STUDENTS SELF-REGULATION: AN ANALYSIS OF EXPLORATORY FACTORS OF SELF-REGULATION SCALE

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ABSTRACT

Today academic achievement has become a benchmark of the success of students. Students self-regulation can be measured through self-regulatory instruments that the author has tested in SPSS by looking at the rotation and spread of its components. Self-regulation is important in achieving student's achievement in study. There are external and internal factors influences the process of students self-regulatory. The aim this study was to created the self-regulatory instruments for students. The reliability value produced by this instrument is quite high which is 0.860. The results of the exploratory analysis produced four constituent components of self-regulation composed in 31 items of scale.

Keywords: Self-regulation; Students; Exploratory analysis; Scale

PENDAHULUAN

Recently, academic achievement has become a benchmark of the student's success in study. While Lens, Lacante, Vansteenkiste, and Herrera (2005) suggests that students who have academic achievements also tend to have high motivation and strong competitiveness compared with other students (Handrianto, Salleh, & Chedi, 2020).

Besides, the student must be able to adjust with the demands of the task, able to control the behavior on the learning environment, and know the direction and objectives of learning. Students generally have a variety of strategies in learning that are able to achieve achievements as expected (Syuraini, 2017). Therefore, important for students to apply self-regulation in life, specially when the students faced with the demands of assignment and mastery of learning materials.

According to Bandura (1997) self-regulated learning is a social cognitive learning approach that determines the success of learners in learning. Futhermore Bandura (1997) said that an individual has three aspects of independent causal structure, namely the self, behavior, and environmental aspects, which will determine whether or not the individuals` self-regulated learning. Bandura said that the better the individual in self-regulates in learning will move straight with the better learning achievements it produces (Handrianto & Rahman, 2018).

Therefore, self-regulation according to Bandura (in Atiyah et al., 2020) is the ability to regulate himself, influence behavior by regulating the environment, creating cognitive support, and having consequences for his own behavior. There are 2 factors that affects the self-regulatory process, namely external factor and internal factor (Feist & Feist, 2009). External factors provide a standard for evaluating self-behavior. Standards do not merely derive from internal appeal.

Environmental factors, which interact with personal influences, also form individual standards for evaluation. While the internal factors are divided into three, namely (1) Self-observation: The first internal factor of self-regulation is self-observation of the performance that has been done, the originality of self-behavior. Individuals can monitor their appearance even if they are incomplete or accurate.

Individuals selectively select a number of aspects of behavior and ignore other aspects, which are maintained usually those that fit the concept of self. (2) Assessment process: The suitability of behavior with personal standards, compare behavior with personal standards, compare behavior with norms or compare with the behavior of others. Individuals are able not only to be reflectively self-conscious, but also to judge whether or not actions are worthwhile based on self-determined goals. (3) Self-reaction: Based on human experience respond positively or negatively to their behavior depending on how the behavior is measured and what its personal standards are. Individuals directs himself to incentives for his actions through self-strengthening or self-condemnation. Individuals set certain standards for performance that if met tend to regulate behavior by rewarding themselves in the form of self-pride and self-satisfaction and if they fail to meet the standards then behavior will be followed by dissatisfaction and self-criticism.

There are two processes that contribute to self-regulation (Feist &Feist, 2009). First, humans have a limited ability to manipulate external factors that provide input interactive paradigm. Second, humans are able to monitor their behavior and evaluate it in the context of a goal near or far. Therefore, behavior arises from the mutual influence between external and internal factors.

Previous research conducted by Howse et al (2007) obtained the results that self-regulation in learning has been used to improve learning achievement. This is in line with Zimmerman's opinion (1990) that how educators interact with students and how learning environments should be designed and organized in such a way will affect students' learning and learning achievements. Accordingly, environmental aspects carrying out self-regulation on students. However, the culture in Indonesia (Handrianto, 2017) indirectly assumes that value takes precedence over the learning process that will be taken by students (Syuraini, Wahid, Azizah, & Pamungkas, 2018).

However, external motivations that assert that value is also important by discrediting the positive process to produce self-regulation. Students who are required to excel will justify all means to pursue the condition. The self-regulatory process is likely to cause some negative things to achieve this (Syuraini, Sunarti, & Zukdi, 2019). An example is cheating. Although it looks as if self-regulation in learners is low, it is basically indirect understanding to them that high grades, however to obtain them, are more valuable than the learning process that makes an impression and gain understanding. Less intelligent learners are also judged to be not smart.

Whereas basically the process of problem solving of each student is different (Syuraini, 2020). In addition, students also do not have an optimal ability in create an environment that can be customized with the most effective learning process for him. Where students still need educators in the learning process. This means that students still rely on educators to acquire a science and knowledge. Where it is very important that educators can adjust the environment well and the same concentration between one student and another.

In addition, compliments and gifts that tend to be received little by students, both from educators and parents (Syuraini, Jamna, & Jalius, 2019). They argue that satisfactory achievements and results are the responsibility of the learners. It is assumed to be the demand for the role of learners in learning. The rights of learners, such as praise and gifts, tend to be ignored and not given to them. The discrepancy between educators and students is also an obstacle to the fulfillment of self-regulation in students. Some aspects of the environment that will affect the students` self-regulation.

However, the first problem that arises in the practice of measurement is how well the instruments (measuring instruments) made in this study are valid (accurate) and reliable (trustworthy). Therefore, it is necessary to test the validity and reliability of each scale so that the scale used in this study is accurate and trustworthy. Therefore, measurements` need to be taken against the reliability of

the measuring instrument. In this article, we will discuss the instruments of self-regulatory scale that will be reviewed based on the analysis of exploitative factors which mention by Bandura (1997).

The aim of this instrument is to measures how students can make their own self-regulation. The instruments contain 31 items that measure self-regulation divided into 4 aspects, namely self-assessment, self-assessment, self-reaction, and environment. Previous instrument scale has been reconstructed based on the theories and aspects put forward by Barry and Zimmerman (1990). While on the present instrument using a theory initiated by Bandura (1997) that reflects environmental aspects that also affect an individual's self-regulation. The present study used Bandura (1997) theory to create the self-regulation instruments, because in fact, the environment in also has a role in influencing the students` self-regulation but did not account by the previous theory i.e by Barry and Zimmerman (1990). So, the purpose of this study is to test the validity of students self-regulatory.
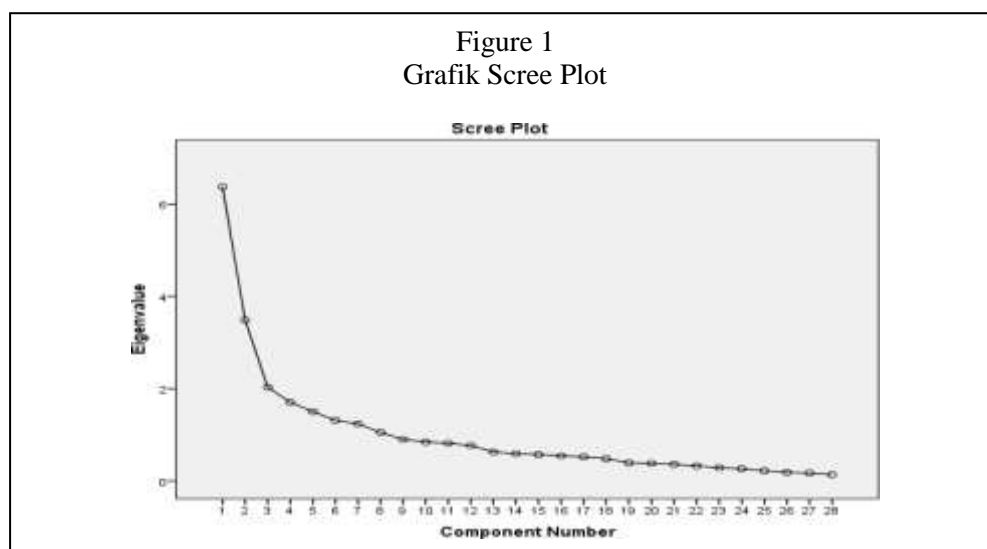
METHODE

Amount 103 student from various Universities in Indonesia participated in this study. To achieve the purpose of this study that is to test the validity of self-regulatory constructs is using exploratory factor analysis (Suryabrata, 2009). The instrument was developed used Bandura (1997) theory which consist 4 aspects, namely self-observation, assessment process, self-reaction, and environment. All aspects described through 31 items that will measure student's self-regulation.

This study uses two stages of validity test, namely the validity of the contents and validity of the construct (Azwar, 2002). The validity of the content is done through expert opinion. The validity of the construct is done in two ways, namely looking at the item-total correlation and using factor analysis. There are two approaches in conducting factor analysis, namely exploratory factor analysis (EFA) and affirmative factor analysis (CFA). However, the present study used an exploratory factors analysis.

FINDINGS AND DISCUSSION

Findings

Exploratory factors analysis approach has several steps: 1) Selecting Variables, The calculation results showed the value of Barlett Test of Sphericity was 1134,949 with a significance of 0.000 which means there is a correlation of significance among observer variables. KMO calculation result of 0.738 (p<0.000) shows that there is adequacy of samples that can be used in factor analysis; 2) Extraction Factors, The extraction of factors is carried out against 28 items. Figure 1 shows a scree plot graph. Based on the chart, it appears that there are 8 factor components with a cumulative variance of 66,696%. Table 2 describes the extraction results of factors that produce 8 factors that have not been rotated using the Principal Compnent Analysis extraction method. The first factor describes the variance of 22,757%, the second factor is 12,440%, the third factor is 7,245%, the fourth factor is 6,007%, the fifth factor is 5,352%, the sixth factor is 4,677%, the seventh factor is 4,405, and the eighth factor is 3,747%.

Figure 1
Grafik Scree Plot

Rotation Factor

The rotation of factors by varimax method produces the factors load shown in table 1.

Table 1. The Rotatuon Factors

Name of Items	Self Observation	Assessment Process	Self Reaction	Environment
Item 1	0.777			
Item 5	0.675			
Item 8	0.607			
Item 11	0.598			
Item 15	0.561			
Item 18	0.620			
Item 21	0.578			
Item 25	0.681			
Item 29	0.654			
Item 30	0.580			
Item 6		0.504		
Item 2		0.835		
Item 9		0.349		
Item 12		0.359		
Item 19		0.673		
Item 22		0.556		
Item 26		0.564		
Item 10			0.544	
Item 16			0.784	
Item 23			0.798	
Item 20			0.724	
Item 27			0.701	
Item 4				0.680
Item 7				0.756
Item 17				0.742
Item 24				0.814
Item 18				0.620
Item 31				0.493

Factor Naming

Items included in the first factor are 1,5,8,11,15,18,21,25,29,30. Based on the content of the statement, the first factor is called self-observation. Items included in the second factor are 2,6,9,12,19,22, and 26. Based on the content of the statement, the first factor is called the assessment process. The third factor consists of items 10,16,20,23, and 27. Based on the content of the statement, the first factor is called self-reaction. Then the fourth factor consists of items 4,7,17,24,18, and 31. Based on the content of the statement, the fourth factor is called the environment.

Reliability Test

The reliability estimated of all items on the self-regulation scale results in an alpha score of 0.860. Coefisen pointed out that the scale of self-regulation has good reliability and trustworthy measurement results.

Content Validity Test

To achieve content validity test, researchers asked for psychology exparts to conduct an assessment of the scale of self-regulation that has been made by researchers. By getting some changes in the structure of grammar drafting in formation of items, as well as accepting or not the items proposed by researchers. There are 19 items received by the assessor, 9 items that need revision, and 5 items that are not accepted by the assessor of Psychologycal expert, the items are declared eligible for use after revission.

Discussion

The first problem that arises in the practice of measurement is how well the instruments that made in this study are valid (accurate) and reliable (trustworthy). Therefore, it is necessary to test the validity and reliability of self-regulation scale.

This instrument measures how students can make their own learning. This document contains 31 items that measure divided self-regulation in 4 aspects, namely self-assessment, self-assessment, self-reaction, and the environment. In conducting factor analysis, researchers conducted tests 2 times. This is because the first test failed because the item's lifetime values were 3.13, and $14 < 0.50$. Therefore, items 3,13, and 14 are eventually omitted.

In the trials of this instrument, using students. It is also expected to be retested on different subjects in order to determine if it has good reliability when tested on subjects with different backgrounds. Although the reliability figures obtained are already high, further trials with different subjects are still expected to be conducted.

CONCLUSION

Today academic achievement has become a benchmark of the success of students. Students self-regulation can be measured through self-regulatory instruments that the author has tested in SPSS by looking at the rotation and spread of its components. The test results are obtained 8 components. This component contains more than the components that the author includes in this instrument where it comes from the theory, and aspects put forward by Zimmerman and Bandura (1997). After testing these 4 components increased to 8 components. So from the analysis of exploratory factors, self-regulatory instruments produce 8 components.

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