

The Effect of Self-Efficacy and Self-Regulated Learning on Biology Learning Outcomes in Online Learning of State High School Students in Pangkajene District

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Abstract. This research is an ex post facto study that aims to describe self-efficacy, self-regulated learning, and biology learning outcomes of students on online learning, to determine the effect of self-efficacy and self-regulated learning biology learning outcomes on online learning partially and simultaneously. The population in this study were all students of class XI SMAN in Pangkajene District, Pangkep Regency, namely SMAN 1 Pangkep, SMAN 11 Pangkep, and SMAN 20 Pangkep. The total population is 556 people and based on the sample calculation using the Slovin formula, a sample of 361 people is obtained. The sampling technique used was the Cluster Random Sampling technique. The variables of this study consist of the independent variables, namely self-efficacy, and self-regulated learning, and the dependent variable, namely biology learning outcomes. The data analysis technique is descriptive and inferential analysis. Based on the results of inferential data analysis, it's found that (i) there is a partial effect of self-efficacy on biology learning outcomes, (ii) there is a partial effect of self-regulated learning on biology learning outcomes, (iii) there is an effect of self-efficacy and the simultaneous self-regulated learning on biology learning outcomes

Keywords: SeSelf-efficacyself regulated learning, biology learning outcomes.

INTRODUCTION

A successful learning process can be seen from the learning outcomes obtained by students. Learning through a quality process is able to improve the learning outcomes obtained. The implementation of learning which is actually carried out in the classroom is made as innovative as possible so that the formulated learning objectives are achieved, various methods and learning models are used to support the learning process. In an effort to achieve this goal, the learning process in Indonesia has changed since the beginning of 2020 with the emergence of a virus that can spread very quickly, namely the corona virus or Covid-19.

Based on the circular issued by the Minister of Education and Culture Number 36962/MPK.A/HK/2020 regarding online learning for the prevention and handling of Covid-19. St learnin usually done face-to-face has turned into online toning (in the network) both at the school and college level to to prevent the spread of Covid-19 (Fadila, et al, 2021).



The implementation of online learning cannot be separated from several obstacles experienced by students such as internet network problems that cannot be accessed in certain areas, the habit of interacting directly with teachers at school, as well as difficulties in doing the tasks given by the teacher because they cannot understand the lessons provided and the limited information obtained (Tamba, et al, 2021).

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Students who have low self-efficacy with low self-efficacy during online learning during the Covid-19 pandemic will find it difficult to face pressure in learning, leading In line with research conducted by Kurniawati (2022) if self-efficacy has a positive relationship for learning outcomes .

Furtherwithe, online learning makes high school students required to be able to study independently . In other words, online learning requires students to be able to create and build their own knowledge independently or tve independent learning. Online learning can create flexibility in the implementation of learning activities and can encourage the emergence of student independence in learning (Sadikin, 2020) . Research conducted by Triansari (2019) states that self-regulated learning has an effect on learning motivationaffects is in line with Setiaji 's (2021) research which also states that self-regulated learning has an effect on learning motivation.

The holding of online learning also has an impact on learning carried out at SMA Pangkajene District, Pangkep Regency, which is one of the regencies included in the level 1 area of the imposition of restrictions on community activities since February 2022 based on the South Sulawesi governor's circular No. 443.2/1367/DISKES. The entry of Pangkep Regency, especially Pangkajene Sub-district, resulted in re-learning being carried out online after previously having conducted offline learning in the last few months.

Based on the description above, the author is interested in conducting research to see the effecresearchingand self-regulated learning on biology learning outcomes motivation in online learning for State Senior High School students in the district of Pangkajene .



METHOD

This research is an *ex post facto research* which is correlational. *Ex post facto* research is research that is carried out to examine variables that have occurred without the need to give treatment to the variables studied (Sugiyono, 2010). This research was conducted in the even semester, academic year 2021/2022 from January 2022 during October 2022. The research location was at SMAN 1 Pangkep, SMAN 11 Pangkep, and SMAN 20 Pangkep, Pangkajene District, Pangkep Regency. The population in this study were all students of SMAN 1 Pangkep, SMAN 11 Pangkep, and SMAN 20 Pangkep, for the academic year 2021/2022 consisting of 16 study groups with a total of 556 students. The variables in this study consisted of independent variables, namely self-efficacy (X1) and self-regulated learning (X2) and the dependent variable was learning outcomes (Y).

The instrument used in this study is a test instrument to obtain data on student learning outcomes, and non test by using a questionnaire to obtain data on self-effnontestd f-regulated learning as independent variables. This study uses a closed questionnaire with a *Likert scale* whose answers have been provided by the researcher, namely strongly agree, agree, disagree and strongly disagree. so that the respondent only has to choos,e the appropriate or appropriate statement . The research instrument used in this study was first tested for validity and reliability

Data which has obtained analyzed by descriptive, inferential , and test hypothesis. Analysis descriptive which used that is distribution frequency data. Whereas analysis inferential consist on test assumption base and 4 test assumption classic . Test assumption base consist on test normality, while test assumption classic consist on test linearity, test multicollinearity, and test heteroscedasticity. If test assumption the fulfilled, then next with for testing hypothesis. Test hypothesis conducted with test regression simple and regression multiple .

RESULTS

1. Descriptive Analysis

Table 1. Descriptive Analysis Results

Variable	interval	Percentage (%)	Category
Self Efficacy	62-77	50.1	Currently
Self-regulated learning	74-88	50	Tall
Learning outcomes	38-52	30	Currently



Based on the table above, self-efficacy and learning outcomes are in the medium category, and self-regulated learning is in the high category. So that self-efficacy and self-regulated learning still need to be improved, considering that online learning is not an easy thing to do which certainly greatly affects student learning outcomes.

2. Inferential Analysis

a. Basic Assumption Test

1) Normality Test

	N	Sig. (2-tailed)	Information
<i>Unstandardized Residual</i>	361	0.20	Normal Distributed

Based on the basis for making these decisions, the data is normally distributed because the value of Sig. (0, 20) > 0.05

b. Classic assumption test

1) Multicollinearity Test

Variable	<i>Collinearity Statistics</i>		Information
	<i>Tolerance</i>	VIF	
Self Efficacy	0.46	2.15	There is no multicollinearity
Independent Learning	0.46	2.15	There is no multicollinearity

Based on the table above, it is known that the *tolerance value* is > 0.10 and the VIF value is < 10.00 so that there is no deviation in the relationship between the independent variables and the regression model, or there are no symptoms of multicollinearity.

2) Heteroscedasticity Test

Variable	Sig.	Information
Self Efficacy	0.15	There is no heteroscedasticity
Independent Learning	0.07	There is no heteroscedasticity



Based on the heteroscedasticity test table above, the value of Sig. 0.15 on the self-efficacy variable (X_1) and the value of Sig. 0.07 on the variable of self-regulated learning (X_2). Therefore the value of Sig. > 0.05 so there is no heteroscedasticity.

3) Linearity Test

Table 4. Linearity Test Results

	Sig.	Information
Learning Outcomes*Self-Efficacy		
Sig. <i>deviation from linearity</i>	0.15	linear
Learning Outcomes*Study Independence		
Sig. <i>deviation from linearity</i>	0.28	linear

The basis of decision making for linearity test is if the value of Sig. *deviation from linearity* > 0.05 then there is a linear relationship between the independent variable and the dependent variable, and if the value of Sig. *deviation from linearity* < 0.05 then there is no linear relationship between the independent variable and the dependent variable. Based on the table above, it is known that the value of Sig. *linearity* > 0.05 so there is a linear relationship.

3. Hypothesis Testing

1. Influence Efficacy Self By Partial To Results Study

Table 5. Results t test

Model	Sig.	t count	Information
Self Efficacy	0.03	2.98	Take effect

Significance value on self-efficacy variable (X_1) of $0.03 < (0.05)$. In addition, the value of t count (2.98) $>$ t table (1.64) which means that the self-efficacy variable has an influence on the learning outcome variable. It is concluded that there is an effect of self-efficacy on learning outcomes.

2. Influence Independence Study By Partial To Independence Study

Table 6. Results t test

Model	Sig.	t count	Information
Independent Learning	0.02	2.62	Take effect



The significance value of the self-regulated learning variable (X_2) of $0.02 < (0.05)$. In addition, the value of t arithmetic (2.62) $>$ t table (1.64) which means that the self-regulated learning variable has an influence on the learning outcome variable. It is concluded that there is an influence of independent learning on learning outcomes.

3. Influence Efficacy Self and Independence Study By Simultaneous To Results Study Biology Participant Educate

Table 7. Results Test Anova

Independent Variable	Dependent variable	Sig.	F Count	Information
Efficacy self and Self-regulated learning	Learning outcomes	0.02	2.84	Take effect

X_1 and X_2 on Z simultaneously or together with learning outcomes variables, obtained score Sig. $0.02 < 0.05$. In addition, the calculated F value (2.84) $>$ F table (2.62). So concluded that there is an effect of self-efficacy and independent learning together on learning outcomes .

DISCUSSION

1) Description Efficacy Self Participant Educate Class XI SMAN in all districts Pangkajene

Based on analysis descriptive is known that highest frequency related efficacy self participant educate class XI SMAN in the District Pangkajene Regency Pangkep is at on category currently with value interval between 62 and 77. Category obtained show belief that you have participant educate will ability for reach and complete tasks study on online learning .

On context online learning , participants educate need for have efficacy self height that can be help participant educate succeed in online learning . Efficacy self on participant educate important owned in order to have confidence will ability herself alone when confronted with Duty nor situation full learning _ pressure on time covid-19 pandemic so could succeed for reach what is desired (Tamba et al , 2021).

2) Description Independence Study Participant Educate Class XI SMAN in all districts Pangkajene

Analysis self- descriptive data study state that participant teach the most is at at intervals of 74 and 88 with amount participant educate which is 180 people, so that independence study participant educate on online



learning is on category high. Based on analysis answer participant educate on questionnaire independence learn , participant educate already have ability management time , arrangement environment study , and determination good cause _ in by online learning . However , on indicator capable complete strategy Duty still many participant students who choose answer no agree , so show if independence study not yet fully owned by participant educate .

The higher the level of education, the higher the level of student self-regulated learning. For students who are still in high school, they still have to hone the level of independence in their learning by doing full control both from inside and outside. Students still need to be controlled and reminded of the tasks and obligations given by the school (Sangsawang, 2015).

Increase independence Learning is very important for every educator. The importance of *self-regulation learning* (self-regulated learning) has a significant impact on students' cognitive abilities, students who are more independent with an active attitude towards the use of technology will be more motivated to participate in online learning and achieve learning goals (Geng et al , 2019).

3) Description Learning Outcomes Participant Educate Class XI SMAN in all districts Pangkajene

Descriptive analysis of learning outcomes data states that most students are in the intervals of 38 and 52 with a total of 110 participants. So it can be said that the learning outcomes of students in online learning are in the medium category. Even though they are in the medium category, the scores obtained by students do not reach the KKM score of 75.

The cause of the low learning outcomes of students can be caused because the provision of this material takes place online (in the network) with the most dominant media used is whatsapp group (WAG) . Teachers are less able to control students' understanding so that the transfer of material is not optimal and meaningful learning is not built.

4) The effect of Self Efficacy By Partial To Learning Outcomes

Based on the analysis obtained, it is known that the significance value of the partial test is $0.03 < 0.05$ so that there is a direct effect of self-efficacy on learning outcomes. The magnitude of the effect of self-efficacy on learning outcomes is known from the path coefficient value (β) of 0.076 which indicates a positive effect. The value of means that if the increase in self-efficacy is 1%, it will also be followed by an increase in learning



motivation of 7.6%. So it can be concluded that the higher the self-efficacy, the higher the learning outcomes.

The results obtained are in line with Chairunnisa (2021) which states that partial self-efficacy has a significant effect on cognitive learning outcomes. Students who have higher self-efficacy will increasingly affect their learning outcomes. In line with Hasanah (2019), if students who have high self-efficacy during online learning during the Covid-19 pandemic will be able to deal with the learning process and tasks given by the teacher well, so that students have confidence in their abilities to try their best. power to get the desired result. When faced with pressure or difficult situations, students will tend to find a way out to deal with it.

On the other hand, students who have low self-efficacy during online learning during the Covid-19 pandemic will find it difficult to deal with pressure in learning as a result of changing learning methods from face to face to online which can make students tend to fail in online learning and complete assigned tasks. by the teacher. Students will think negatively about their abilities so that they easily give up in achieving the desired results. So the need for self-efficacy for students to have confidence in their own abilities when faced with stressful tasks and learning situations so that they can succeed in achieving what they want, in addition to reducing situations that make students experience academic stress during online learning during the Covid-19 pandemic. 19. (Chairunnisa, 2021).

5) The Effect of Self-Regulated Learning By Partial To Learning Outcomes

Based on data analysis, there is a direct influence of self-regulated learning on learning outcomes obtained from the significance value of the partial test of $0.002 < 0.05$ so that there is an influence of self-regulated learning on learning motivation. The magnitude of the effect of self-efficacy on learning motivation is known from the path coefficient value (β) of 0.113 which shows a positive effect. The value of means that if the increase in self-regulated learning is 1%, it will also be followed by an increase in learning motivation of 11.3%. So it can be concluded that the higher the self-regulated learning, the higher the learning outcomes.

The results obtained are strengthened by research (Sari, 2019) which explains that self-regulated learning is significantly correlated with learning outcomes. Based on the research findings, it was found that the self-regulated learning of students during online learning during the Covid-19 pandemic affected student learning outcomes. The low influence of self-regulated learning on the learning outcomes obtained can be caused by the



pandemic conditions that make changes to online learning methods that make students unable to get used to independent learning. In addition, Suwarni (2021) also revealed that in addition to independence, other factors that can affect learning outcomes include student learning readiness, student intelligence level, environmental atmosphere around students, learning facilities obtained by students, school quality, teachers and teaching abilities. teacher.

However, self-regulated learning still needs to play an important role in learning during the pandemic because of the lack of interaction and supervision from teachers who are only done online so they cannot directly control learning activities. Students who study independently will be able to control their learning activities during online learning and can improve their learning outcomes. Students with good self-regulated learning will be able to obtain high learning outcomes, and vice versa students with low levels of self-regulated learning will get low learning outcomes.

6) The effect of Self Efficacy and Self Regulated Learning By Simultaneous To Learning Outcomes

Based on data analysis, it is known that there is a simultaneous influence of self-efficacy and self-regulated learning on learning outcomes which can be seen from the value of Sig. $0.029 < 0.05$. The magnitude of the contribution of self-efficacy with self-regulated learning simultaneously on learning outcomes is 29.3% while the rest is influenced by other factors that are not controlled in this study. The effective contribution of self-efficacy to learning outcomes is 5.54% and the effective contribution to self-regulated learning is 8.2%, so it can be concluded that in this study the independent learning variable has a dominant influence on biology learning outcomes in online learning.

Learning outcomes are a reflection of the learning effort, the better the learning effort, the better the results achieved. One of the factors that influence learning outcomes is internal factors including self-efficacy and self-regulated learning simultaneously or together. Students with a high level of self-efficacy must be supported by high self-regulated learning so that the learning outcomes obtained are also high, and vice versa. Someone who has high self-efficacy believes that he is able to carry out the activities he will do amid the pressure of online learning during the pandemic (Saputra, et al 2021).

The online learning process carried out by students is strongly influenced by the existence of independent learning, because online learning makes it difficult for teachers to monitor student learning one by



one. Therefore, to achieve an understanding of the material in order to get good learning outcomes, students are expected not to depend on the material provided by the teacher and are required to study independently with or without direction from the teacher. In line with Suwarni's research (2021) independent learning is able to make someone plan their own learning, how to learn, and learning activities so as to optimize learning outcomes to be achieved.

CONCLUSION

Based on results analysis in study this, then there is a number of conclusion as following .

1. Self efficacy participant educate on online learning at SMANs in all districts Pangkajene Regency Pangkep is at on category medium .
2. Self-regulated learning participant educate on online learning at SMANs in all districts Pangkajene Regency Pangkep is at on category high .
3. Learning Outcomes participant educate on online learning classes at SMANs in all districts Pangkajene Regency Pangkep is at on category medium .
4. There is an effect self efficacy by Partial to biology learning outcomes participant educate
5. There is an effect self-regulated learning by Partial to biology learning outcomes participant educate
6. There is an effect self efficacy and self regulated learning by simultaneous to biology learning outcomes participant educate on online learning in high schools in Pangkajene District.

SUGGESTION

Based on conclusion results research , then researcher try give advice as following.

1. To the teacher, it is hoped capable carry out a learning process that can increase efficacy self , independence study , and motivation study participant educate on online learning so that participant educate could get results good study.
2. To participant educate, needed awareness in increase efficacy self , independence study , and motivation learn it on online learning to get results good study.
3. To researcher and observer education , based on findings study wish there is study advanced related with study this is tracing pattern connection between variable specifically election intervening variables built in study this , because in many study about various influencing factors results study on online learning that involves



intervening variables, then between researcher one with other researchers are different in Thing set or choose intervention variable.

BIBLIOGRAPHY

- Aqzayunarsih., Hala, Y., Hartati. (2019). Pengaruh efikasi diri dan regulasi diri terhadap motivasi belajar dan hasil belajar biologi siswa XI MIA SMAN di Kota Palopo.
- Barseli, M., & Ifdil, I. (2017). Konsep Stres Akademik Peserta didik. *Jurnal Konseling Dan Pendidikan*, 5(3), 143.
- Fadila, R.N., Nadiroh, T.A., Juliana, R., Zulfa, P. Z. H., Ibrahim. (2021). Kemandirian Belajar Secara Daring Sebagai Prediktor Hasil Belajar Mahapeserta didik Pendidikan Matematika UIN Sunan Kalijaga. *Jurnal Cendekia*, 5(2), 880-891.
- Geng, S., Law, K. M. Y., & Niu, B. (2019). Investigating self-directed learning and technology readiness in blending learning environment. *International Journal of Educational Technology in Higher Education*, 16(1), 1–22.
- Hidayat, D. R., Rohaya, A., Nadine, F., & Ramadhan, H. (2020). Kemandirian belajar peserta didik dalam pembelajaran daring pada masa pandemi covid-19. *PERSPEKTIF Ilmu Pendidikan*, 34(2), 147–154.
- Kurniawati, H. (2022). Pengaruh Efikasi Diri (*Self Efficacy*) Terhadap Hasil Belajar Sejarah Siswa Kelas XI Man 1 Bojonegoro. *Jurnal Pendidikan Sejarah*, 12(1), 1-10.
- Mujiani, & Rohayati, S. (2018). Pengaruh Penggunaan Modul Pembelajaran Akuntansi, Intensitas Praktikum Akuntansi Dan Motivasi Terhadap Hasil Belajar Pada Mata Pelajaran Akuntansi Perusahaan Dagang Kelas Xi Di Smk Negeri 10 Surabaya. *Jurnal Pendidikan Akuntansi*, 6(20), 9.
- Nurfallah, M., Pradipt, T. R. (2021). Motivasi Belajar Matematika Siswa Sekolah Menengah Selama Pembelajaran Daring di Masa Pandemi COVID-19. *Jurnal Pendidikan Matematika*, 5(3), 2425-2437.
- Pahriji, I. A. 2021. Pengaruh Lingkungan Belajar Terhadap Motivasi Belajar Mahasiswa Dalam Pembelajaran Jarak Jauh Selama Pandemi. *Jurnal Citra Pendidikan*, 1(3), 381-387.
- Rochmah, L., Kurniawan, R. Y. (2022). Pengaruh Efikasi Diri Dan Lingkungan Belajar Terhadap Hasil Belajar Ekonomi Dengan Motivasi Belajar Sebagai Variabel Mediasi Di Masa Pandemi Covid 19. *Jurnal Ilmiah Pendidikan*, 10(1), 68-83.
- Sadikin, A., & Hamidah, A. (2020). Pembelajaran Daring di Tengah Wabah Covid-19. *BIODIK*, 6(2), 109– 119.



- Sangsawang, T. (2015). Instructional design framework for educational media. *Procedia-Social and Behavioral Sciences*, 176(2), 65–80.
- Sari, D.P., Yana., Wulandari, A. (2021). Pengaruh Self Efficacy Dan Motivasi Belajar Terhadap Hasil Belajar Matematika Siswa MTs Al-Khairiyah Mampang Prapatan di Masa Pandemi COVID-19. *Jurnal Ilmu Pendidikan (JIP)*, 13(1), 2-11.
- Setiaji, K., Muktiningsih, S., & Farliana, N. (2021). Pengaruh Kemandirian Belajar Terhadap Kemampuan Berfikir Kritis Diintervening Motivasi Belajar E-learning Ekonomi. *JEKPEND (Jurnal Ekonomi Dan Pendidikan)*, 4, 56–63.
- Tamba, J.J., Santi, D.E. (2021). Efikasi Diri Dengan Stress Akademik Peserta didik SMA Selama Pembelajaran Daring Masa Pandemi Covid-19. *Seminar Nasional*. Malang : Fakultas Pendidikan Psikologi Universitas Negeri Malang.
- Triansari, N., & Widayati, A. (2019). Pengaruh Lingkungan Teman Sebaya, Kinerja Mengajar Guru, Dan Kemandirian Belajar Terhadap Motivasi Belajar Dasar-Dasar Akuntansi. *Jurnal Pendidikan Akuntansi Indonesia*, 17(2), 101–116.
- Uruk, F.H. (2021). Menguak Kondisi Motivasi Belajar Siswa dalam Pembelajaran Daring Pada Masa Pandemi Covid-19. *Jurnal Inovasi Penelitian*, 1(10), 2227-2234.

