

Grit, Self-Regulated Learning, Self-Determination Theory and Academic Performance of Generation-Z

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Keywords: Generation Z, GRIT, Self-Regulated Learning, Self-Determination Theory, Student's Motivation.

Abstract: The purpose of this research is to know the influence of GRIT, Self-Regulated Learning (SRL), and Self-Determination Theory (SDT) of motivation on academic performance of generation Z college students. The research was carried out on 425 college students of Business School at ABC private university in Indonesia. Respondents were collected by using a convenience sampling technique. The CB-SEM approach was used in data analysis of this research with PLS-SEM program to evaluate. The result has shown that both the GRIT and SRL process positively influence academic performance, while SDT motivational process does not influence the academic performance. More, SRL process positively influences GRIT and SDT motivational process positively influences SRL process. This study aims to provide input for educators and education managers to understand generation Z behaviour through GRIT and SDT motivation to achieve academic performance.

1 INTRODUCTION

Based on Statistic Indonesia (BPS), in 2020 there will be 105 million or 40% millennial generation of the total population in Indonesia (Alvara Research Center, 2018). Generation Z (Gen-Z) is the second wave of the millennial generation that born between 1995 and 2010 with age from 7 to 22-year-old. Gen-Z is the first generation that is legally and convincingly be referred to as a digital native, a generation that was born has become a global citizen (Twenge et al., 2010).

It is easy for Gen-Z to absorb the theory and concept of learning when associated with technology (Holubova, 2015). On the other side, they tend to be lazy to read printed materials such as books, magazine, and newspapers. Only 9% of Indonesian teenagers enjoy reading printed materials, and 97% of them prefer watching TV (Trimansyah, 2016). Cabler et al. (2013) stated that most of Gen-Z have a life expectancy lower than their parents. They mostly failed and underachieved because of lack of skills, confidence, motivation, perseverance, and relationship with teachers and peers (Darnell, 2014).

Persistence, reliance, and motivation are important factors to make an individual focus on his interest to achieve his own long-term goals, which measure through GRIT, Self-Regulated Learning

(SRL) and Self-Determination Theory (SDT) of motivation. Based on exploration study conducted on March until June 2017 with qualitative case study methods through in-depth focus group discussion to 17 informant college students at Business School-ABC University with the range of Grade Point Averages (GPA) 2.2 until 3.9 shown how GRIT, SRL, and SDT influence college students in achieving good academic performance. Exploration study differed two groups of informants. The first group consisted of active students both in class and students club with a GPA between 2.8 and 3.9. And the second group consisted of less active students both in class nor in students club with a GPA between 2.2 and 2.8.

Findings of this exploration study were: (1) The first group of students was ambitious to graduate on time with the highest mark and also got a lot of experience in a student club. They focused on achieving goals, thus they eager to work hard, able to manage time and highly motivated. (2) The second group was highly influence by their friends and environments. They found difficulties in managing time. Worse, they did not mind postponing graduation. (3) Both groups of informants have the same standard of best graduate with a GPA above 3.5 and within 10 semesters. And both groups were supported by their parents during their study.

Based on the exploration study, this study was conducted in order to determine how GRIT, SRL, and SDT affected the academic performance of Gen-Z. The contribution of this study is to provide input for educators and education managers to understand how to manage Gen-Z college students and provide a conducive learning environment. The research questions of this study:

1. Does GRIT positively effect on academic performance?
2. Does Self-regulated learning (SRL) process positively effect on academic performance?
3. Does the motivational process self-determination (SDT) positively effect on academic performance?
4. Does the self-regulated learning process (SRL) positively effect on GRIT?
5. Does Motivational process self-determination (SDT) positively effect on the self-regulated learning process (SRL)?

2 LITERATURE REVIEW

2.1 GRIT

According to Duckworth (2016) and Duckworth et al. (2017), GRIT is psychological traits that used to explain individual perseverance and passion to achieve long-term goals. GRIT comes as the fact that there are many people easily discouraged when facing obstacles. They decided to quit rather than to strive achieving their goals. Duckworth et al. (2007) measured the constructs of GRIT with 27 items of questions, which included to overcome setback to conquer the challenge, to finish the task, to maintain focus on finishing the task. Those questions were rated based on a 5-point Likert scale. For Gen-Z that wants everything to be instant, they might easily to quit when they have to wait for a process or when they have to strive to achieve the goals. For a decade, some researchers have been studied about GRIT.

As a college student, GRIT impacts the learning process. When facing demanding and burdens lectures, they do not give up but can through it well (Reed, Pritschet and Cutton, 2012). GRIT will impact the perseverance in the learning process. When facing demanding and burdens lectures, they do not give it up but through it well (Reed et al. 2012). Duckworth (2016) and Duckworth et al. (2007) showed that gritty students outperformed less gritty students. Chang (2014) studied GRIT for students and found that GRIT with moderating effects of personality traits and motivational factors affected academic

behaviors. The researcher mentioned that there is a relationship between students' GRIT scores and their academic achievements affected by gender, race and first language (Reraki et al. 2015).

2.2 Self-Regulated Learning (SRL)

SRL refers to processes and active actions to get relevant information and skills that necessary for an individual to achieve the goals. For students, SRL has positively affected academic performance (Schunk and Zimmerman, 2008). Related to GRIT, previous studies conclude that there is a positive relationship between students' GRIT and SRL. A student that has better SRL (ability to do goal setting, self-instruction, and self-reinforcement regularly) can have better GRIT. Then the student will plan, monitor and regulate his own learning (Liao et al. 2012).

2.3 Self-Determination Theory (SDT) of Motivation

Individual motivation comes from internal (intrinsic) and external (extrinsic). For a college student, intrinsic motivation comes from the student himself such as health (health condition), intelligence and aptitude (intelligence and talent), interest (interest), internal motivation (motivation), and how to learn (learning style). While extrinsic motivation derives from the school environment, society and the family (Chue and Nie, 2016). SDT measures the commitment and motivation of the individual to achieve the goals are dominantly intrinsic or extrinsic. Deci and Ryan (1985, 2008) concluded that there is a positive relation between intrinsic motivation, learning, and achievement. However, intrinsically motivated students will persist although they have a difficult task or condition. SDT shows the variation in students' learning strategies and academic performance. Zhou (2015) also stated that SDT and personality factors were related to academic performance in a positive way.

2.4 GRIT and Academic Performance

GRIT related to better performance and greater success in both academia and in the real-world setting. Research of Duckworth et al. (2017) at the University of Pennsylvania used SAT scores proved that GRIT explained variance in GPA beyond that of intelligence. Gritty students outperformed less gritty students. Then Grit scores positively affected GPAs and even stronger when controlling SAT scores. Jaeger et al. (2010) studied at Northeastern University

for engineering students. The results showed that chemical and mechanical engineering students had the highest GRIT scores that have good academic performance than computer engineering students that possessed the lowest GRIT scores. Strayhorn (2014) tested the effect of grit on the academic performance of black male students at predominately white institutions, and that research concluded that college students were moderately and significantly related to grit scores in a positive direction, because grittier black males have higher grades than their less gritty colleagues. Thus, GRIT can positively relate to academic performance (Duckworth et al., 2007; Jaeger et al., 2010; Ivcevic & Brackett, 2014; Strayhorn, 2014; De Vera et al., 2015).

H1: GRIT positively effects on academic performance

2.5 SRL Process and Academic Performance

Strategies in SLR involves the organizing (agency) process, goal (purpose) and instrumental perception of an individual. Agency is the ability of individuals to initiate and direct an action to achieve the expected goals. The purpose is the goal that is expected to be achieved from the execution of every action that can help achieve the goal. For students, SRL has positively affected academic performance (Cazan, 2012; Effeneya et al. 2013; Silva et al. 2017).

H2: SRL process positively effects on academic performance

2.6 Motivational Process SDT and Academic Performance

Deci and Ryan (1985) and Deci and Ryan (2008) studies concluded that there is a positive relation between intrinsic motivation, learning, and achievement. However, intrinsically motivated students will persist although they have a difficult task or condition. SDT explains the variation of learning strategies and academic performance of students. Zhou (2015) in his study found that SDT and factors of individual personality were related to academic performance positively.

H3: SDT of Motivational positively effects on academic performance

2.7 SRL Process and GRIT

Studies showed that there is a relationship between GRIT and SRL in a positive way. A student that has better SRL (able to set goals, to do self-instruction

and self-reinforcement regularly) can have a better GRIT. Then this student will plan, monitor and regulate his own learning (Cazan,2012; Liao et al.,2012; Effeneya et al. 2013).

H4: SRL process positively effects on GRIT.

2.8 Motivational Process SDT and SRL Process

Previous studies conclude that there is positively interrelation between SRL and SDT. Because student employs strategies which can undermine the achievement of their academic goals. It means students SDT has a positive causal relationship with SRL (Rattan et al. 2012; Abram, 2015; Bergin and Bergin, 2015).

H5: SDT of Motivational positively effects on SRL process.

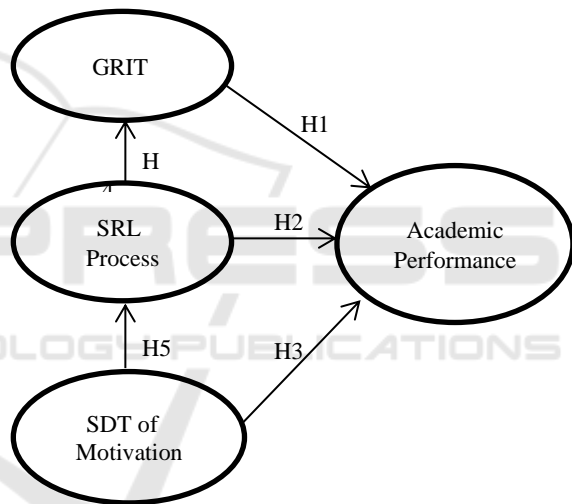


Fig. 1: Research Model.

3 METHODOLOGY

The object of this research is an academic performance with independent variables of GRIT, SRL process, SDT of Motivation. The subject of research is Gen-Z students at Business School, ABC University. This research is quantitative research (deductive) that will test the hypotheses, models, and theories (Sekaran and Bougie, 2016). The sample type is non-probability based on convenience in the study.

To get used to the data, pretest (preliminary) and actual test were conducted. Pretest applied to 70 respondents to ensure the questionnaire is understandable, valid and reliable. For the actual test,

the sample is 425 students. This number comes from the population of 1715, who are the active students at Business School, ABC University. As the population is known, the sampling technique used in the actual test is Slovin Formula (based on Slovin formula, it needs a sample of 324 students).

The questionnaires are measured with 5-point Likert scale, ranging from points 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and points 5 = strongly agree. Then the questionnaire is analyzed used Partial Least Square program, which is one of the Structural Equation Modeling (SEM)-based statistical methods variants designed to resolve multiple regressions as they occur specific problems in the data and multicollinearity, does not require normally data. In evaluating the model Smart PLS version, 3.2.4 is done by testing the outer model and the structural or inner model. Outer model testing aims to assess the validity and reliability of the model (Sekaran and Bougie, 2016).

To measure the convergence validity, this research uses the measurement of Average Variance Extracted (AVE) score and loading factor. Ghozali and Latan (2015) explain that to be valid, the AVE score should be greater than 0.5; and the loading factor should be more than 0.7. While the discriminant validity is measured by the value of cross loading for each variable. To be considered valid, the score must exceed the value of 0.70. Reliability was measured by applying the Cronbach's alpha test with the point of minimum 0.7 for coefficient alpha.

The structural model evaluation predicts the relationship between latent variables (Ghozali and Latan, 2015). In Smart PLS software, the structural model is evaluated by using the R-square score for the dependent variable. Then, the path coefficient or t-values of each path for inter-variable significance also tests in the structural model. Ghozali and Latan (2015) stated that the score shown by T-value, should be above 1.65 with a significant level of 0.10; value must exceed 1.96 at a significant level of 0.05 and should exceed 2.58 on a significant level of 0.01. This study uses a significant level of 0.05, so the t-value must be greater than 1.96.

4 FINDINGS AND DISCUSSIONS

4.1 Descriptive Analysis of Respondents Actual Study

Majority of respondents are female; 20-21 years old; with GPA 2.5-2.9; not a member of student 's

organization; have no experience as lecturer assistance; have a target to finish the study within 3.5 years. More, the respondents are active students without other activities, not work at other institution and have no personal business. Thus they should be only focusing on their study. Majority of respondents (52,94%) has a GPA above 3.0.

4.2 Validity and Reliability of Preliminary Study

All variables are valid, because AVE of GRIT (0.51); AVE of SRL Process (0.52); AVE of SDT of Motivation (0.57), and AVE of Academic Performance (0.53) are all above 0.5. The measurement of convergent validity in the preliminary study was tested using the loading factor. The indicator G5 (I want to get the best GPA in my batch) with the value of 0.571 was removed from actual study analysis because it is not valid (< 0.6). All indicators are reliable if the value of composite reliability is more than 0.7. The composite reliability value shows all variables meeting the criteria in which all values are greater than 0.7. CR for GRIT (0.80); CR for SRL Process (0.81); CR for Motivational process SDT (0.84) then CR for Academic Performance (0.82). All indicators are reliable since all of them have a value above 0.8.

4.3 Outer Model of Actual Test

Table 1 shows that AVE root-square value is higher than the correlation value, thus satisfying the discriminant validity. Then, in performing the actual research reliability test, will be seen from the value of composite reliability. This is because the resulting value of Composite Reliability (CR) is higher than Cronbach's alpha. CR for GRIT (0.744); CR for SRL Process (0.77); CR for SDT of Motivation (0.70) then CR for Academic Performance (0.74). Indicators categorized as high reliability if it has value above 0.8. In this study, all variables have moderate reliability because each indicator has a value above 0.6.

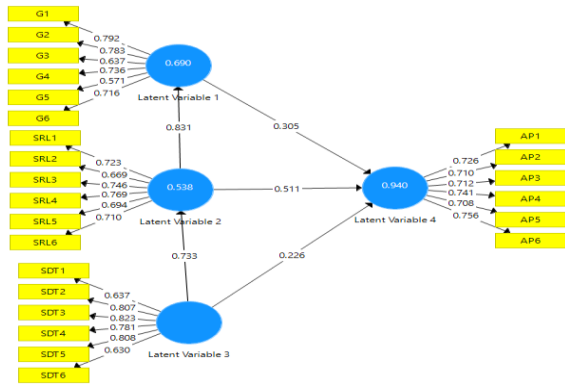


Fig. 2: Model and structural modeling relationships.

Table 1: Fornell Lacker of Actual Study.

	GRIT	SRL Process	SDT of Motivation	Academic Performance
GRIT	0.778			
SRL Process	0.040	0.774		
SDT of Motivation	0.396	0.024	0.786	
Academic Performance	0.124	0.422	0.068	0.796

4.4 Structural Model (Inner Model) of Actual Study

The initial step in evaluating the structural model begins by testing multicollinearity by calculating the Variance Inflation Factor (VIF) value. A variable can be said to be multicollinearity if VIF value is greater than 10 or greater than 5 (Ghozali and Latan, 2015) Since VIF for GRIT (1.21); VIF for SRL Process (1.01); VIF for SDT of Motivation (1.22) and VIF for Academic Performance (1.00) are less than 5, each variable in this study does not multicollinearity.

The structural model is evaluated by using the SmartPLS program by considering the value of R-square, for each endogenous latent variable as the predictor force of the structural model (Ghozali and Latan, 2015). In this study, the determination coefficient or R-Square is 0.18 or 18 %, which means Academic Performance can be explained by the construct of GRIT, SRL Process, and SDT of Motivation, while the remaining 82% is explained by other constructs such as individual personalities, curriculum, learning atmospheres, parent or core family education, activity outside learning activities, teaching styles of lecturers, previous learning achievements.

After the R-Square calculation, the model is evaluated. In this phase, the influence between variables can be assessed through bootstrapping or jackknifing procedure. This research uses bootstrapping procedure because the jackknifing method is considered less efficient than the bootstrap method because it ignores confidence intervals. The indication of a hypothesis is supported or not can be seen from T-value. In this study, T-value is tested with a one-tailed test with a significance level of 5%. The hypothesis is significant if T-value is more than 1.96 or P value is not more than 0.05.

Table 2: Structural Model Results.

Hypotheses	Path	Standardized Coefficient	T-Statistic (t /STDEV)	P value	Decision
H1	GRIT → Academic Performance	0.016	0.317	0.375	Not Supported
H2	SRL Process → Academic Performance	0.409	8.912	0.000	Supported
H3	SDT of Motivation → Academic Performance	0.069	1.221	0.111	Not Supported
H4	SRL process → GRIT	0.159	3.007	0.001	Supported
H5	SDT of Motivation → SRL process	0.427	11.142	0.000	Supported

4.5 Discussions

Hypothesis 1, which stated that GRIT positively effects on academic performance is not supported. Meaning the result cannot supported previous studies done by Duckworth (2016), Duckworth et al. (2007), Jaeger et al. (2010), Ivcevic and Brackett (2014), Strayhorn (2014), and De Vera et al. (2015). Respondents did not give a hard effort to achieve good academic performance (GPA), because only some group of students who are constantly trying to improve their value up to can finally pass with a better

achievement index when facing difficulties and failures. Other groups of students responded it passively and even resigned to face these failures (Duckworth et al., 2007). There are students who are willing to retake the same course to increase their GPA because they think failure effect to permanently hinder academic success. In this study, GRIT of college students is very low. However, college students are still at a labile and immature so that influential in the resilience to face the challenges that exist, including in academic achievement.

Hypothesis 2, which stated that the SRL process positively effects on academic performance is supported. This study supports previous studies from Cazan (2012), Effeneya et al. (2013), and Silva (2014). In this case, respondents have done the learning process regularly and found the learning rhythm by themselves. This study shows that a high level of learning achievement depends on each individual's efforts, especially in regulated learning and this is relevant to Azhar et al. (2013).

Hypothesis 3, which stated that Motivational process SDT positively effects on academic performance is not supported. This result is contrary to the studies did by Deci and Ryan (1985) (2008), and Zhou (2015). Majority respondents stated that they had not planned their study. They cannot show persistency, although they have a difficult task or condition.

Hypothesis 4, which stated that the SRL process positively effects on GRIT supported. This study supports previous studies from Crippen & Hartley (2007), Cazan (2012), Liao et al. (2012), and Effeneya et al. (2013). Majorities of respondents stated that he never evaluated his self-learning process. In this case, respondents with no experience as lecturer assistance (88,94% of respondents) have not planned their learning process that affected to his perseverance, resilience in academic processes. In line with Duckworth (2007) that states that GRIT enables one to work hard in the face of challenges, maintaining business and interest throughout the year though failure, difficulties or without progress.

Hypothesis 5, which stated that SDT positively effects on SRL process is not supported. This study supports previous studies from Rattan et al. (2012), Abram (2015), Bergin and Bergin (2015). A high learning motivation influence and shape self-regulation to learning achievement of college students. Through self-regulation, college students will have control in his learning behavior. This SRL process is also influenced by their family in creating the values, discipline, and utilization of facilities, which is relevant to Hastuti (2009).

5 CONCLUSIONS AND FUTURE RESEARCH

5.1 Managerial Implication

Based on the result of this study, those are some recommendation for Business School, ABC University: (1) It is necessary to help the student to be persistent and passion when facing the learning challenge. The institution can teach a growth mindset and GRIT to the students will facilitate long-term goals and how students achieve them (Hochanadel and Finamore, 2015). Designing the curriculum with practice-based and theoretical lessons aimed at the competency according to the specialization might help students to have a passion to their study, (2) It is necessary to maintain positive learning process through formal and informal learning. Lecturers should provide regular tasks to stimulate personal learning. Lecturers should also manage good interpersonal relationships with students, to motivate in the management of self-discipline. (3) It is necessary to seek the student's determination by motivate them during learning process both in-class and out -class and then monitoring the result each semester especially for lower GPA students because external control can motivate individuals (Deci and Ryan, 1985). (4) Due to Woolfolk (2008), students should learn independently. Parents sometimes can involve in improving SRL process in order to increase academic performance through role-modeling, encouraging, facilitating, goal setting, rewarding, and other processes (Martinez-Pons, 2009). (5) University should support the process of self-determination motivation for students through extrinsic motivation as in the learning process by considering the reward and punishment.

5.2 Limitation of Study and Future Research Recommendation

The object of this study is only Business School, ABC University. Future research suggests enhancing external validity by using samples from other universities. Further research is also expected to use the LISREL-SEM program to be able to estimate structural models based on strong theoretical studies to examine the causality relationship between variables and measure model feasibility and confirm it in accordance with empirical data. Next research also needs to add some variables that are not covered in this research to find out other factors that can affect the academic performance of college students.

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APPENDIX

Research Survey Questionnaire

GRIT	
1	I complete all the tasks, both personal and group tasks.
2	I am able to overcome various challenges in completing the tasks.
3	I am persevering in learning even though there are many challenges.
4	My learning interests do not change from time to time.
5	I want to be the best among my classmates.
6	I am able to discipline myself in learning and completing the tasks.
7	I feel capable at completing the tasks.
8	I am able to face various difficulties in learning and completing the tasks.
9	Failure did not dampen me.
10	I interest in new tasks for every few months.

11	My presence is important for college friends / student associations.
12	I understand the purpose of each given task.
SDT of Motivation	
13	I am motivated in studying and completing the tasks.
14	I study diligently because I want to get appreciations from others e.g. appreciations from parents, friends, boyfriend/girlfriend.
15	I reduce playing time and hanging out with friends to study more.
16	I realize that if I study diligently my academic achievement will be good.
17	I have to study because I am a student.
18	I am a reliable student.
SRL Process	
19	I write down all of the targets to be achieved in each semester.
20	I make notes to remember the tasks and schedules.
21	If my learning target is not achieved, I try to find out the cause.
22	I do care about my GPA score.
23	I summarize the lecture material with my own sentence to make it easy to understand.
24	I try to find other references to add learning material.
25	I read lecture notes just before the exam.
26	I study more when my GPA score dropped.
27	I keep trying to understand the course even it is difficult and I don't like the subject.
28	I am motivated when I get a lot of assignments from lecturers because I can test my capability.
29	I feel unsure when working on difficult assignments or difficult exam questions.
30	I pay close attention when the lecturer explains the course.
31	At the beginning of the semester, I look for the learning materials and refrained books to be used.
32	During the exam, I do not try to work on difficult questions.
33	When I didn't go to class, I ask a friend about the material and assignments given by the lecturer
34	I ask the lecturer if there were any material that was not yet understood
35	When I have difficulty working on a task, I will cheat on a friend's tasks.