

## Grit, Student Academic Achievement and Factors Affecting It *Gereget (Grit), Prestasi Akademis Mahasiswa dan Faktor yang Mempengaruhinya*

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### ABSTRACT

Grit has been shown to be a more influential predictor of success than mere cognitive ability. Research on Grit is still minimal in Indonesia and is often descriptive in nature and does not specifically target student academic achievement. This study aims to fill this gap to reveal the interaction between Grit and student academic achievement. In addition, several aspects of student life were also observed to see their influence on Grit, including length of study, the number of students' work obligation hours, and the amount of social media/TV consumption. The research was conducted using the Grit Scale. Purposive sampling was used to collect data from 763 students from the Faculty of Teacher College, Universitas Pelita Harapan, with an age range of 18-22 years from 3 years of class and 4 study programs. Correlation and regression results show that Grit is associated with student academic achievement ( $r=.14$ ,  $p<.01$ ), and can predict student academic achievement significantly ( $\beta=.14$ ,  $p<.001$ ). In addition, there was also an increase in Grit scores from the second, to the third, and the fourth-year students. The amount of students' work obligation was found to be a positive predictor of Grit, while the amount of social media/TV consumption was a negative predictor. The implications of this research and the factors that influence students' Grit will be discussed further.

### ABSTRAK

*Gereget (inggris: Grit) telah ditunjukkan sebagai prediktor keberhasilan yang lebih berpengaruh daripada kemampuan kognitif semata. Namun demikian, penelitian tentang Gereget masih minim di Indonesia dan sering bersifat deskriptif dan tidak menyorot secara khusus ke prestasi akademis mahasiswa. Penelitian ini bertujuan mengisi celah ini untuk mengungkap interaksi antara Gereget dan prestasi akademis mahasiswa. Sebagai tambahan, beberapa aspek kehidupan mahasiswa juga diamati pengaruhnya terhadap Gereget, termasuk lama studi, jumlah pemenuhan jam wajib kerja mahasiswa, dan jumlah konsumsi media sosial/TV. Penelitian kuantitatif dilakukan dengan menggunakan Skala Gereget (Grit-Scale). Purposive sampling digunakan untuk mengambil data dari 763 mahasiswa Fakultas Pendidikan Guru, Universitas Pelita Harapan, dengan rentang umur 18-22 tahun yang berasal dari 3 tahun angkatan dan 4 program studi. Hasil korelasi dan regresi menunjukkan bahwa Gereget berhubungan dengan prestasi akademis mahasiswa ( $r=.14$ ,  $p<.01$ ), dan dapat memprediksi prestasi akademis mahasiswa secara signifikan ( $\beta=.14$ ,  $p<.001$ ). Selain itu, juga ditemukan peningkatan nilai Gereget dari mahasiswa tahun kedua, ke tahun ketiga dan keempat. Jumlah jam wajib kerja mahasiswa ditemukan sebagai prediktor positif terhadap Gereget, sedangkan jumlah konsumsi media sosial/TV adalah prediktor negatif. Implikasi penelitian ini dan faktor-faktor yang mempengaruhi Geregetnya mahasiswa akan didiskusikan lebih jauh.*



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Achieving success in life does not depend on mere cognitive abilities or innate talent. However, formal education systems often place a greater emphasis on cognitive skills over the cultivation of other dimensions of character. Angela Duckworth challenged this prevailing tendency by introducing the concept of Grit, which was shown to be related to academic achievement and successful completion of military academy education, more than cognitive ability (Duckworth et al., 2007).

Duckworth's usage of the term "Grit" in English is metaphorical, referring to sand or fine gravel. However, when translated into Indonesian, this word takes on connotations such as "bluff," brave attitude, fighting spirit, or hardness of heart. In this article, we propose the Indonesian translation of "Gereget" as an alternative, as it encompasses a similar range of meanings. "Gereget," derived from Javanese, carries the implications of desire, passion, and the readiness to act, aligning with Duckworth's theory while being firmly rooted in the Indonesian language and culture, thereby facilitating effective communication. Moving forward in this article, we will employ the term "Gereget" as the Indonesian translation of "Grit."

In the theory proposed by Duckworth et al., (2007), Grit consists of two dimensions: (1) Perseverance of Effort / PE and (2) Passion (Consistency of Interest / CI) for long-term goals. According to Duckworth, Grit is a long-term fighting spirit that perseveres in the face of failure, adversity, and stagnation. Even when others have given up, individuals with high Grit display unwavering dedication and sustained enthusiasm, consistently putting in effort to pursue their goals.

Grit exhibits a multiplier effect on success and achievement. Initially, individuals possess a certain level of talent or skill. However, this skill is not fixed and can grow in proportion to the presence of Grit, which combines effort and passion.

Consequently, the impact of effort can be visualized as quadratic when compared to talent or skill, which follows a linear trajectory:  $achievement = talent * effort^2$  (Duckworth et al., 2015).

Beside the study by Duckworth et al., (2007), which showed a relationship between Grit and academic achievement, Grit was also found to have a high correlation with conscientiousness of the Big Five personality trait ( $r=0.77$ ) (Duckworth & Quinn, 2009). In addition, the Perseverance of Effort (PE) dimension was found to be a stronger predictor of Grade Point Average (GPA) scores, while Consistency of Interest (CI) was a better predictor of career change for adults.

Credé et al., (2017) conducted a meta-analysis of various studies on Grit and voiced the criticism that Grit was only found to have a moderate correlation with achievement and confirmed that Grit had a very strong correlation with conscientiousness. In addition, PE was found to show better validity criteria than CI. Credé doubts that interventions to improve Grit will significantly improve academic performance.

On the negative side, there are studies that do not find Grit to predict academic achievement (Almeida et al., 2021; Bazalais et al., 2018). Moreover, there is a possibility that the Grit construct may also be influenced by cultural differences (Datu et al., 2017). On the positive side, there is still research that finds Grit clearly predicts students' GPA (Fong & Kim, 2021).

The relationship between Grit and growth mindset has also been shown in the context of research in Asia, in China (Zhang et al., 2022). So further research is needed for other Asian contexts, especially Indonesia.

Much of Grit's research in Indonesia is still descriptive in nature (Wahidah & Rohmah, 2021), does not target relationships with clear academic variables such as the Grade Point Average (GPA), and/or does not show a clear relationship with academic achievement. Therefore, research is needed

to answer the question: Whether Grit can predict student academic achievement in Indonesia, and what factors are significant?

Duckworth et al. (2007) discovered that Grit tends to increase as individuals grow older. However, beyond the age of 25, Grit scores exhibit relatively little variation. The development of Grit is often theoretically associated with a Growth Mindset (Zhang et al., 2022). Additionally, activities emphasizing goal commitment have been identified to enhance Grit (Tang et al., 2019), while avoiding excessive media usage has also shown potential in increasing Grit (Hwang & Nam, 2021). Therefore, it is interesting to observe student activities that can potentially increase Grit in this research.

This research fills the gap in the understanding about the interaction between Grit and student academic achievement in Indonesia, as well as aspects of student life that can influence Grit. A deeper understanding of Grit and its influence can lead to suggestions for a more holistic practices in higher education.

### Method

In this study, purposive sampling was used to obtain Grit data from students. Data were taken from 763 students of the 2nd, 3rd, and 4th cohort of Teachers College (TC), Universitas Pelita Harapan from 4 study programs: Mathematics Education, Biology Education, Economics Education,

and Elementary School Teacher Education. Most (97.8%) of the respondents ranged in the age from 18 to 22 years.

Grit was measured using the Grit-Scale which contains 12 questions, with each PE (Perseverance of Effort) and CI (Consistency of Interest) dimension measured with 6 items. Table 1 presents the Indonesian translation of the Grit-Scale (Skala Gereget) used in the study. The items have undergone the standard translation and back-translation checking process.

In addition to the use of the Grit-Scale (GS), demographic data were also collected consisting of: the number of completed semesters, the number of completed SoW (Student of Work) hours, and the number of hours watching TV/Online/Medsos per day. TC students are scholarship recipients who carry out administrative work obligations on campus for a certain number of hours. It is hoped that this information can provide an overview of the various factors that can influence Grit.

Correlation and multiple-regression analysis will be carried out to see the relationship between Grit and academic achievement as reflected in the grade point average (GPA) of students. Observations will also be made on different batches of students to see if there is an increase in the Grit score with the increasing number of years of study on campus.

Table 1. *Skala Gereget / Grit Scale* (Duckworth et al., 2007)

No	Questionnaire Item	Factor
1.	Saya sudah mengatasi rintangan/hambatan untuk menaklukkan tantangan yang penting. <i>(I have overcome setbacks to conquer an important challenge)</i>	PE
2.	Ide-ide dan proyek-proyek baru kadang-kadang mengalihkan saya dari ide dan proyek sebelumnya. <i>(New ideas and projects sometimes distract me from previous ones)</i>	CI
3.	Minat-minat saya berubah dari tahun ke tahun. <i>(My interests change from year to year)</i>	CI
4.	Rintangan/hambatan tidak membuat saya patah semangat <i>(Setbacks don't discourage me)</i>	PE
5.	Saya terobsesi dengan ide atau proyek tertentu untuk waktu yang singkat tetapi kemudian saya kehilangan minat. <i>(I have been obsessed with a certain idea or project for a short time but later lost interest)</i>	CI
6.	Saya seorang pekerja keras.	PE

	<i>(I am a hard worker)</i>	
7.	Saya sering menetapkan tujuan tetapi kemudian memilih untuk mengejar sesuatu yang berbeda.	CI
	<i>(I often set a goal but later choose to pursue a different one)</i>	
8.	Saya memiliki kesulitan untuk mempertahankan fokus pada pekerjaan/proyek yang membutuhkan waktu lebih dari beberapa bulan penyelesaian.	CI
	<i>(I have difficulty maintaining my focus on projects that take more than a few months to complete)</i>	
9.	Saya menyelesaikan hal apapun yang sudah saya mulai.	PE
	<i>(I finish whatever I begin)</i>	
10.	Saya sudah berhasil mencapai tujuan yang menghabiskan waktu kerja bertahun-tahun.	PE
	<i>(I have achieved a goal that took years of work)</i>	
11.	Saya tertarik pada pencarian-pencarian/hal-hal baru setiap beberapa bulan.	CI
	<i>(I become interested in new pursuits every few months)</i>	
12.	Saya seorang yang rajin.	PE
	<i>(I am diligent)</i>	

## Results

Table 2 shows the data from the Grit measurement (GS) and student academic achievement as reflected in the student Grade Point Average (GPA) data. Cronbach alpha for PE (Perseverance of Effort), CI (Consistency of Interest) and Total GS are  $>.6$ , with PE reliability appearing to be higher than CI. If we break down the Grit data into cohorts, an increase can be seen: the Grit for the second-year students  $M=3.45$  ( $N=317$ ), third year students  $M=3.51$  ( $N=250$ ), and fourth year students  $M=3.62$  ( $N=196$ ).

Table 2. Grit measurement (GS) and Student Academic Achievement (GPA)

Variable (N = 763)	M (SD)	Cronbach $\alpha$
Total GS	3.51 (.49)	.68
PE	3.95 (.59)	.71
CI	3.08 (.69)	.65
GPA	3.14 (.23)	---

Table 3 shows the correlation between PE, CI, total GS, GPA and other factors. Students' GPA is significantly correlated with PE ( $r=.08$ ), CI ( $r=.14$ ), and total GS ( $r=.14$ ). The number of SoW (Student of Work) hours is highly correlated with the number of semesters completed by students, because the higher the semester, the more SoW hours that have been completed due to the longer stay on

campus. The time consumption for TV/online/social media showed a significant negative correlation with PE and Total GS ( $r=-.12$ ).

Table 3. Correlation of Grit (GS), GPA, Number of Semesters, SoW, and TV/Online/Social-Media Consumption

Correlation	1	2	3	4	5	6	7
1. PE	1	--	--	--	--	--	--
2. CI	.18**	1	--	--	--	--	--
3. Total GS	.72**	.81**	1	--	--	--	--
4. GPA	.08*	.14**	.14**	1	--	--	--
5. Semester	.08*	.13**	.14**	.18**	1	--	--
6. SoW	.14**	.14**	.18**	.37**	.74**	1	--
7. TV/SocMed	-.12**	-0.6	-.12**	.11**	.1**	.03	1

\*Correlation is significant with  $p<.05$

\*\*Correlation is significant with  $p<.01$

Table 4. Regression of PE/CI and total GS to Students' GPA

Regression	Students' GPA ( $R^2=2\%$ )	
	$\beta$	$p$
PE	.06	$>.05$
CI	.13	$<.01$
Total GS	.14	$<.001$

Table 4 shows the multiple regression results of PE and CI dimension to student academic achievement (GPA), and separately the total Grit-Scale (GS) toward academic achievement (GPA). The results

showed that only CI significantly predicts students' GPA. Meanwhile, the total GS also predicts students' GPA significantly ( $\beta=.14, p<.001$ ).

Table 5 shows the hierarchical regression of the number of semesters, the number of completed SoW hours, and the number of TV/Online/Social-media hours per day towards Grit (GS). The SoW factor predicted GS positively even after controlling for the number of semester, while TV/Soc-Med predicted Grit negatively, with a total  $R^2 = 5\%$ .

Table 5. Hierarchical Regression toward Grit

Hierarchical Regression	Total GS		$R^2$
	$\beta$	$p$	
Semester	.14	<.001	2%
Semester	.00	>.05	3%
SoW	.18	<.001	
Semester	.02	>.05	5%
SoW	.17	<.01	
TV/Soc-Med	-.12	<.01	

### Discussion

The means of Grit ( $M=3.51$ ) obtained in this study appears to be within the normal range for young adults as found by (Duckworth et al., 2007), which is between 3.41 – 3.65 for adults aged 25 years or more. For military academy students, Grit was found at the higher level of 3.75 – 3.78 (Duckworth et al., 2007).

The Grit data per cohort also showed an increase in Grit through the education at Teachers College: from  $M=3.45$  in the second year, to  $M=3.51$  in the third year, and  $M=3.62$  in the fourth year. The data seem to show there was a steady increase in students' Grit. This increase could have occurred due to the age factor, or other factors related to the educational process. Even so, this needs to be investigated further with a longitudinal research design that examines the same group of students, not different groups as in the current study.

The Grit scores showed a significant

positive correlation with student GPA ( $r=.14$ ). This result is similar to the critique of Credé et al. (2017) that Grit is only weakly associated with academic achievement. However, the results of this study clearly found that Grit had a direct positive association with student GPA as a reflection of academic achievement.

Research by Duckworth et al., (2007, Study 3) found a higher correlation rate between student GPA and Grit ( $r=.25$ ) than this study. However, Duckworth also noted that Grit scores were negatively correlated with SAT test scores ( $r=-.20$ ). This is interesting, because it shows that there are intelligent elite students who have lower Grit. This is not uncommon according to Duckworth, and is often found in her research, namely that intellectual intelligence is often inversely related to Grit, because intelligent students tend not to try to develop gritty attitude. Thus, efforts to measure the effect of Grit on GPA may need to be supplemented by the results of other standardized tests to control for the effect of cognitive skill.

Duckworth's study may show a greater correlation because it targets more extreme cases. Ivy League students in America face rigorous educational programs that require them to study very hard, often resulted in sleep deprivation. Military academy education also specifically demands stamina and perseverance as well as high intellectual abilities. Even so, the range of Grit's contribution to achievement found by Duckworth was between 1.4% - 6.3%. In terms of educational attainment for adults aged 25 years and over, Grit's contribution is 4.8% (Duckworth et al., 2007). In subsequent studies, Grit's contribution to academic achievement increased from 3% to 4% after controlling for the Big Five variables (Duckworth & Quinn, 2009).

It seems that the Grit's  $R^2 = 2\%$  (Table 4) contribution to student GPA found in this study falls within the range that corresponds to Duckworth's research. Another study at the UPH Faculty of Nursing did not even find a significant

correlation between Grit and students GPA (Sommers et al., 2022). It seems that it could be difficult to see a clear relationship between Grit and student GPA because GPA scores are also influenced by cognitive intelligence in general (Zisman & Ganzach, 2021), which can have a negative correlation with Grit. This is because students who feel they have more cognitive abilities, do not develop the Grit attitude.

The regression results in Table 4 show that the CI factor significantly predicted GPA. This is different from the results of other studies which show that PE is usually more dominant in predicting academic achievement (Duckworth & Quinn, 2009; Credé et al., 2017; Muenks et al., 2018). It is possible that the unique educational strategy at TC-UPH which emphasizes the spiritual element causes the CI aspect to have a more visible effect than PE, because it creates a strong internal meaning for the life in campus.

Neroni et al. (2022) also found that only CI was significantly correlated ( $r=.07$ ) and predicted ( $\beta=.16$ ) academic achievement, but PE was not. So it is not entirely true that only PE has a significant effect on achievement (Ponnock et al., 2020), and CI becomes unimportant in a collectivist culture which requires individuals to go with the flow of the environment (Datu et al., 2016). In contrast, Grit seems to need PE and CI simultaneously as predictors of achievement/success, because if someone only works hard for something that is not considered interesting, then they will only become slaves to boring work (Jachimowicz et al., 2018). Grit also seems to result in better well-being with both PE and CI factors (Hou et al., 2022).

In this study, the number of hours of Student of Work (SoW) was found to be a significantly positive predictor of Grit / GS (Table 5,  $R^2 = 1\%$  after controlling for the number of semesters). On the other hand, TV/Online/Social-Media consumption was a negative predictor. SoW as a positive predictor for Grit seems to be in accordance with previous research that the goal-

oriented nature of work can increase Grit (Tang et al., 2019). TV/Online/Social-Media viewing as a negative predictor of Grit is also in accordance with the notion that increasing Grit can be done by avoiding media overuse (Hwang & Nam, 2021).

However, the total effect of SoW found on Grit is not large ( $R^2=1\%$ ). It is necessary to conduct further research on the factors that can increase students' Grit. At the very least, there are aspects of culture, leadership and job design that can influence Grit's development in an organization (Southwick et al., 2019).

## Conclusion

From the results of the correlation analysis, it was found that Grit had a significant positive correlation with academic achievement as reflected in the student's Grade Point Average (GPA) ( $r=.14$ ). Only the Consistency of Interest (CI) factor positively predicted student GPA in this study, while PE (Perseverance of Effort) did not. In addition, there was a consistent increase in the average Grit score for second year students ( $M=3.45$ ), third year ( $M=3.51$ ) and fourth year ( $M=3.62$ ) students.

One of the implications derived from this study suggests the significance of offering educational services that foster a sustained sense of interest by providing purpose to the pursued studies (CI). Instead of solely promoting diligent studying (PE) to enhance academic accomplishments, it is essential to emphasize the development of a long-term focus and commitment. Additionally, the engagement in on-campus work activities by students (SoW) was identified as a positive predictor for Grit, as these activities often encourage goal-oriented dedication.

## Limitation

The limitation of this study is that it is cross-sectional. Future research can take

a longitudinal approach to ensure an increase in Grit scores in the same group of students with the time of study. In addition, better research analysis can be done by controlling for conscientiousness (Big Five) and IQ test scores or other admission test scores. The influence of religiosity or spirituality on Grit is also an opportunity for further research.

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