

Grit World Strategy to Evolve the Academic Grits of Senior High School Students

Rian Andrian, Ilfiandra

Universitas Pendidikan Indonesia
 rianandriandolen@gmail.com, Ilfiandra_upi@yahoo.com

Abstract

Problems emerged during the learning process are not frequently due to the cognitive disabilities of the students. Yet, it is more of a lack of grit. Low grit causes a person to not work hard, own no high standards, to not focusing on fulfilling their responsibilities, as well as to show no effort when facing failure, difficulties, and obstacles. The research method of this study is a quasi-experimental method. Acquisition of z count of -0.332 and known z table of 0.1255, then $-3.27 < 0.1255$ means that H_0 is rejected, which means that the grit world intervention is not effective in developing the academic grit of the experimental group and control group students. Identifying grits is one way to determine where students can put their efforts into learning to survive in facing academic challenges. Schools are not only focused on making student get high score, but how to teach to create solutions. Schools can teach grit and facilitate long-term goals and teach how to achieve them.

Keywords: academic grit, students, strategy

1. INTRODUCTION

The Vice Principal of Curriculum in a State High School in Bandung claimed that the academic Grits owned by students differ from one another, there are students who own high academic Grits and conversely there are students who own low academic Grits. The Coordinator of Counseling Teacher stated that the lack of enthusiasm on the learning process in Grade XI students can be seen through the low response of several students in teaching and learning activities at classrooms. When the teaching and learning process takes place, there are at least 7 students per class who are not participating in learning activities properly, for example students are not doing their tasks well, both assignments at school or homework. Students are not paying attention when the teacher explain the lesson, and being busy playing cellphones and chatting with their peers. Students feel bored with the lessons in class, they tend to visit the canteen when the lesson takes place. Students are not confident in their own abilities in answering exam questions and asking friends for help because they perceived that the exam is too difficult for them.

Individuals who have high grit indicate greater persistence in pursuing goals even though they are faced with difficulties, boredom and even failure, compared to other individuals who lacks grit. In the educational context, grit is described as having an important effect on outcomes such as student involvement, levels of achievement, retention and probability of graduation (Duckworth & Quinn, 2009)

Grit and growth mindset cannot be studied and trained separately or by sitting quietly and listening to other person

giving lectures. Grit and growth mindset are learned by actively engaging in real life such as problem solving, working collaboratively with colleagues on important projects, and striving to develop new ideas and skills (Framework for 21st Century Learning, 2011). Students must be allowed to experience and feel certain failure, in order to develop new ideas. Failure, of course, must be seen as an integral part of the learning process (not something to be avoided).

Based on interviews with the counselling teachers of Grade XI students and the study of the Guidance and Counseling Program documentation in particular academic services are still of a general nature. And to deal with problems related to academic grit, counselling teachers use modeling techniques to bring in alumni who have succeeded, but after evaluating the use of modeling techniques is less effective because it only has an impact in a short period of time. Therefore, research is needed on more effective strategies from modeling techniques to develop academic grit for high school students.

2. LITERATURE REVIEW

1.1. Definition of Grit

According to Duckworth (2007), grit is a tendency to maintain perseverance and enthusiasm to obtain long-term goals. Grit makes a person work hard in facing challenges, maintaining business and interests even when faced with failures and difficulties.

It can be concluded that Grit is a positive, non-cognitive trait based on an individual's passion towards long-term goals, enhanced with strong motivation to achieve the goals. Resilience in trying to overcome obstacles or challenges to achieve the desired results, and serves as a driving force in achieving.

2.1 Dimensions of Grit

Duckworth (2007) identified two dimensions in grit, namely consistency of interest and perseverance of effort.

2.1.1 Consistency of Interest

Consistency of high interest indicates the ability to maintain interest in one goal. Individuals who have high interest consistency do not change the goals set, are not easily distracted, and maintain interest in the long run.

2.1.2 Perseverance of Effort

Resilience in trying to show the existence of an individual's ability to complete the work or business that is being done. Individuals who have endurance in trying not to be afraid to face challenges and obstacles, but show diligence, hardworking, and trying to achieve long-term goals.

2.2 Factors Affecting Grit

Factors that influence grit (Duckworth, 2007).

2.2.1 Education

Based on the results of a study conducted by Duckworth et al (2007) individuals who were more educated had higher grits compared to individuals who were less educated of the same age. Individuals who have high grit tend to want a high level of education.

2.2.2 Age

Based on the results of a study conducted by Duckworth et al (2007) individuals with older ages have higher grits compared to younger individuals. This is because older individuals have the experience to face challenges in achieving goals.

2.2.3 Conscientiousness

Based on the results of the study Duckworth et al (2007) states that grit is positively related to conscientiousness ($r = .77$) conscientiousness is related to the choice to switch careers. Individuals who have conscientiousness, age, and higher education are 35% less likely to switch careers.

2.2.4 Career Change

Duckworth et al (2007) found that people with higher grits would switch careers less than people who had lower grits.

2.2.5 Achievement

Based on the results of Duckworth's research (2006), students who have high grits have better performance compared to students who have low grit. Grit scores have a correlation with GPA (academic achievement) ($r = .25$).

3. RESEARCH METHOD

3.1 Research Approach

The research used a quantitative type approach. Quantitative research is research that works with numbers, the data are in the form of numbers (score or value, rank or frequency). The quantitative approach is used to measure and analyze academic grit owned by students, then interpret the data obtained so that it can be used as a reference in making the grit world strategy design. Furthermore, the data obtained through a quantitative approach is used to test the effectiveness of the grit world strategy to develop students' academic grit.

3.2 Research Method

The research method used a quasi-experimental method. Quasi-experiments compare two different groups, namely the group given treatment (experimental) and the group not given treatment (control). The quasi-experiment is not done by random technique (random assignment) but grouping based on previously formed groups

The experimental group was given intervention through the grit world strategy, while the control group was not given intervention. Furthermore, it is compared to find out the effectiveness of the grit world strategy to develop students' academic grit.

3.3 Research Design

The quasi-experimental design used is nonequivalent pretest-posttest group design, which is the type of design used in experiments that use classes that already exist as a group, which are estimated to be the same condition or condition. Quasi-experimental research processes include: a) subjects not assigned randomly (without random assignment), but placed non-randomly (purposive sampling), b) carry out initial measurements (pre-test) in the experimental group and the control group before being given treatment (treatment), c) the experimental group is given the grit world strategy while the control group is not given the grit world strategy, d) carry out the final measurements (post-test) in the experimental group and the control group.

3.4 Participants and Research Sites

The study was conducted at SMA Negeri 20 Bandung which is located at Jalan Citarum number 23. SMA Negeri 20 Bandung has a total of 27 groups, consisting of 9 groups per class (7 MIPA classes, 2 IPS classes). Based on preliminary studies the participants in the study focused on class XI students of SMA Negeri 2019/2020 Academic Year.

3.5 Population and Research Samples

The research sample was not randomly assigned (without random assignment), but rather placed randomly (purposive sampling). The selected research sample consisted of two classes namely a class used as an experimental group and a class used as a control group. Classes used as the experimental group are Class XI MIPA 1, and Class XI MIPA 2 is used as the control class.

3.6 Validity Test

Validity test is carried out by the Rasch model method using the Winstep 3.73 application. The instrument validity can be determined by analyzing the Outfit Mean Square (MNSQ) value, the Z-Standard Outfit (ZSTD) value and the Point Measure Correlation (Pt Mean Corr) value. The respective MNSQ, ZSTD and PT Mean Corr values received are in Table 1.

Table 1. Validity Criteria in the Rasch Model

<i>Outfit Mean Square (MNSQ)</i>	$0,5 < MNSQ < 1,5$
<i>Outfit Z-standard (ZSTD)</i>	$-2,0 < ZSTD < +2,0$
<i>Point Measure Correlation (Pt Mean Corr)</i>	$0,4 < Pt Mean Corr < 0,85$

If an item meets two of the three criteria above, then the item can be said to be valid. Following are the results of the validity test items of the academic grit questionnaire using the Rasch model. The validity test results are attached.

3.7 Reliability Test

In calculating the reliability of items items are done using the Rasch model method with the help of the Winstep application version 3.73. In using the Rasch model, reliability can be determined by the following criteria.

Table 2. Cronbach's Alpha Value Criteria on the Rasch Model

Score	Classification
< 0,5	Highly poor degree of reliability
0,5 – 0,6	Poor degree of reliability
0,6 – 0,7	Adequate degree of reliability
0,7 – 0,8	Favourable degree of reliability
> 0,8	Highly favourable degree of reliability

To find out the value of respondents' reliability and item reliability, it can be seen in the following table criteria for the value of person reliability and item reliability.

Table 3. Value Criteria for Person Reliability and Item Reliability on the Rasch Model

Score	Classification
< 0,67	Low degree of reliability
0,67 – 0,80	Adequate degree of reliability
0,81 – 0,90	Favourable degree of reliability
0,90 – 0,94	Highly favourable degree of reliability
> 0,94	Extraordinary degree of reliability

The results of the calculations can provide information about the quality of the respondent, the quality of the instrument and the interaction between the respondent and the instrument items.

Table 4. Summary of Reliability Test Results

	Mean Measure	Separation	Reliability	Alpha Cronbach
Person	0.38	1.48	0.87	0.82
Item	0.00	12.58	0.99	

Person reliability value of 0.87 is at a good level of consistency, with a separation value of 1.48. While the value of s is 0.99, which indicates that the level of consistency of the items is in the special category, with a separation value of 12.58. The Cronbach alpha value of 0.82, which means that the interaction between respondents and items as a whole has a very good degree of reliability and meets reliable criteria.

3.8 Normality Test

Normality test is used to determine whether or not normal data in research. The sample in this study amounted to 20 people so using the Shapiro-Wilk technique with a significance of 5%. The calculation uses the SPSS 20.0 for Windows program. The Shapiro-Wilk technique is used to test data with a sample size of less than 50 people.

Obtained the significance value in the experimental group of 0.020 and the significance value of the control group by 0.005. The significance value of the experimental group and the control group is less than $\alpha = 0.05$ so that the pretest data of the experimental group and the control group are not normally distributed.

And the significance value in the experimental and control groups at the time of the posttest was 0.006 and the significance value of the control group was 0.034, indicating that the significance value of the pretest and posttest was less than $\alpha = 0.05$ so that the posttest data was not normally distributed.

4. RESEARCH RESULT

Based on the processing of the data obtained, the findings that will be presented are the results of the pretest and posttest of the experimental and control groups, research discussions, as well as the design of the grit world strategy to develop students' academic grits.

Student academic grits are presented in two categories: students who have low academic grits and students who have high academic grits. Pretest data obtained were from 72 students. A total of 52 students have high academic grit and as many as 20 students have low academic grit. A total of 20 students were made as research subjects which were divided into two groups, namely the experimental group of 10 people and the control group of 10 people.

Based on statistical test results it is known that the total score of the experimental group is smaller than the score of the control group, which shows that the grit world strategy is not effective in developing students' academic grit. Testing the effectiveness of grit world interventions is done by testing the average difference in students' academic grit scores in the experimental group and the control group between before and after the intervention is given using statistical calculations U mann withney test and Wilcoxon test.

The U mann withney test is used because the two data groups are not related to each other, the data distribution is not normal so it uses non-parametric statistics to calculate the effectiveness of the control group posttest and the experimental group with the acquisition of z count of -0.332 and known z table of 0.1255, then $-3.27 < 0.1255$ means that H_0 is rejected, which means that the grit world intervention is not effective in developing the academic grit of the experimental group and control group students. In addition, the Wilcoxon test was used to calculate the effectiveness of the pretest and posttest of the experimental group.

Wilcoxon test is used to test two data from the same group or interconnected with an abnormal distribution, so using non-parametric statistics with acquisition z count of -0.425 and known z table 0.7088, then $-0.425 < 0.7088$ means that H_0 is rejected which means that the grit world intervention is not effective in developing the academic grit of the pretest and posttest experimental group students.

Based on the description above, it can be concluded that the grit world intervention is not effective in developing students' academic grit.

5. CONCLUSION

Based on the results of statistical tests about the effectiveness of the grit world strategy intervention, the total pretest and posttest scores of the experimental group were smaller than those of the control group. Therefore, grit world interventions have not been effective in developing student academic grit. Even so, the grit world intervention gave birth to changes in the category of students as seen from the pretest and posttest categories of the experimental group which experienced more changes in the category of the mean scores obtained compared to the control group.

Based on the results and analysis of research on the development of academic competency behavior, the following recommendations are obtained:

1. For Subject Teachers

Research shows that subject teachers play a role in facilitating the development of students' academic grit by adjusting the approach to each student through the principles of guidance in learning.

2. For Guidance and Counseling Teachers

Academic guidance can be shared by counselling teachers in schools in order to develop students' academic grits optimally. Provision of intervention can be done by referring to the academic grit description obtained from the results of students' need assessments.

6. REFERENCES

- Duckworth, A. L., Peterson. C. Matthews. M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of Personality & Social Psychology*, 92(6), 1087.
- Duckworth, A. L. & Quinn, Patrick D. (2009) Development and validation of the short grit scale (Grit-S), *Journal of Personality Assessment*, 91(2), 166 – 174.
- Framework for 21st Century Learning. (2011). Accessed from: <http://www.p21.org/>