



THE INFLUENCE OF SELF-EFFICACY AND LEARNING INDEPENDENCE AGAINST THE OUTCOMES OF THE STUDY MATERIAL ON ECOSYSTEM BIOLOGY HIGH SCHOOL STUDENT OF GRADE X

Ervan Nurkholis, Mieke Miarsyah, Reni Indrayanti

Master of Biology Education, Faculty of Mathematic and Natural Science, Universitas Negeri Jakarta

Email: ervan.sama@gmail.com

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ABSTRACT

In education word one of a serious problem is a high to low student learning outcomes. Good learning outcomes will be achieved when students have the self-efficacy and learning independence in overcoming learning difficulties which affect them. This research aims to find out and analyze the influence of self-efficacy and learning independence against the outcomes of the study of biology students. The research method used is ex pose facto 2x2 factorial design. The sample of this research is the grade X with number of 74 students. The instruments in this research are self-efficacy questioner, learning independence questioner and the outcomes study questioner. Prerequisites testing conducted distributed normal data using *Kolmogorov Smirnov* and homogenous test using *Bartlet* test. Based on hypothesis testing, it was concluded that there is no influence of self-efficacy and learning independence against the outcomes of the study and there is influence between learning independence on student learning outcomes at Senior High School in Bekasi.

Key words: self-efficacy, learning independence, student learning outcomes, ex post facto

INTRODUCTION

Curriculum is a set of plans and arrangements concerning objectives, content and instructional materials as well as ways used as guidelines for the implementation of learning activities to achieve specific educational goals as stated on Republic of Indonesia Act No.23 (2003). One of the curriculum contained in Indonesia is the 2013 curriculum. According to Poerwati and Amri (2013), the 2013 curriculum was developed to improve the achievement of education by increasing the effectiveness of learning in educational units and the addition of learning time in schools. Therefore, in the application of curriculum students are expected and encouraged to be more active by developing self-efficacy attitude and independence in learning to improve learning outcomes. The

problem of serious concern in the world of education is a question of high to low student learning outcomes. Good learning outcomes will be achieved if students have self efficacy and learning independence in overcoming learning difficulties experienced.

Self-efficacy is the individual's belief in one ability to organize and accomplish a task that is used to achieve a certain outcome (Alwisol, 2016). Self-efficacy is defined as the belief that a person has the necessary skills to carry out the behaviors required to carry out the behaviors required for task success. Each student needs self efficacy in performing his duties as a student (Colquitt and Wesson, 2011). Self-efficacy can influence students in choosing tasks and increase students' confidence to complete the task (Bandura, 1997). Students who have high self-efficacy will

improve their cognitive abilities and learning independence. The higher the self-efficacy of the students, the student's learning independence is getting better (Tanta, 2015).

Learning independence can be defined as increased knowledge, individual ability, and individual self-determination goals in learning (Gibbons, 2002). Learning independence can be viewed as a process and outcome (Rustaman, 2011). Learning independence as a process implies that students have a great responsibility in achieving learning goals independent of others, teachers, or other external factors. Learning independence is seen as a result if after following the learning process, students become independent (Nurhayati, 2011). Learning independence is an active level of student participation that involves aspects of metacognition, motivation, and behavior in the teaching process (Zimmerman & Chen, 2002). Increased learning outcomes are influenced by self efficacy and high learning independence.

This is appropriate in the study Tanta (2015) which states that the motivation, self efficacy and learning independence have a positive effect in determining the high-low level achievement of student learning outcomes. To achieve the learning objectives, it is necessary to design good teaching and learning activities that can improve learning outcomes. Sudjana (2016) states the learning outcomes are the abilities that students have after receiving the learning experience. Learning outcomes achieved by students are basically the result of personality, high self efficacy, gender, learning style, family, and learning

independence. Based on the daily Biological material replicates Ecosystems conducted in 2014/2015 obtained that from 160 students who had attended the exam there are 66 students who reach a value completely while the 94 students have not yet reached the value completely. The low student learning outcomes to the materials of the ecosystem can be seen from a comparison of the number of students who have not yet reached the value completely. Based on these problems, it is necessary to conduct research that aims to determine whether there is influence of self- efficacy and learning independence of student learning outcomes.

METHOD

This type of research uses *ex post facto* method to obtain facts from the symptoms that exist and search for factual information with factorial design by level 2 x 2. The approach of this research is quantitative approach that uses data in the form of numbers or qualitative data that is changed into numerical form. This research was conducted at SMA Negeri 2 Bekasi in the second semester of academic year 2016-2017. The sample used in this study using Simple random sampling, with 1 class as a trial and 5 research classes using Mcclave techniques and data collection techniques using questionnaire instruments. The population in this study as many as 200 students so that in can be further determined that 134 students samples of 74 students by taking 27% up and 27% down. Based on table 1 sample distribution can be found on each of the following groups:

Table 1. The distribution of the population of the Learners in each Group

Learning Independence (LI)	Self-Efficacy (A)	
	High (A ₁)	Low (A ₂)
High (B ₁)	31	7
Low (B ₂)	6	30

Based on Tabel 1, high self-fficacy group and high learning indepenence group symbol A₁B₁, low self-fficacy group and high learning indepenence group symbol A₂B₁, high self-fficacy group and low learning indepenence group symbol A₁B₂ than low self-fficacy group and low learning indepenence group symbol A₂B₂. The variables in this research are self efficacy (X₁) and learning indepenence as exogenous variable (X₂), and learning result as endogenous variable (Y). Instrument of research in the form of items of statement in the form of questionnaire which previously been tested on trial subjects as many as 37 students with questions on self efficacy variables as much as 38 grains, learning indepenence 39 grains, and variable learning results as much as 40 grains.

The first stage is pre-requirement test analysis, consisting of normality test by using Kolmogorov-Smirnov test and linearity test for $\alpha = 0.05$. After fulfilling

the criteria on the pre-requirement test, the analysis of the next step is to perform analysis to test the hypothesis that has been proposed and the relative and effective contribution of variables X₁ and X₂ to Y by using the test of signficance and Anova test used to examine the effect of self efficacy and learning indepenence on biology learning outcomes of the students. All hypothesis testing using $\alpha = 0.05$.

RESULT AND DISCUSSION

The data that have been obtained before, have to pass prerequisite test that is distribusi frequency, normality test, homogeneity test and hypothesis test. The normality test test used Kolmogorov-Smirnov test at $\alpha = 0.05$ with the help of SPSS 16. Score results of the study on self-fficacy group and learning indepenence groups, can be seen in table 2 below:

Tabel 2. Distribution Frequency of Score Results of the Study on Self-Efficacy Group and Learning Independence Groups.

Dependent Variable:Hasil Belajar		Mean	Std. Deviation	N	Max	Min
Self-fficacy	Learning Independence					
High	High	73.2581	9.61585	31	90	43
	Low	69.8333	3.06050	6	73	65
Low	High	78.1429	8.91494	7	88	60
	Low	69.5333	10.87780	30	90	33

Normality test results in all four groups were normally distributed with significant values (0,144, 0,983, 0,355, and 0,592) > $\alpha = 0.05$. The result significant values bigger than α , it mean data normal. Homogeneity test using Bartlet test at $\alpha = 0.05$ with the help of SPSS 16. The result shows bigger significance value than $\alpha = 0.05$ that is equal to 0,297, so H₀ accepted meaning data have same variance (homogen). Based on the results of the normality and

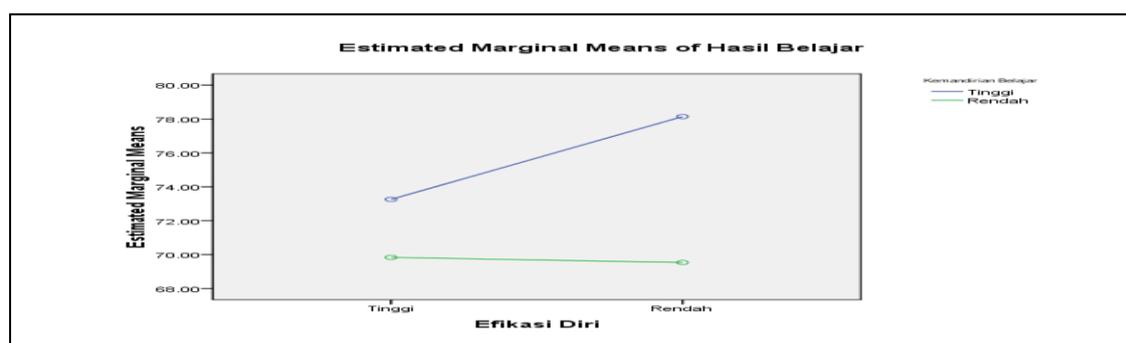
homogeneity test the data obtained has met the prerequisite test. This study has 4 data groups 4 data cells with 3 hypotheses tested. Testing with ANOVA test using SPSS 16 in General Linear Model because the number of samples obtained is not the same in each group. Based on the results of hypothesis testing obtained test data of each hypothesis as follows.

Tabel 3. Result of Anova Test Calculation on the Influence of Self Efficacy and Learning Independence toward Students' Biology Learning Outcomes

Tests of Between-Subjects Effects						
Dependent Variable:						
Source Variants	Total Varians	dk	Average	F	Sig.	
Corrected Model	523.570 ^a	3	174.523	1.815	.152	
Intercept	225386.198	1	225386.198	2.345E3	.000	
Self-Efficacy	56.037	1	56.037	.583	.448	
Learning_Independence	386.077	1	386.077	4.016	.049	
Self_Efficacy * L_I	71.664	1	71.664	.745	.391	
Error	6729.093	70	96.130			
Total	390149.000	74				

a. R Squared = .072 (Adjusted R Squared = .032)

Figure 1. Line Diagram of Interaction between Self-Efficacy and Learning Independence



Based on Table 3 can be seen the results of testing hypothesis 1 regarding the effect of self efficacy on student biology learning outcomes. Obtained sig self efficacy value of 0,448 > α (0,05), hence based on predetermined criterion concluded data accept H_0 mean there is no effect of self efficacy to result of biology study of material of ecosystem at student of sma class X at value $\alpha = 0,05$. This revelation is in line with research conducted by Tanta (2015) which states that self efficacy has no significant effect on students' biology learning outcomes. The same thing is expressed in the Novianti research journal (2015) on the effect of efficacy on the students' biology learning outcomes that self efficacy has an indirect effect on students' biology learning outcomes.

The influence of low self-efficacy against the results of the study is not just caused by a single factor for self-efficacy of students, but influenced by external factors. External factors include family, school environment and teacher, has an important role in determining the success of teaching

and learning activities and the achievement of the objectives of education. School environment and teacher instrumental in resurrecting the confidence of students in the learning process. The role of families is very important because it is the first lemaga before students at the school, such as family relationships, relationships with children, parents, and family economics. This finding is in accordance with Ahmed (2011) that have self efficacy are weak against the academic performance and only account 3.6% in changing academic achievement.

The second hypothesis test is the influence of learning independence on student biology learning outcomes, in table 3 can be seen significant value of influence of learning independence to result of biology study of ecosystem material on student SMA class X based on test result using SPSS 16 got equal to 0,049. Because of the large sig value. <0,05, hence based on predetermined criterion concluded reject H_0 or there is influence of learning independence to result of biology study of ecosystem material on high school grade X

at value $\alpha = 0,05$. The same thing also expressed by Adicondro (2011) states that the independence of learning affects the learning outcomes, the higher the independence of learning the higher the result of learning. The high level of student learning independence makes students responsible for achieving learning goals independent of other students, teachers, and parents. The results are in accordance with Saefullah (2013) in his research, stating that the learning independence has a positive relationship with learning outcomes.

Testing of hypothesis 3 is to test the effect of interaction between self-efficacy and learning independence of biology learning result of ecosystem material in high school grade X. The test result gives sig value of 0.391 (Table 3), because the sig value. $> 0,05$, hence accept H_0 means there is no interaction effect between self efficacy and learning independence to result of biology study of ecosystem material on student of class X on $\alpha = 0,05$. Research conducted by Tanta (2015) stated that self efficacy is an individual belief about the ability to complete the task and can give a positive influence on the independence of learning in order to enhance the role of students actively.

Unlike the statement of Tanta (2015) interaction doesn't occur in this research, because students often find it difficult to build confidence and readiness of the independent study. This can be seen in Figure 1, it is seen that the lines of self efficacy and independence of learning doesn't intersect, so that it can be said the interaction doesn't occur.

Low level of interaction between self-efficacy and learning independence caused students haven't had a strong independent attitude in learning, students are still dependent to a friend or teacher, the confidence is low, and the students less utilizing learning resources provided in schools or at home. Cobb (2003) on self efficacy and learning independence states that there will be ups and downs of the learning process if high levels of low self-learning and self-efficacy change. The

success of learning experienced by students is closely related to how the students manage themselves in learning.

CONCLUSION

Based on the research and hypothesis testing that has been done, it can be conclude that there is no effect of self efficacy on biology learning outcomes. However, there is a large influence of learning independence on student learning outcomes on ecosystem material and there is no interaction between self-efficacy and learning independence of student's biology learning outcomes. Students are expected to be able to make a list of the sequence of events began the easiest to the most difficult. Enhance the independence of the study can be done by providing task independently and provides an opportunity to analyze student assignments are given. In addition, the study of biology on Ecosystems better material delivered by an innovative way and form analysis of something as it will motivate students to create a fun and learning environment.

REFERENCES

- Adicondro. 2011. Efikasi Diri, Dukungan Sosial Keluarga dan Self Regulated Learning pada Siswa Kelas VIII. *Jurnal Universitas Ahmad Dahlan*. 8(1).
- Ahmed, I. 2011. Self-Efficacy: The Predictor of Educational Performance among University Students, *Information Management and Business Review*, 3(2): 57-62.
- Alwisol. 2016. *Psikologi Kepribadian*. Malang, UMM Press.
- Bandura, A. 1997. *Self Efficacy: The Exercise of Control*. New York, Freeman and Company.
- Chen C. S. 2002. Self-Regulated Learning Strategis and Achievement in an Introduction to Information System

- Course, *Information Technology and performance Journal*, 20(1): 13.
- Cobb, R. 2003. The Relationship between Self-Regulated Learning Behaviours and Academy Performance In Web-Based Course, *Unpublished Dissertation*, Faculty of Virginia Polytech Institute and State University, 23-30.
- Colquitt, L., & Wesson. 2011. *Organization Behavior*. New York, McGraw-Hill Companies, Inc.
- Gibbons, M. 2002. *The Self Directed Learning Handbook Challenging Adolescent Student to Excel*. San Fransisco, Jhon Wiley & Sons, Inc.
- Novianti, V. 2016. *Pengaruh Self-Efficacy dan Motivasi Terhadap Hasil Belajar Biologi Siswa*. Jakarta, Universitas Negeri Jakarta.
- Nurhayati, E. 2011. *Psikologi Pendidikan Inovatif*. Yogyakarta, Pustaka Belajar.
- Poerwati, L. E. & Amri, S. 2013. *Panduan Memahami Kurikulum 2013*. Jakarta, PT Prestasi Pustaka.
- Rustaman, N. Y. 2011. *Strategi Belajar Mengajar Biologi*. Jakarta, Universitas Pendidikan Indonesia.
- Saefullah, A. 2013. Hubungan Antara Sikap Kemandirian Belajar dan Prestasi Belajar Siswa Kelas X Pada Pembelajaran Fisika Berbasis Portofolio, *Jurnal Wahana Pendidikan Fisika*, 1: 26-36.
- Sudjana. 2016. *Penilaian Hasil Proses Belajar Mengajar*. Bandung, Remaja Rosdakarya.
- Tanta. 2015. Hubungan Efikasi Diri, Kemandirian Belajar, dan Kebiasaan Berpikir Terhadap Hasil Belajar Biologi SMA di Kota Jayapura. *Disertasi*. Jakarta, Universitas Negeri Jakarta.
- Zimmerman, B. J., Bonner & R. Kovach. 1996. Developing Self-Regulated Learner. *Washington: American Psychological Association*, 140.