and regulate their learning effectively.

Statement of Problem

Student academic engagement is an important element of learning. A high level of academic engagement is associated with good academic outcomes (Liu, Noordin, Ismail & Abdrahim, 2023; Kuzminykh, Ghita & Xiao, 2021; Delfino, 2019). Grit, motivation and self-regulated learning (SRL) are closely linked to students' academic engagement. In educational context, grit refers to learners' ability to maintain effort and interest in long-term goals, despite the difficulties faced during the learning process. In the concept of grit, consistent effort and dedication are given more importance compared to intelligence or skills possessed by learners. On the other hand, motivation refers to the drive students' possess to participate in learning activities whereas SRL refers to approaches students employ in managing their own academic efforts. Therefore, when students demonstrate grit, motivation and engage in SRL, there is a high tendency for students to excel academically.

However, even with the recognized importance of these constructs, personal and academic obstacles limit undergraduates' ability to maintain grit, motivation and SRL (Khairuddin et al., 2025). These challenges may include personal stressors or heavy academic workloads that even highly capable learners struggle to sustain consistent effort as well as motivation and manage SRL strategies. Moreover, according to Barbiera and Quirap (2024), students may find it difficult to sustain motivation and persistence because of situational circumstances that affect their academic performance. These circumstances can be related to unsupportive learning environments in which learners experience reduced perseverance and motivation that limits their ability to manage SRL strategies effectively.

While prior research has widely explored grit on students' academic engagement and performance, Angraeni, Wardani and Noviani (2024) suggested further exploration on the combined effect of grit, motivation and SRL on students' learning. The study further emphasized examining ways to nurture sustained motivation over time. Additionally, Liu, Sulong, Ahmad and Li (2024) proposed exploring grit and other factors among college students that could provide new insights to improve learning outcomes. Accordingly, the present study was conducted to explore this topic further.

Objective of the Study and Research Questions

This study is conducted to explore the influence of grit on learners' motivational beliefs and self-regulated learning strategies. Specifically, this study is done to answer the following questions;

- How do learners perceive their grit in learning?
- How do learners perceive their motivational beliefs in learning?
- How do learners perceive their self-regulated learning strategies in learning?
- Is there a relationship between grit and motivational beliefs?

- Is there a relationship between grit and self-regulated learning strategies?

LITERATURE REVIEW

Theoretical Framework of the Study

Social Cognitive Theory of human behaviours by Bandura (1977) is a contemporary theory of learning that has become a fundamental resource in not just the clinical and educational field, but also in social, health, developmental, and personality psychology. It is stated that this theory places a strong emphasis on learning from the social environment, or in other words, individuals learn things by watching what others do (also known as observational learning). According to Schunk and DiBenedetto (2023), this social cognitive theory postulates from a dynamic, reciprocal interactions between three factors; behavioural factors, social or environment factors and personal factors, with each factor simultaneously influencing and being influenced by the others. According to Nickerson (2025), *behavioural factors* would be the specific actions or conduct performed by the individual, *social or environmental factors* would be the external surroundings, social contexts, and stimuli where the behaviour occurs while *personal factors* are internal characteristics like beliefs, expectations and personality of the individuals. Besides that, Akram and Abdelrady (2025) mentioned that social cognitive theory is based on the idea that individuals learn by themselves as well as through looking at others' actions, which encourages them to develop new analytical skills and standards of behaviours (norms) among them. When the results are positive, individuals are more likely to be satisfied with their learning and cognitive abilities. On the other hand, when the results are negative, they may experience a decline in both their cognitive abilities and attitudes toward learning. Besides that, the theory highlights the importance of self-regulatory, symbolic, and vicarious processes in an individual's development of a sense of agency in their life (Schunk & DiBenedetto, 2023). For self-efficacy, it is an important personal factor, which arises from self-reflection that is both evaluative and goal-oriented. This self-efficacy is thus a crucial internal motivational process in social cognitive theory.

Motivation and Grit to learn

According to Khairuddin et al. (2025), students' academic performance and long-term success were found to be significantly influenced by non-cognitive traits like grit and motivation. Grit can be understood as the propensity to maintain passion and hard work while working strenuously towards a long-term goal, especially during challenges and setbacks (Duckworth et al., 2007; Duckworth & Quinn, 2009). Karlen (2019) stated that grit is a complex concept of psychological strength that includes consistency of interest (CI) and perseverance of effort (PE). Individuals who have higher PE and CI are said to be stronger learners, because they are less demoralized by setbacks and failures, are more motivated to act strategically, and are able to maintain a concentrated effort to succeed (Eskreis-Winkler et al., 2018). In contrast to short-term intensity of effort and interest, Duckworth et al. (2007) thus concluded that grit strongly incorporates long-term persistence in the pursuit of consistent objectives and continuing interest throughout time, despite failures or setbacks.

Motivation on the other hand, is defined by Wentzel and Miele (2016) as “a set of interrelated desires, goals, needs, values, and emotions that explain the initiation, direction, intensity, persistence, and quality of behavior” (p. 1). Motivation is an explanatory concept that explains why a person acts in a certain way while pursuing their goal. Besides that, motivation includes both intrinsic and extrinsic factors that could affect the quality, direction, and persistence of learning behaviours (Ryan & Deci, 2020). Intrinsic motivation can be understood as the interest and enjoyment that learners have when engaged in a learning activity (Md Nen, 2023), while extrinsic motivation is a catalyst for action that is motivated by external rewards or engaging in a behavior because it will result in a different outcome, such as getting a reward or other people's approval. In the past 50 years, a number of theories have guided research on motivation and language. Among these is social cognitive theory (Bandura, 1997), which gives focus on self-efficacy as the main motivator for success. Motivation has been a key component of social cognitive theory ever since the early modeling studies to the current conception involving agency. A student's confidence in their own capacity to accomplish tasks successfully is linked to their self-efficacy beliefs (Bandura, 1986). Regardless of how challenging the activity is, learners with high self-efficacy view learning activities as a chance to successfully acquire new knowledge (Md Nen, 2023). As a result, these learners are intrinsically motivated to succeed academically. This shows that both grit and motivation bring a major impact to students' academic performance and their lifelong learning potential.

Self-Regulated Learning

Self-regulated learners are aware when they know a fact or possess a skill and when they do not (Zimmerman, 1990). In addition, self-regulated learners proactively seek out information when needed and take necessary steps to master it. Self-regulated learning refers to learners' active control over their own learning processes through the regulation of cognition, motivation and behaviour. Panadero (2017) stated that it is a core conceptual framework to understand the cognitive, motivational and emotional aspects of learning. Zimmerman was one of the first self-regulated learning authors and has developed three different models, being the first one published in 1989 (Panadero, 2017). According to Zimmerman (2000), self-regulated learning occurs in a cyclical process with three phases namely the forethought phase, performance phase and reflection phase.

The forethought phase is the first phase and it happens before engaging in tasks or learning. In this phase, learners analyze the task, set goals, and plan how to reach them. Motivational beliefs energise the process and influence the activation of learning strategies (Panadero, 2017). The second phase known as the performance phase is when learners execute or perform the task. While performing the task, they monitor how they are progressing and use a number of self-control strategies to keep themselves engaged and motivated to finish the task.

The final phase which is the self-reflection occurs after task completion. In this phase, learners assess their performance by evaluating the extent to which their goals have been achieved. This phase emphasizes learners' responsibility and control over their own learning. In conclusion, Zimmerman's cyclical model of self regulated learning enables learners to take responsibility for their own learning. Students' who attempt to gain deeper understanding will lead to the development of metacognitive skills, enhance intrinsic motivation and obtain practical environmental management skills (Faza & Lestari, 2025).

Past Studies

Past Studies on Grit, Motivation in learning and Self-Regulated Learning Strategies

Previous studies have explored the relationships among grit, motivation and self-regulated learning (SLR) among students. The study by Obeng et al. (2025) investigated the connections between students' grit, motivation, self-regulated learning and academic engagement. The study involved 190 senior high school students from Ghana chosen through stratified random sampling. Among the instruments used for the study were the University Student Engagement Inventory (USEI); Academic Grit Scale (AGS); Motivated Strategies for Learning Questionnaire (MSLQ); and Self-Regulated Learning Scale (SRLS). The findings revealed the significance of grit on academic engagement directly and indirectly through academic motivation and SRL. The study suggests this insight can guide educators in designing targeted interventions to strengthen student academic engagement by cultivating grit, motivation and SLR to improve academic engagement. Another study with a similar research focus by Martin, Craigwell and Ramjarrie (2021) examined grit, motivational belief, SRL and academic achievement of civil engineering students. 101 respondents participated in this study. They responded to a self-reported questionnaire that contained questions on motivational beliefs and self-regulated learning practices (MSLQ). The result indicated the link between academic accomplishment and grit was influenced by students' engagement in SRL. Moreover, the study reported motivational beliefs had a stronger effect on students' academic achievement than grit.

Some studies explored the impact of motivational beliefs and SRL in digital learning contexts. Jaritngarm (2025) carried out an investigation into flipped classrooms to explore the relationship between SRL, motivational beliefs and academic achievement. Based on a sample of 52 first-year EFL students, data were collected using a Likert-scale questionnaire, semi-structured interviews and an English achievement test. The findings highlighted how self-evaluation and intrinsic motivation contributed to academic focus. Moreover, within a flipped classroom context, the study pointed out the vital role of self-regulated learning practices in facilitating language proficiency development over time among learners. Related research by Nen et al. (2023) explored the relationship between motivational beliefs and SRL strategies within open and distance learning environments. 142 students who were the participants of the study responded to the survey adapted from Pintrich and De Groot (1993). The study demonstrated a positive correlation between motivational beliefs and self-regulated learning. In addition, the implication highlighted from the study was the significant role of instructors to guide learners to

transform their beliefs into action and achieve their goals, particularly when teaching and learning are shifted to online mode.

In essence, studies that explored grit and academic engagement mostly pointed out academic motivation and SRL as influencing factors. Similarly, in relation to digital learning, a positive correlation is highlighted between motivational belief and SRL. However, the studies pointed out students' interest and teachers' support were linked to these beliefs and learning strategies. Therefore, though there is a correlation between grit, motivation and SRL, other factors such as students' level of grit, prior knowledge, self-efficacy and teachers' involvement can influence the level of correlation.

Past Studies on Self-Regulated Learning Strategies

Self-regulated learning (SRL) strategies have gained remarkable attention among researchers and become the focus of many current empirical studies related to language learning. One of the areas that researchers looked at is in terms of the relationship between SRL and language proficiency, which targets any of the four language skills (reading, writing, listening, or speaking skills). For example, a study by Dong and Habok (2025) investigated i) the SRL strategies that are most used by Vietnamese EFL students, and ii) any potential relationship between these strategies and the levels of language proficiency. 140 undergraduates with different levels of English proficiency and learning backgrounds were selected for this study. They were needed to complete a set of questionnaires consisting of 50 items. The results indicated that the three most frequently used strategies were *elaboration*, *help-seeking*, and *time and study environment management*, while the least used SRL strategies were *critical thinking* and *effort regulation*. Besides that, a positive relationship was found between the students' SRL strategies and language proficiency, whereby language proficiency and *elaboration* were most strongly connected, while the lowest correlation was found between language proficiency and *effort regulation*. Another study also investigated SRL strategies used by a group of language learners at the A1 level at a state university in Turkey (Tomak & Seferoğlu, 2021). Ten students were selected for an interview, based on the results of the Strategy Inventory for Language Learning (SILL). They were interviewed twice, at the end of the first term and the second term. It was later revealed that highly self-regulated individuals had self-study time and managed to assess their language proficiency. Thus, it is advised that learners must monitor their own language development and adjust their own learning plans accordingly.

On the other hand, Abbasian and Hartoonian (2014) focused on the relationship between SRL strategies, language proficiency, and reading comprehension involving 115 Iranian EFL university students. The participants were needed to answer a TOEFL test to assess their language proficiency and reading comprehension, and fill out an SRL Strategies questionnaire adapted from Al Asmari and Mahmoud Ismail (2012). It was found that there was a strong correlation between the students' language proficiency and their usage of self-regulated learning practices. Additionally, a strong correlation was discovered between the students' reading comprehension and their usage of self-regulated learning strategies.

A study by Ni'mah, Nasihah and Munfaati (2025) examined learners' SRL strategies to improve their speaking skills. The study involved ninety EFL university students in non-English language departments. A questionnaire adapted from Zimmerman and Schunk (1998) about SRL and an openended interview were used to get more information about the learners' choice of SRL strategies. The results revealed a positive correlation between the students' SRL strategy and speaking skills, which suggests that students who obtained higher self-regulated learning speak better. Moreover, in order to improve their speaking skills, it was found that learners used the three stages of SRL—*forethought*, *performance* or *volitional control*, and *self-reflection*—as well as certain online platforms to aid in their learning process. Another study also focuses on the same skill but with different groups of respondents. Muhsinin, Haerazi and Rahman (2025) examined the relationship between students' self-confidence levels and the efficacy of SRL in teaching speaking skills. This study was conducted in Islamic-affiliated schools and incorporated a mixed-methods; quantitative (tests) and qualitative (interviews). The findings revealed that SRL strategies are particularly successful for students with higher levels of *self-confidence*, thus significantly improving their speaking abilities. In short, the effectiveness of SRL strategies is strongly related to students' level of confidence, which means that in order to maximise speaking instruction in an EFL context, educators should not only use SRL strategies but also need to concentrate on helping their students to develop their self-confidence.

Furthermore, current researchers are beginning to investigate how the integration of Artificial Intelligence (AI) influences learners' choice of SRL strategies within an EFL/ESL context, given the emergence of Generative Artificial Intelligence (GenAI), which represents a revolutionary technological shift and changes how students learn. Trinovita et al. (2025) for example, employed a mixed-methods approach to explore the influence of GenAI tools, specifically ChatGPT, on students' SRL within the context of EFL learning. This involved 100 undergraduates from STMIK Kalirejo, Lampung, whereby among them, 15 participants were randomly selected for the qualitative phase. The research instruments consisted of an SRL questionnaire, semi-structured interviews, and focus group discussions. This study demonstrated that although the use of GenAI like ChatGPT is positively correlated with overall SRL, its impact varies across the learning cycle, notably enhancing the *forethought* phase by supporting *goalsetting* and *strategic planning*, while exhibiting a considerably weaker connection with the *self-reflection* phase. Another interesting finding is that students are not passive users, as they develop advanced adaptive strategies to promote independence, utilising GenAI as an active scaffolding tool for organising tasks, elucidating concepts, and establishing low-pressure environments to reduce performance anxiety.

In another study, Rad (2025) explored the transformative potential of artificial intelligence (AI) interventions in enhancing reading comprehension, fostering student engagement, and facilitating selfregulated learning among Iranian EFL students learning English. A mixed-methods design with experimental and control groups was used to observe the use of an AI-based intervention program among the students. Semi-structured interviews were also included as one of the instruments. The main findings revealed notable improvements in reading comprehension and self-regulated learning behaviours, including *goal-setting*, *monitoring*, and *self-reflection*, within the experimental group. Additionally, the AI intervention improved *engagement*, as shown by increased attentiveness, participation, and motivation. Moreover, 77% of students emphasised that the AI platform is effective in promoting participation and self-regulation. However, usability issues with interface design and system responsiveness were noted by 23% of the participants as obstacles to realising the full potential of the platform.

In short, past studies have shed light on the various findings related to self-regulated learning strategies in relation to language proficiency, focusing on different language skills as well as through the intervention of AI tools. As a result, they provide important insights into the importance of self-regulated learning to enhance learners' language abilities while promoting both academic growth and practical everyday communication. However, it is also important to explore how grit affects learners' motivational beliefs as well as self-regulated learning strategies. Therefore, this area will be investigated in the current study.

Conceptual Framework of the Study

Learners succeed in learning because they made initial plans. Successful people are known to have phases in their learning plan. Zimmerman and Schunk(1989) asserted that, *forethought* phase is the initial phase that pushes learners to be determined to succeed in the learning. This stage requires learners to plan well and possess grit to want to succeed. According to Rahmat and Thasrabiab (2024), this drive can trigger learners to move ahead. The next stage is the performance stage where learners proceed by taking action from their plans. The last stage is the reflection stage where learners evaluate their progress and plan further success in learning.

Figure 1 below presents the conceptual framework of the study. This study investigates learners' grit, motivation and self-regulated learning strategies. Grit is the courage and strength a person has that defines his/her character. To have grit is to have passion and perseverance to achieve the desired goal According to Martin et al. (2022), in terms of learning motivation, grit comprises (i) consistency of interest and (ii) perseverance. Martin et al. (2022) also stated that what pushes learners to succeed in learning is their motivational beliefs. These beliefs are (i) self-efficacy, (ii) intrinsic value and (iii) test anxiety. Martin et.al. (2022) also mentioned that learners also depend on their self-regulated learning strategies such as (i) cognitive strategy use and (ii) self-regulation. Additionally, this study also explores if there is a relationship between grit and motivation beliefs as well as self-regulated learning strategies.

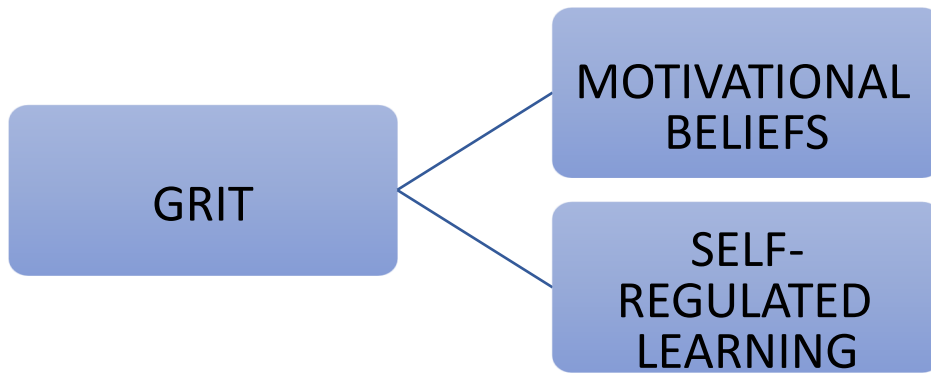


Figure 1: Conceptual Framework of the Study - The Influence of Grit on Motivational Beliefs and Self-Regulated Learning Strategies.

METHODOLOGY

This quantitative study is done to explore the influence of grit on motivational beliefs and self-regulated learning strategies. A convenient sample of 116 participants responded to the survey. The instrument used is a 5 Likert-scale survey and is rooted from Martin et al. (2022) to reveal the variables in Table 3 below. Table 1 below shows the categories used for the Likert scale; 1 is for Strongly Disagree, 2 is for Disagree, 3 is for Undecided, 4 is for Agree and 5 is for Strongly Agree.

Table 1- Likert Scale Use

1	Never
2	Rarely
3	Sometimes
4	Very Often
5	Always

Table 2- Distribution of Items in the Survey

Part	Variable		Construct	No Of Items	Total Items	Cronbach's Alpha
Two	Grit	I	Consistency Of Interest	6	12	.714
		Ii	Perseverance	6		
Three	Motivational Beliefs	I	Self-Efficacy	6	17	.797
		Ii	Intrinsic Value	7		
		Ii	Test Anxiety	4		
Four	Self-Regulated Learning Strategies	I	Cognitive Strategy Use	7	14	.859
		Ii	Self-Regulation	7		
Total No. Of Items					43	.904

Table 2 shows the distribution of items in the survey. The survey was adapted from Martin et al. (2022) which consisted of 4 parts, namely demography information, grit, motivational beliefs and self-regulated learning strategies. In Part 1 on demography, only two items were included specifically on gender and field of study. On the other hand, part 2, which focuses on grit, contains 12 items with an even distribution of items on 2 variables namely consistency of interest and perseverance. Additionally, part 3 accentuates around motivational beliefs which is further divided into 3 variables namely self-efficacy, intrinsic value and test anxiety with 6, 7 and 4 items, respectively. Lastly, part 4 on self-regulated learning strategies consists of 2 variables which are cognitive strategy use and self-regulation with a total of 14 questions evenly distributed among both variables. The questionnaire which specifically focuses on grit, motivational beliefs and self-regulated learning strategies adapted from Martin et al. (2022) consists of a total of 43 items.

Table 3- Reliability Levels, Cronbach’s Alpha Ranges, and Their Interpretations

Reliability Level	Cronbach’s Alpha range	Interpretation
Excellent	0.9 and above	Indicates very high internal consistency
Good	0.80-0.89	Reflects strong internal consistency
Acceptable	0.70-0.79	Indicates acceptable internal consistency
Questionable	0.60-0.69	Reflects questionable internal consistency
Poor	Below 0.6	Indicates poor internal consistency

In order to determine the internal reliability of the instrument, reliability analysis is done. Table 3 above shows the distribution and interpretation of the Cronbach's alpha range. According to Ahmad et al. (2024), Cronbach Alpha scores between 0.7 to 0.9 is considered acceptable to excellent.

Table 3 also shows the reliability of the survey. The analysis shows a Cronbach alpha of .714 for Grit, .797 for Motivational Beliefs and .859 for Self-Regulated Learning Strategies. The overall Cronbach's alpha for all 43 items is .904; thus, revealing a good reliability of the instrument chosen/used. Further analysis using SPSS is done to present findings to answer the research questions for this study.

FINDINGS

Demographic Analysis

According to Zienefuss et al. (2021), researchers report demographic data in percentages to establish sample representatives and allow for generalizability to a larger population. The reporting also provides an overview of participants’ characteristics. Percentages offer a clear and understandable picture of the sample makeup.

Table 4- Percentage for Demographic Profile

Question	Demographic Profile	Categories	Percentage (%)
1	Gender	Male	37%
		Female	63%
2	Cluster	Science & Technology	47%
		Social Sciences & Humanities	44%
		BUbusiness and Administration	9%

Table 4 represents the demographic profile of the respondents of the study. The majority of the respondents were females with 63% and 37% representing the male respondents. An almost even distribution of respondents came from the fields of science and technology and social science and humanities with 47% and 44%, respectively. The remaining respondents with 9% came from the business and administration field.

Descriptive Statistics

Why is there a need to report the mean and standard deviation? According to Vetter (2017), Mean (M) represents the average, or centre of a data set. Standard deviation (SD) indicates the typical distance of individual observations from the mean which shows the data’s variability or spread. A low SD means the data points are clustered close to the mean. A high SD indicates they are more spread out. It is good to have a high SD.

Findings for Grit

This section presents data to answer research question 1- How do learners perceive their grit in learning? In the context of this study, this is measured by (i) consistency of interest and (ii) perseverance.

Table 5- Mean for Consistency of Interest

ITEM	Mean	SD
GCIQ1 I often set a goal but later choose to pursue a different one.	3.22	0.87
GCIQ2 New ideas and new projects sometimes distract me from previous ones.	3.25	0.96
GCIQ3 I become interested in new pursuits every few months.	3.37	0.98
GCIQ4 My interests change from year to year.	3.42	1.05
GCIQ5 I have been obsessed with a certain idea or project for a short time but later lost interest.	3.21	0.93
GCIQ6 I have difficulty maintaining my focus on projects that take more than a few months to complete.	3.27	1.07

Table 5 above highlights the mean scores for consistency of interest. As shown in the table, item GCIQ4 which states that interests change from year to year recorded the highest mean score (M=3.42). This is followed by item GCIQ3 which states that respondents become interested with new pursuits every few months with a mean score of 3.37. With a mean score of 3.27 item GCQI6 states that respondents experience difficulty maintaining focus on projects that take more than a few months to complete. The lowest mean score recorded is 3.21, item GCQI5 stated that respondents have been obsessed with a certain idea or project for a short time but later lost interest.

Table 6- Mean for Perseverance of Effort

ITEM	Mean	SD
GCPQ1 I have achieved a goal that took years of work.	3.42	1.02
GCPQ2 I have overcome setbacks to conquer an important challenge.	3.54	0.80
GCPQ3 Setbacks don’t discourage me.	3.31	0.97
GCPQ4 I finish whatever I begin.	3.97	0.86
GCPQ5 I am a hard worker.	3.78	0.90
GCPQ6 I am diligent.	3.66	0.85

Table 6 presents the mean scores for perseverance of effort. As shown in the table, item GCPQ4 which states that respondents finish whatever they begin, recorded the highest mean score which is 3.97. This is followed by items GCPQ5, and GCPQ6 which state that respondents are hard workers and diligent with mean scores of 3.78 and 3.66 respectively. The lowest mean score obtained is 3.31 with item GCPQ3 which states that setbacks do not discourage respondents.

Findings for Motivational Beliefs

This section presents data to answer research question 2- How do learners perceive their motivational beliefs in learning? In the context of this study, this is measured by (i) self-efficacy, (ii) intrinsic value and (iii) test anxiety.

Table 7- Mean for Self-Efficacy

Item	Statement	Mean	SD
MBSEQ1	Compared with other students in this class, I expect to do well.	3.47	0.87
MBSEQ2	I'm certain I can understand the ideas taught in this course.	3.74	0.70
MBSEQ3	I expect to do very well in this class.	3.87	0.69
MBSEQ4	Compared with others in this class, I think I'm a good student.	3.16	1.04
MBSEQ5	I am sure I can do an excellent job on the problems and tasks assigned for this class.	3.78	0.76
MBSEQ6	I know that I will be able to learn the material for this class.	3.85	0.68

Table 7 presents students' perceived self-efficacy in their own learning abilities. It is evident that item MBSEQ3 that mentions learners believe they would excel in class, obtained the highest mean score, 3.87 (SD=0.69). Next, item MBSEQ6 which implies learners being confident in their ability to master the content in class, recorded the second highest mean score, 3.85 (SD=0.68) followed by item MBSEQ5 that indicates learners were certain they could do well on the problems and tasks assigned, 3.78 (SD=0.76). Item MBSEQ2 which states learners believe they could comprehend ideas taught in class showed a slightly lower mean score, 3.47 (SD=0.70) compared to item MBSEQ5. The two lowest ranked items were MBSEQ1 which claims learners were confident they will perform successfully compared to their peers, with the mean score of 3.47 (SD=0.87) and item MBSEQ4 which mentions learners feel they were good students compared to others in class, with the mean score of 3.16 (SD=1.04).

Table 8- Mean for Intrinsic Value

ITEM	Mean	SD
MBIVQ1 I prefer class work that is challenging so I can learn new things.	3.59	0.88
MBIVQ2 It is important for me to learn what is being taught in this class.	4.05	0.78
MBIVQ3 I like what I am learning in this class.	4.04	0.83
MBIVQ4 I think I will be able to use what I learn in this class in other classes.	4.03	0.82
MBIVQ5 Even when I do poorly on a test I try to learn from my mistakes.	4.12	0.78
MBIVQ6 I think that what I am learning in this class is useful for me to know.	4.16	0.77
MBIVQ7 I think that what we are learning in this class is interesting.	4.22	0.71

Table 8 shows students' perceived intrinsic value for their own learning. As illustrated in the table, item MBIVQ7 which suggests learners believe the learning content was interesting obtained the highest mean score of 4.22 (SD=0.71). Ranked second, item MBIVQ6 which implies the content learned was beneficial for learners scored a mean score of 4.16 (SD=0.77) followed by item MBIVQ5 that states learners tried to learn from mistakes for a mean score of 4.12 (SD=0.78). Next, Items MBIVQ2, MBIVQ3 and MBIVQ4 recorded minimal differences with mean scores of 4.05 (SD=0.78), 4.04 (SD=0.83) and 4.03 (SD=0.82). Item MBIVQ1 which suggests learners enjoyed challenging activities emerged as the item with the lowest mean score of 3.59 (SD=0.88).

Table 9- Mean for Test Anxiety

ITEM	Mean	SD
MBTAQ1 I am so nervous during a test that I cannot remember facts I have learned.	3.26	0.99
MBTAQ2 I have an uneasy, upset feeling when I take a test.	3.24	1.00

MBTAQ3 I worry a great deal about tests.	3.41	1.01
MBTAQ4 When I take a test I think about how poorly I am doing.	3.35	1.06

Table 9 illustrates the mean scores for test anxiety. Item MBTAQ3 that states learners felt anxious about tests achieved the highest mean value of 3.41 (SD=1.01). Subsequently, item MBTAQ4 which indicates learners worrying about performing poorly while taking a test recorded the second highest mean score of 3.35 (SD=1.06). The lowest two items MBTAQ1 that mentions test anxiety interfered with learners' ability to recall learned information and MBTAQ2 that mentions learners experienced feelings of uneasiness and distress during the test, showed very similar mean scores at 3.26 (SD=0.99) and 3.24 (SD=1.00).

Findings for Self-Regulated Learning Strategies

Section 4.2.3 presents the analysed data to answer research question 3- How do learners perceive their self-regulated learning strategies in learning? In the context of this study, this is measured by two categories: (i) cognitive strategy use, and (ii) self-regulation.

Table 10- Mean for Cognitive Strategy Use

ITEM	Mean	SD
SRLSCSUQ1 When I study, I put important ideas into my own words.	3.97	0.77
SRLSCSUQ2 I always try to understand what the teacher is saying even if it doesn't make sense.	3.88	0.78
SRLSCSUQ3 When I study for a test, I try to remember as many facts as I can.	4.18	0.63
SRLSCSUQ4 When studying, I copy my notes over to help me remember material.	3.88	0.90
SRLSCSUQ5 When I study for a test, I practice saying the important facts over and over to myself.	4.02	0.86
SRLSCSUQ6 When I am studying a topic, I try to make everything fit together.	4.00	0.76
SRLSCSUQ7 When reading I try to connect the things I am reading about with what I already know.	4.11	0.72

Table 10 presents the mean score for items under cognitive strategy use. As shown in the table, item 3 which states that when the student studies for a test, he or she will try to memorise as many facts as he or she can, obtained the highest mean score of (4.18).

This is followed by item 7, which states that when the student reads, he or she tries to link the information read about with his or her prior knowledge, with a mean score of (4.11). On the other hand, two items recorded the lowest mean score of (3.88) which states that the student will try to comprehend what the teacher is saying even if it does not make sense (item 2) and when the student is studying, he or she will copy the notes over to help in memorising the materials (item 4).

Table 11- Mean for SELF-REGULATION

ITEM	Mean	SD
SRLSSRQ1 I ask myself questions to make sure I know the material I have been studying.	3.85	0.82
SRLSSRQ2 When work is hard I either give up or study only the easy parts.	3.24	1.05
SRLSSRQ3 Even when study materials are dull and uninteresting, I keep working until I finish.	3.72	0.79

SRLSSRQ4 Before I begin studying, I think about the things I will need to do to learn.	3.84	0.74
SRLSSRQ5 I often find that I have been reading for class but don't know what it is all about.	3.34	0.96
SRLSSRQ6 When I'm reading, I stop once in a while and go over what I have read.	3.66	0.82
SRLSSRQ7 I work hard to get a good grade even when I don't like a class.	3.96	0.89

Table 11 highlights the mean score under the self-regulation category. The highest mean score is obtained by the last item in the list, which is item 7, which states that the student works hard to get a good grade even though the student is not interested in the class, with a mean score of (3.96). This is followed by item 1, which states that the student will ask questions to himself/herself so as to ensure that he or she understands the materials studied, with a mean score of (3.85).

Moreover, item 4 tailed closely with a (3.84) mean score, which states that before the student begins studying, he or she would think about what he or she needs to do to learn. The lowest mean score was recorded by item 2, which states that when work is hard, the student would either give up on the work or study only the easy parts. This item obtained a mean score of (3.24).

Exploratory Statistics

According to He (2024), correlation is a statistical technique that shows how strongly two variables are related to each other or the degree of association between the two. It is a common tool for describing simple relationships without making a statement about cause and effect. This section presents data to answer research questions on correlation. To determine if there is a significant association in the mean scores between grit and motivational beliefs, data is analysed using SPSS for correlations. Results are presented separately in tables below.

Findings for Relationship between grit and motivational beliefs

This section presents data to answer research question 4 - is there a relationship between grit and motivational beliefs?

Table 12- Correlation between Grit and Motivational Beliefs

		Grit	Motivational Beliefs
GRIT	Pearson (Correlation)	1	.746**
	Sig (2-tailed)		<0.01
	N	116	116
Motivational Beliefs	Pearson (Correlation)	.746**	1
	Sig (2-tailed)	<0.01	
	N	116	116

**Correlation is significant at the 0.01 level (2-tailed)

Table 12 shows there is an association between grit and motivational beliefs. Correlation analysis shows that there is a high significant association between grit and motivational beliefs ($r=.746^{**}$) and ($p=.<.001$). According to He (2024), coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between grit and motivational beliefs. Therefore, the null hypothesis (H1) is rejected.

Findings for Relationship between grit and self-regulated learning strategies

This section presents data to answer research question 5- Is there a relationship between grit and self-regulated learning strategies?

Table 13- Correlation between Grit and Motivational Beliefs

		GRIT	Self-Regulated Learning Strategies
GRIT	Pearson (Correlation	1	.608**
	Sig (2-tailed)		<0.01
	N	116	116
Self-Regulated Learning Strategies	Pearson (Correlation	.608**	1
	Sig (2-tailed)	<0.01	
	N	116	116

**Correlation is significant at the 0.01 level (2-tailed)

Table 13 shows there is an association between grit and self-regulated learning strategies. Correlation analysis shows that there is a high significant association between grit and self-regulated learning strategies ($r=.608^{**}$) and ($p<.001$). According to He (2024), the coefficient is significant at the .05 level and a positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between grit and self-regulated learning strategies. Therefore, the null hypothesis (H1) is rejected.

CONCLUSION

Summary of Findings and Discussions

Overall, respondents demonstrated moderate consistency of interest, with higher tendencies toward changing interests and difficulty sustaining long-term focus which is evident through the highest mean score for items on respondents' changing interest from year to year. In addition, the findings also show strong perseverance of effort which is reflected in high levels of task completion, diligence, and hard work. However, the respondents also agreed that setbacks and challenges were discouraging at times. These findings reflect the dual dimensions of grit, in which while respondents exhibit strong perseverance of effort through sustained hard work and task completion, their lower consistency of interest suggests challenges in maintaining long-term passion, indicating that their grit is driven more by persistence than by stable, enduring interests. This finding seemed to be in agreement with Obeng et al. (2025) who support the idea that grit is not merely a trait but an active mechanism linking motivation and self-regulated learning behaviors to sustained effort, even when interest wavers.

In addition, the findings under the motivational beliefs indicate generally positive motivational beliefs among learners, characterized by moderate to high perceived self-efficacy and strong intrinsic value toward learning, as students expressed confidence in mastering course content and high interest in its usefulness and relevance. This finding has proven to be in parallel with Obeng et al. (2025) who conclude that grit enhances academic engagement through academic motivation and self-regulated learning. However, comparatively lower confidence when evaluating themselves against peers suggests more cautious self-appraisal. At the same time, moderate levels of test anxiety were evident, indicating that while learners are motivated and value learning, anxiety may still interfere with their performance and regulation of learning behaviors.

The results suggest that learners demonstrate moderate to high use of self-regulated learning strategies, particularly in the cognitive and behavioral regulation domains. Students relied more heavily on memorization strategy, while showing comparatively lower engagement in deeper comprehension strategies. This finding reflects learning patterns commonly reported in the Malaysian educational context. Previous studies have shown that Malaysian learners frequently rely on memorization strategies, particularly in language learning, due to

exam-oriented assessment practices and teacher-centred instructional approaches (Tengku Mohamed Fauzi & Wan Mohamed, 2023).

While memorization can support information retention, it may limit opportunities for students to develop deeper comprehension and critical thinking skills which have been increasingly emphasized in Malaysia's educational reforms promoting higher-order thinking skills. In terms of self-regulation, learners reported strong effort regulation whereby they continued working to achieve good grades even when interest was low. This finding is in tandem with Abbasian and Hartoonian (2014) whose findings suggest that *selfregulated learning* reinforced the finding of the present study that even when learners rely more on surface strategies like memorization, *self-regulated learning* is still linked to outcomes. The findings also revealed that partial limitations in regulating learning under increased difficulty whereby respondents still faced a certain level of difficulty in coping with challenging tasks.

The study also revealed a high significant association between grit and motivational beliefs and a high significant association between grit and self-regulated learning strategies. These relationships support the study by Martin et al. (2021) and Jaritngarm (2025), the former argued that academic persistence can be determined by learners' grit, motivation and self-regulated learning while the latter revealed positive relationships between motivational beliefs, self-regulated learning practices, and academic achievement in flipped classroom contexts

Implications and Suggestions for Future Research

Theoretical and Conceptual Implications

The overall findings of this study lent support to Martin et al. (2022) who reconceptualized grit as a context-sensitive and dynamic in nature which emphasises persistence, adaptability, and sustained effort rather than unwavering long-term passion. While respondents of this study demonstrated only moderate consistency of interest which is evident by frequent changes in interests and difficulty sustaining long-term focus, they showed strong perseverance of effort through high task completion, diligence, and continued hard work.

This pattern aligns with Martin et al.'s (2022) argument that persistence can be maintained even when interest fluctuates, particularly in structured academic contexts. Respondents' acknowledgment that setbacks and challenges were sometimes discouraging further supports the notion that grit does not imply the absence of difficulty or emotional struggle, but rather the capacity to continue effort despite such challenges. Thus, the findings extend Martin et al.'s framework by illustrating that grit in educational settings may be driven more by persistence than by stable interests.

In addition to the abovementioned, the significant association between grit and motivational beliefs provides further theoretical support for Martin et al.'s (2022) emphasis on the motivational underpinnings of grit. Learners' moderate to high perceived self-efficacy and strong intrinsic value toward learning help explain their sustained perseverance, even when interest consistency is lower. According to Martin et al., grit is strengthened by motivational resources that enable learners to persist through challenges.

At the same time, learners' comparatively lower confidence in peer comparisons and the presence of moderate test anxiety suggest that grit coexists with vulnerability. This reinforces Martin et al.'s view that grit is not a fixed personality trait, but a regulated response shaped by self-beliefs and contextual pressures, particularly evaluative environments.

The findings of the study also align closely with Zimmerman and Schunk's (1989) theory of selfregulated learning, which conceptualises learning as an active process involving cognitive, behavioural, and motivational regulation.

Learners' strong use of effort regulation which was translated onto their continuing effort to work toward good grades even when interest was low provides an evidentiary support on effective behavioural self-regulation and persistence, which are the key components of self-regulated learning. However, respondents' proven heavy reliance on memorization strategies with lower engagement in comprehension strategies suggests that their cognitive regulation remains somewhat surface-oriented.

Pedagogical Implications

The findings of this study suggest several important pedagogical implications for teaching practices aimed at strengthening learners' persistence, motivation, and self-regulated learning skills.

First, given that learners demonstrated strong perseverance of effort but only moderate consistency of interest, instructional practices should place greater emphasis on supporting sustained engagement. Educators can design learning tasks with clear short-term goals and regular feedback to help students maintain effort even when interest fluctuates. This approach aligns with grit theory by leveraging learners' existing strength in perseverance while compensating for weaker consistency of interest.

Secondly, the findings indicate that learners rely more heavily on surface-level cognitive strategies such as memorization, while showing lower engagement in deeper comprehension strategies. This suggests the need for pedagogical interventions that explicitly teach ways to improve learners' comprehension skills such as elaboration, critical questioning, and application-based tasks. Instructors should apply these strategies and integrate them into class activities and assessments to encourage learners to move beyond surface-level cognitive strategies toward meaningful understanding.

Finally, the significant relationships between grit, motivation, and self-regulated learning suggest that pedagogical practices should adopt an integrated approach.

Rather than addressing motivation, perseverance, or learning strategies in isolation, educators should design instruction that simultaneously nurtures self-efficacy, encourages persistence, and develops self-regulatory skills. Such an approach supports sustained academic engagement and equips learners with transferable skills necessary for long-term learning success.

Suggestions for Future Research

The current study has provided an invaluable insight into the concept of grit, motivation and self-regulated learning. However, acknowledging the operational constraints of the study, two recommendations are presented in the following. Firstly, the constraint on time and cost only allowed for a reasonable size of respondents which focused on a group of UiTM students only. It is recommended that similar research be conducted in different parts of the country, covering a bigger scale of participants. Secondly, given that the present study only focuses on the relationship of each concept, looking into the contextual and instructional influences on grit and self-regulation would offer an interesting insight. Since learners reported difficulty coping with increased task difficulty despite strong effort regulation, experimental or intervention-based research could examine how teaching instructions, strategy training, or assessment design influences learners' ability to regulate learning under challenge. This would contribute to more context-sensitive models of grit and self-regulated learning.

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