



# Exploring The Relationship of Grit Personality and Academic Achievement: Adult Learners

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**Abstract:** Grit is defined to the individual's level of perseverance and motivation to achieve their long-term goals. The grit can drive students to sustain and finish their study in the time frame allocated. The purpose of this study is to determine the level of students' grit among part time learners in Technical University in Malaysia and to explore how the grit level difference based on the gender. The study used the descriptive analysis approach. The sample of the study consisted of 148 students, who studied part time (via online), distributed as follows: (95) male and (53) female. To achieve the objectives of the study, an original grit scale (Grit-O) from Duckworth et al. (2007) was utilized. The results of the study revealed that the level of grit of the students were high, and the Grit level of male students were higher than female students. The study concluded that it is important build a strong grit character in students' mind to have an outstanding academic achievement.

**Keywords:** Grit personality, adult learners, academic achievement

## 1. Introduction

Grit in general refers to the strength of the individual in achieving a person's desire to survive in a situation. Duckworth et al. (2007) were pioneers in the study of grit, in which they defined grit as a trait of an individual's consistency of interest and perseverance of effort that are necessary to achieve long-term goals. Grit is also said to be a greater determinant of success than talent and emotional intelligence. Cross (2013) suggested that GRIT gives individuals the ability to sustain and survive in certain situation.

Duckworth et al. (2007) also constructed psychometric tests to test the level of grit in individuals, as well as to predict a person's achievement not only in academic terms (Datu et al., 2018), but also in cognitive function, well-being, and self-efficacy (Wolters et al. Hussain, 2015). Grit involves continuous work to achieve long-term goals. For example, when an individual encounters obstacles or unattainable goals, individuals with a grit nature will identify appropriate alternatives to achieve those goals (Duckworth and Gross, 2014).

Duckworth and Gross (2014) add that grit is an accurate measure of achieving goals and success in the long run, although high levels of grit do not necessarily involve the same interest and effort in all life processes. Grit requires a high level of discipline for an individual to be always enthusiastic, accompanied by consistent interest and continuous effort over a long period of time. Duckworth, and Gross (2014) also acknowledge that grit requires action to coordinate intentions and emphasize the importance of understanding the different types of desired goals.

Duckworth (2016) mentioned grit as a non-cognitive skill that can influence students' academic achievement. Many studies have proven that students with high level of grit have better academic achievement than those with low level of grit (Tang et al., 2020; Luthan et al., 2019; Lam and Zhou, 2018, and Bazelais. et al., 2018). Students who have a high level of grit will continue to strive to achieve their goals despite encountering failure several times. Thus, in

theory, this study believes grit can have a positive impact on academic achievement, especially for part-time undergraduate students who have a lot of commitment and easily lose focus to study.

According to Bolliger (2017), being a part-time student means that an individual can study a particular field with more flexibility regarding study time and payment of fees. Like full-time students, part-time students also typically attend lectures, complete assignments, and sit in exams. However, they usually study over a longer period of time with a less packed schedule. It is one of the branches of study offered to adults to increase knowledge in a field and is very suitable for those who already have a full-time job or permanent job.

Olson (2015) in his study said that in order to develop self-potential and improve the various skills through adult learning, an individual must have the nature of perseverance and enthusiasm to achieve goals in the long run. In addition, the individual must persevere to face various challenges and always strive to maintain interest despite encountering failure over the years. This is because learning while working causes students to easily lose focus due to other commitments (Sanchez-Gelabert et al., 2017). Adult learning is also known by the term andragogy (Pemberton and McCadden, 2019). Andragogy refers to an approach in the learning process for adults, where it focuses on learning techniques for adults, so that the adult individual is willing to learn in order to achieve a goal (Sunhaji, 2013).

## 1.1 Literature Review

Hochandel and Finamore (2015) reported that there were students with high degree of intelligence quotient (IQ) scores recording lower academic achievement than those with lower IQs. These students have high cognitive skills, yet many lack non-cognitive skills (Hochandel and Finamore, 2015). This may be due to an accountability system that emphasizes scores on standardized tests, and students must pass in assessments (Barrington, 2017). This study identifies grit characters that include consistency of interest and perseverance of effort as non-cognitive skills that are set aside in the pursuit for an outstanding academic achievement.

Direito et al. (2019) made a study about grit in engineering education. According to study it is very important for engineering students to have a grit character. This is because engineering and technical programs are associated as difficult programs, demanding high self-discipline and a high commitment to different academic challenges. As a result, many students easily give up achieving their best academic performance. In fact, some give up by not finishing their study terms.

Several studies have also found that there are differences in grit between men and women. Most studies do not find the same evidence where there are many discrepancies. Kim and Hong (2019) as well as Gudnason et al. (2021) in their study on the relationship of grit and academic performance among students found that the grit level of male students was higher than that of female students, and their academic performance was also seen to be better. However, in another study, the grit level of female students was higher and had more outstanding academic performance than male students (Christensen and Knezek, 2014, and Il et al., 2018). Meanwhile, Hodge et al. (2017) found no significant difference between grit levels for male and female students at the university. This study involved part-time master's degree students at UTHM, where there are still no findings and literature support on the differences in grit levels between male and female students.

Although research on grit is increasingly being done, there is still a research gap that focuses on the part-time student population. Many studies related to grit are more focused on students pursuing full-time studies such as diploma and bachelor's degree students (Bazelais et al., 2016; Mas'udah, 2019; Reed and Jeremiah, 2017; and Sigmundsson, et al., 2020). Document analysis found that grit studies focused on part-time students in Malaysia were very limited. There are differences in learning culture between students in the West and Malaysia which makes the study unable to represent the findings of the study globally. Thus, this study was made to examine the grit level of part-time master's degree technical students at UTHM through psychometric assessment. In addition, the study also aims to examine the differences in grit levels between the gender of part-time master's degree technical students at Universiti Tun Hussein Onn (UTHM).

## 2. Methodology

This study is quantitative study by using questionnaire as instrument. This research approach helps generate knowledge and create understanding on specific topics (Allen, 2017). Data collection was done by distributing questionnaires in the form of Google Form through WhatsApp and Email applications. Then, the collected data were compiled in SPSS software. The study used mean score test for descriptive analysis as well as Pearson correlation test, multiple linear regression analysis and T test for inference analysis.

### 2.1 Sample

A total of 244 part-time technical master's degree students at UTHM were selected as the study population. Of the total population, a total of 148 people were selected as the sample size through a simple random sampling technique from non-probability sampling.

## 2.2 Research Instrument

In this study, the questionnaires used were adapted, compiled and translated from the Original Grit Scale (Grit-O) constructed by Duckworth et al. (2007). This Original Grit Scale contains 12 items to measure students' grit level. The questionnaire is divided into 2 parts, namely part A and B. Part A is a questionnaire with a nominal measurement scale to collect demographic information from the respondents. The CGPA and gender of the student will be recorded in this section. Nominal measurement scales use numbers to label items in the questionnaire, where each number has no meaning and differs from the others (Dalati, 2018).

Section B collects information on the level of grit of the respondents, where it is divided into 2 parts, namely the measurement for the level of perseverance of effort and consistency of interest that forms the grit nature. Section B uses an interval measurement scale in which the questionnaire is designed with Likert-style scale with 5-points ranging from strongly disagree (1) to strongly agree (5), with uncertainty in the middle (3).

## 3. Results and Discussion

Table 1 explained demographic profile of respondents.

**Table 1 - Demographic profile**

Demographic Profile		Frequency	Percentage
Gender	Male	95	64%
	Female	53	36%
Age	Below 25 years old	6	4%
	26 - 35 years old	89	60%
	36 - 45 years old	41	28%
	46 - 55 years old	9	6%
	56 years old and above	3	2%
Race	Malay	131	89%
	Chinese	9	6%
	Indian	3	2%
	Others	5	3%
CGPA	2.70-2.99	12	8%
	3.00-3.29	25	17%
	3.30-3.69	49	33%
	3.70-3.99	36	24%
	4.00	26	18%

### 3.1 The Level of Consistency of Interest and Perseverance of Effort

Table 2 shows the overall analysis of the level of grit in students based on the level of consistency of interest and perseverance of effort. The level of students' consistency of interest is at a high level ( $M = 4.01$ ). The level of students' perseverance of effort was also seen to be at a high level ( $M = 4.20$ ). Thus, the overall analysis of the study found that the level of grit in part-time technical students with a master's degree at UTHM was at a high level ( $M = 4.11$ ).

**Table 2 - Grit level based on consistency of interest and perseverance of effort**

Variables	Mean Score	Interpretation
Consistency of interest	4.01	High
Perseverance of effort	4.20	High
Grit	4.11	High

### 3.2 Significant Relationship between Grit and Academic Achievement

Table 3 shows the Pearson correlation analysis between the variables and the academic achievement of part-time master’s degree technical students at UTHM. The findings show that both consistency of interest and perseverance of effort had a significant positive relationship with students’ academic achievement which measured using their CGPA. Consistency of interest recorded a positive relationship with students’ academic achievement (r = 0.408, p = 0.000) with academic achievement. Referring to Chua (2014), this correlation value is at a weak level. Perseverance of effort also recorded a positive relationship (r = 0.262, p = 0.001) with academic achievement. The value of this correlation between perseverance of effort and academic achievement is interpreted as very weak. However, the positive correlation indicates that the increase in the level of consistency of interest and perseverance of effort has a relationship with the increase in the level of academic achievement of part-time master’s degree technical students at UTHM.

**Table 3 - Pearson correlation analysis between variables and academic achievement**

Variables		CGPA
Consistency of Interest	Pearson Correlation	0.408**
	Sig. 2 tailed	0.000
	N	148
Perseverance of Effort	Pearson Correlation	0.262**
	Sig. 2 tailed	0.001
	N	148

### 3.3 Significant Influence of Grit towards Academic Achievement

Based on Table 4, grit shows a moderate level of expectations on the academic achievement of part-time master's degree students at UTHM (R = 0.545), where grit affects academic achievement by 29.80% (R<sup>2</sup> = 0.298). Moreover, based on ANOVA analysis through F-test, the relationship between grit and academic achievement is significant (F = 3.239, p <0.005). Thus, there is a significant relationship between grit level and student academic achievement.

**Table 4 - Summary of regression models between grit and academic achievement**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	Sig.
Grit	0.545	0.298	0.206	3.239	0.000 <sup>b</sup>

### 3.4 Differences of Grit Level Based on Gender

Based on Table 5, the value of sig. was 0.047, where it was less than 0.05 (p <0.05). Thus, the findings of the study prove that there is a difference between the grit levels of part -time master's degree technical students at UTHM based on gender. Based on the statistical analysis of this Levene test, the same unexpected variance is necessary to use.

Refer to Table 5, a positive t value (t<sub>98.511</sub> = 4.981, p <0.001) refers to the level of grit in the first group (males) was higher than the second group (females). A p value of less than 0.001 (p = 0.000) also indicates that this T-test analysis is significant. Overall, based on this independent sample T-test analysis, the study found that the grit level of male students was higher than female students. Thus, there are significant differences between grit levels based on gender.

**Table 5 - Independent Sample T-Test analysis**

Model		Levene’s Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	Df	Sig. (2-tailed)
Grit	Equal Variances Assumed	4.029	0.047	5.132	146	0.000
	Equal Variance Not Assumed			4.981	98.511	0.000

Group 1 = Male  
Group 2 = Female

#### 4. Discussions

The study found that the grit level of these students is at a high level. A high level of consistency of interest in the context of this study may be achieved due to several factors related to the demographic profile of the respondents. The respondents involved in this study were part-time master's degree students pursuing adult learning, all of whom already had a high level of education. In addition, most of the part-time students are often older than students who study conventionally and full-time, thus they have more responsibility and commitment to their families and work. Therefore, their motivation to further their education often lies in the importance for career development or motivation to advance themselves.

This study concludes that the high level of perseverance of effort among part-time master's degree technical students at UTHM obtained in this study is relevant. All these students already have a high level of education where they already have a bachelor's degree. However, the nature of high perseverance of effort makes them able to continue their studies to a higher level, namely a master's degree. Part-time study means that they have other commitments and responsibilities that need to be resolved outside the context of adult learning such as responsibilities and commitments to work and family. However, the high level of perseverance of effort makes it a possible thing for these students to continue to upgrade their level of education, and subsequently master other skills and knowledge, thus potentially improving their academic achievement.

Next, the study also found a significant positive relationship between grit level and students' academic achievement, where regression tests then showed that grit had a moderate influence on students' academic achievement. These findings have proven that increasing students' grit levels can help to improve students' academic achievement as well. The study concluded that grit levels only affected academic achievement at a moderate level due to external challenges such as commitment for personal life and work. The findings of this study are supported by Tang, Wang, Parada, and Salmela-Aro (2021) (2021) where the study has also proven that both consistency of interest and perseverance of effort have a significant relationship with student academic achievement. To achieve excellent academic performance, mental intelligence alone is not enough. A student should always place a high commitment to achieve the goals they have set. Students need to be consistent in their efforts and interests in the long run and face a variety of challenges before they can see outstanding results. A study from Kim and Hong (2019), Allen et al. (2021), and Holdan, Lias, Locke, Elfen, and Buzzelli (2018) found evidence that cognitive skills also have a significant relationship with student academic achievement.

Grit is also one of the non-cognitive skills that is a characteristic of perseverance based on consistency of interest and perseverance of effort over the long term. Tough (2016) mentioned non-cognitive skills such as endurance and perseverance help students to improve their academic achievement. The researchers concluded that grit is a reliable predictor of achieving long-term goals, and not as a predictor of short-term academic success. Grit can be taught to students, but it does not necessarily give significance to students in outstanding academic achievement. The above explanation explains why the findings of this study found a weak positive relationship between the level of grit and the academic achievement of part-time master's degree technical students at UTHM. This is because the main goal of these part-time master's degree technical students is not to achieve outstanding academic achievement, but their main goal is for the purpose of adult learning that can develop their careers further or improve their socioeconomic status. Excellent academic achievement is an alternative goal and a short-term goal to achieve a more dominant goal.

Finally, the study found that the level of grit of male students among part-time master's degree technical students at UTHM is higher than that of female students. The study concluded that male students are more focused on continuing their studies and achieving excellent academic achievement as they need to upgrade their socio-economic status for a better life. This is because men often have to support their families. Furthermore, male students are more active and enthusiastic than female students, due to more dopamine in their bodies than females (Sigmundsson, Gudnason, and Johannsdottrir, 2021). This dopamine serves to send neuro messages that provide pleasure and active behavior. Thus, male students are more enthusiastic than female students, thus making their grit differences in adult learning quite significant.

#### 5. Conclusion

Overall, this study has achieved the objective of identifying the level of consistency of interest and perseverance of effort among part-time master's degree technical students at UTHM. This study found that the level of consistency of interest and perseverance of effort among part-time master's degree technical students at UTHM is at a high level. Thus, the study concluded that the grit level of these students was at a high level. Grit also found to have an influence on student academic achievement. In addition, the findings show that the level of grit of male students was higher than that of female students.

Grit is an element that has just come into focus and studies on it were pioneered by Duckworth et al. (2007). Thus, grit related literature is still limited in the academic world. In fact, studies on grit that focus on Malaysia as a study location still do not exist. This study is significant to the academic world in terms of the increase in literature on grit, especially in Malaysia. The data and information collected through this study can be used as support in further studies.

The study suggests that any student who wants to pursue adult learning on a part-time basis to set their goals first before choosing a field of study specialization. This is because being a part-time student is very challenging, where students need to be constantly focused in order to achieve their goals.

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