

The Effects of Flipped Classroom Model with Heutagogy and Self-Efficacy Approach to Higher-Order Thinking Skills

Yowelna Tarumasely ^{1*}

¹Christian Religion Education, Faculty of Christian Religion Education, IAKN Ambon, Jln. Dulong, Halong Atas, Kecamatan Baguala, Kota Ambon, Maluku, 971238, Indonesia Email corresponding author*: yowelnatarumasely@gmail.com

Article Info

Article history:

Received 15-03-2022

Revised 16-04-2022

Accepted 23-10-2022

Published 13-11-2022

How to cite:

Tarumasely, Y. (2022). The Effects of Flipped Classroom Model with Heutagogy and Self-Efficacy Approach to Higher-Order Thinking Skills. *Edcomtech: Jurnal Kajian Teknologi Pendidikan*, 7(2), 144–153.

<https://doi.org/10.17977/um039v7i22022p144>

© The Author(s)



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penerapan flipped classroom berbasis heutagogy dan self efficacy terhadap ketrampilan berpikir tinggi/High Order Thinking Skills (HOTS) terhadap mahasiswa PAK Semester V pada mata kuliah perencanaan Pembelajaran. Metode penelitian yang digunakan adalah kuasi eksperimen (Quasi Experimental Design) dengan desain factorial dua kali dua. Sampel berjumlah 48 mahasiswa, terdiri atas kelompok eksperimen dan control. Instrumen penelitian berupa angket untuk mengukur self efficacy dan tes untuk mengukur ketrampilan berpikir tinggi. Analisis data menggunakan ANOVA dua jalur Dan semua uji asumsi parametric dilakukan pada nilai signifikansi 5%. Hasil penelitian 1) ada perbedaan hasil belajar HOTS antar kelompok mahasiswa dengan pendekatan Heutagogy dan mahasiswa dengan pendekatan andragogy, 2) ada perbedaan hasil belajar HOTS antara kelompok mahasiswa berdasarkan tingkat self efficacy, 3) tidak ada interaksi antara Flipped Classroom dengan pendekatan Heutagogy dan self efficacy terhadap hasil belajar HOTS.

Kata Kunci: *flipped classroom, Heutagogy, Self Efficacy, HOTS*

Abstract

This study aimed to determine the effects of the application of heutagogy-based flipped classroom and self-efficacy on Higher-Order Thinking Skills (HOTS) for PAK Semester V students in the lesson planning course. The research method used was a quasi-experimental design with a two-by-two factorial design. The sample consisted of 48 students, consisting of the experimental and control groups. The research instrument was a questionnaire to measure self-efficacy and a test to measure higher thinking skills. Data analysis used two-way ANOVA, and all parametric assumption tests were performed at a significance value of 5%. The results of the study showed 1) there were differences in HOTS learning outcomes between groups of students with the heutagogy approach and students with andragogy approaches, 2) there were differences in HOTS learning outcomes between groups of students based on the level of self-efficacy, and 3) there was no

interaction between Flipped Classroom with the heutagogy approach and self-efficacy on HOTS learning outcomes.

Keywords: *flipped classroom, heutagogy, self-efficacy, HOTS*

INTRODUCTION

The outbreak of the COVID-19 pandemic has had a strong impact on all aspects of life, including education. Uncertainty about when the spread of this virus will end has prompted all parties to seek anticipatory steps to run their respective activities smoothly. In the education aspect, the Minister issues policies related to the implementation of the learning process so that it continues to be carried out not only as a fulfillment of student rights but also to maintain the health and safety of educators and students from possible exposure to COVID-19. The negative impact felt due to the Covid-19 pandemic on education is that learning is not optimal. Learning that is usually done in class (offline) is changed into online. While the positive impact obtained is the emergence of a highly innovative ability of educators to realize the concept of how students learn. Advances in science and technology provide space for educators to innovate in education by utilizing several platforms to facilitate the learning process using a computer and internet approach. This online learning policy was taken so that children still get their right to learn, and teachers continue to carry out their duties to teach students with a focus on "how to teach students" and not "what students learn".

The role of educators in learning is very important. Educators must be able to innovate and be creative to produce learning models, learning applications, and learning media to realize quality education. One of the indicators of quality education is quality students, who can analyze, innovate, think critically, communicate, solve problems and be creative or have higher-order thinking skills (HOTS). Based on the results of a study conducted by the OECD to measure the level of education of international students aged 15 years in reading literacy, mathematics, and science, it showed that the ability of students in Indonesia was very low, including: 1) understanding complex information; (2) theory, analysis, and problem-solving, critical thinking, communicating, and collaborating in finding inventions; (3) using tools, procedures, and problem-solving, and (4) conducting investigations. This low literacy ability is certainly caused by many factors (Rumiati, 2011). One of the causes is the lack of student experience in learning that improves higher-order thinking skills and contextual problem-solving skills improve reasoning, argumentation, and creativity in solving them. Efforts to increase student competence in implementing HOTS are strengthened by the issuance of Permendikbud Number 20 of 2018 concerning Strengthening Character Education in Formal Education Units. These competencies are critical thinking, creativity and innovation, communication skills, collaboration, and confidence, and thinking skills are the challenges of the 21st century (Permendikbud, 2018).

The flipped classroom learning model provides opportunities for students to collaborate in the teaching and learning process, group activities, collaboration on experimental activities. The results of the study (Enfield, 2013; Adhitiya et al., 2015) of flipped classrooms showed that there was students' involvement in groups to complete concepts and skills to work together to complete a project, while the teacher's role was to help students individually. The flipped classroom learning model prioritizes students' collaboration by understanding concepts and experimental activities to improve student skills. Some research results showed that efforts to increase students' motivation to take

part in learning were very effective through the application of the Flipped classroom with the help of modules and online (Suo & Hou, 2017; Mary et al., 2015). Flipped classroom is learning-oriented to students, thus leading to student learning independence. Students are given the freedom to learn. This follows the self-directed learning approach, which is a characteristic of andragogy. In its application, the lecturer acts as a companion while students independently seek the information needed according to the material in the RPS.

To answer the demands of 21st-century competencies that students are expected to have high-level thinking skills, students are expected to be truly independent in learning. Learning is seen as a self-determined process (students) or self-determined learning (heutagogy). In the concept of heutagogy, the role of the lecturer as a controller is minimal because students have the freedom to control themselves, so students are more active. Learning autonomy includes choosing learning strategies, selecting materials, and learning resources that are important to obtain information. This approach challenges the way of thinking about "learning and learning", but encourages lecturers to think more about the process than content, forces lecturers into the world of students, and allows lecturers to go beyond existing disciplines and theories. Heutagogy holds students accountable for their learning decisions and provides a framework for learning that promotes them as responsible adults (Booth et al., 2017; Sulistya, 2019; Handayani et al., 2021).

The factor that also influences individuals in learning is self-efficacy. Self-efficacy is an individual's innate ability, including cognitive, social, and emotional. Self-efficacy is an individual ability that needs to be trained and managed effectively to achieve the individual's goals. Bandura (in Cliffs & Hall, 1991) stated that self-efficacy shows different abilities in organizing and completing assigned tasks well, according to goals, and even in difficult circumstances. Kurniawati et al. (2019) suggested that individuals with high self-efficacy can reduce anxiety about failure and increase cognitive abilities. The higher the individual's efficacy, the greater the effort to face challenges. Students with high self-efficacy always try harder to achieve the expected goals than those with low self-efficacy. Besides, individuals with high self-efficacy also have perseverance and endurance when involved in challenging activities. An educator needs to study the characteristics of students. Low self-efficacy generally makes students less successful and less likely to do difficult tasks and also consider when getting a challenging task.

The lesson planning course is one of the prerequisite courses for PAK Bachelor's degree students as prospective educators of Christian Religion Education (PAK). The scope of the study includes theoretical and practical aspects related to preparing PAK learning plans. This course is very important in preparing students to prepare PAK learning plans both conceptually and practically and can implement to improve the quality of education. The fact is that students are more likely to follow or copy and paste material from the internet when given an assignment, so that the results of their work are almost the same. When the task is in the form of RPP (lesson plan), the RPP made is the result of copy and paste from PAK educators. This shows that their abilities are only limited to remembering, understanding, and applying (C1-C3) or Low-Order Thinking Skills, even though they can analyze, evaluate, and even have the ability to create (C4-C6) or High-Order Thinking Skills (David and Anderson., 2021). The condition of online learning is influenced by several factors, such as 1) the network and the availability of internet data, making the learning process ineffective; 2) the lack of confidence in their abilities; and 3) the low level of student learning independence. According to the explanation above, this research aimed to study "what is

the influence of the flipped classroom model with the heutagogy and self-efficacy approach to higher-order thinking skills?".

METHODS

The type of research used was quasi-experimental to test hypotheses regarding causal relationships between variables (Setyosari, 2010). The research design used was a two-by-two factorial design. The research design can be seen in the [Table 1](#).

Table 1. A 2x2 factorial design

Independent Variables vs Moderator Variables	Learning Strategy	
	Heutagogy-based Learning	Andragogy-based learning
High Self-efficacy	A1B1	A2B1
Low Self-efficacy	A1B2	A2B2

The research was located at the Institute of Christian Religion Ambon. The subject was the fifth-semester students of the Christian Religion Education Study Program for the 2021/2022 Academic Year, which consists of 2 classes (A and B). Each class consisted of 24 people, so the total was 48, then divided into the experimental group (class A totaling 24 people) and the control group (class B totaling 24 people). These were the reasons for choosing the fifth-semester students: 1) lesson planning courses were given in the fifth semester, and 2) the fifth semester includes high school students, assumed to have high self-efficacy and learning independence. Research instruments were in the form of tests and questionnaires. The test was in the form of an essay to measure HOTS. The number of questions used was 10 questions with a score of 1 (if correct) and a score of 0 (if incorrect) (Trizi, 2022). Meanwhile, the questionnaire used for self-efficacy data refers to Tarumasely (2021) consisting of 35 items, a Likert scale 1-4. For grouping research subjects based on high or low self-efficacy, it was done by looking for the median value assisted by SPSS. The median value obtained was 104. Based on this midpoint, research subjects who got a value below 104 were grouped into research subjects with low self-efficacy. Those obtaining scores above 140 were grouped into research subjects with high self-efficacy. Data analysis consisted of test requirements for ANOVA analysis and research hypothesis testing. The analysis requirements used the data's normality test through the Kolmogorov-Smirnov test and the homogeneity of variance test through the Levene test. Normality and homogeneity tests of the data were used to meet the parametric assumptions as a condition for the ANOVA test. The research hypothesis was tested using a two-way ANOVA statistical technique using the SPSS for Windows version 24 program with a significance level of 5%.

RESULTS

HOTS Study Results Data

The study's results were described by tabulating the data on group HOTS learning outcomes using a learning and self-efficacy approach, and conducting a requirements analysis test. As an illustration of the research data, the following is an overview of SE, HOTS learning outcomes, and then the difference in mean learning outcomes between heutagogy and andragogy learning approaches and the mean difference between high and low self-efficacy. The following is a description of the results of the HOTS posttest as shown in the [Table 2](#).

Table 2. Description of the Posttest Data of HOTS Learning Outcome

Learning approach * self-efficacy					
Dependent Variable: HOTS					
Learning Approach	Self-efficacy	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Heutagogy	High	80.455	1.183	78.071	82.839
	Low	66.538	1.088	64.345	68.731
Andragogy	High	63.636	1.183	61.252	66.020
	Low	62.692	1.088	60.499	64.885

The results above show a difference in scores between students with high and low levels of efficacy in the experimental class (heutagogy learning approach). The posttest mean value of students with high self-efficacy was 80.455, and the standard deviation was 1.183, greater than students with low self-efficacy, which was 66.538, and the standard deviation was 1.088. The average score obtained by the andragogy learning approach group for students with a high SE level was 63.636. The standard deviation was 1.183, while for students with a low SE level was 62.692, and the standard deviation was 1.088.

Analysis Requirements Test

Normality Test

The normality test was carried out univariately for the results of the HOTS learning planning posttest from the two groups of research subjects. The results can be seen in [Table 3](#).

Table 3. Results of the Posttest Data Normality Test for HOTS Learning Outcomes

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for results	.137	48	.025	.949	48	.036

a. Lilliefors Significance Correction

Based on the [Table 3](#), the probability value of the normality of Kolmogorov skmirnov on the HOTS learning outcomes was 0.036. This shows that the HOTS learning outcomes were normally distributed, where the probability value was greater than 0.05. The results of the Kolmogorov-Smirnov test indicated that the HOTS learning outcomes were normally distributed. Homogeneity The results of the Levene test for the HOTS learning outcome score based on the learning approach, the calculated F HOTS value was 0.113, while the significance values for both were (0.459; 0.737) respectively, where the sig value was > 0.05. These results showed that the HOTS learning outcomes scores according to the independent variables of the learning approach had the same variance. The results of the homogeneity test proved that multivariately the HOTS learning outcomes met the homogeneity assumption, and univariately the HOTS learning outcomes based on the learning approach met the homogeneity assumption.

The following is the data on the results of the homogeneity test based on the Levene test on the moderator variable for the level of self-efficacy. The results are shown in the following [Table 4](#).

Table 4. Results of the HOTS Posttest Data Homogeneity test

Levene's Test of Equality of Error Variances ^a				
	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
HOTS	1.232	1	90	.270

Table 4 shows the learning outcomes of HOTS based on the moderator variable of self-efficacy. For the calculated *F* value of HOTS, 1.232 was obtained, while for the significance value of HOTS, a value of 0.270 was obtained. Based on the results, the HOTS significance value was $0.270 > 0.05$. The results showed that the variance of the HOTS learning outcomes scores in the high self-efficacy group and the low self-efficacy level significantly had the same score variance. The results of the homogeneity test prove that multivariately HOTS has met the assumption of homogeneity, and univariately the learning outcomes of HOTS based on the level of self-efficacy have met the assumption of homogeneity. The results of the ANOVA test based on the hypothesis test of the influence between subjects, as shown in Table 5.

Table 5. Results of Inter-Subject Influence Test

Tests of Between-Subjects Effects					
<i>Dependent Variable: HOTS</i>					
<i>Source</i>	<i>Type III Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Corrected Model	2309.706 ^a	3	769.902	50.018	.000
Intercept	222557.871	1	222557.871	14458.793	.000
Approach	1272.148	1	1272.148	82.647	.000
self-efficacy	657.871	1	657.871	42.740	.000
Approach * self-efficacy	501.315	1	501.315	32.569	.000
Error	677.273	44	15.393		
Total	225075.000	48			
Corrected Total	2986.979	47			

a. R Squared = .773 (Adjusted R Squared = .758)

The Influence of Heutagogy Learning Approach and Andragogy Learning on HOTS Learning Outcomes.

Table 5 shows the results of the ANOVA calculation per variable for the learning approach to HOTS learning outcomes. It was found that the *F* count was 82.647, and the probability significance value was 0.00. According to the number obtained, the probability significance value was < 0.05 . Thus, H_0 was rejected, where there were differences in HOTS learning outcomes between groups of students who used the heutagogy learning approach and andragogy learning approach. It showed that the first hypothesis was proven or accepted. The following is the estimated average value of the two groups, as shown in Table 6.

Table 6. Mean Score of HOTS Learning Outcomes

Learning Strategy				
<i>Dependent Variable: HOTS</i>				
Learning Approach	Means	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Heutagogy	73.497	.804	71.877	75.116
Andragogy	63.164	.804	61.545	64.784

Table 6 shows the HOTS learning outcomes. The estimated average score for the experimental group (using the heutagogy learning approach) was 73.497, which was in the range of scores at the lower limit of 71.877 and the upper limit of 75.116, with a standard error of 0.804, while for the control group (using the andragogy learning approach), the average score was estimated at 63.164, between the score range of 61.545 to 64.784, with a standard error of 0.804. The results showed a difference in the mean score between the group of students who used the heutagogy approach and the students who used the andragogy approach. The average value of the experimental group was higher than the control group.

The Effect of SE Level on HOTS Learning Outcomes

Based on the results of the ANOVA calculation per variable in Table 5, the results of the ANOVA analysis for the SE variable, the F count was 42.740 with a sig probability value of 0.00. Based on the results of the probability significance value < 0.05 , it can be concluded that H_0 was rejected, meaning that there were differences in HOTS learning outcomes between groups of students according to the level of self-efficacy (high and low). It can be concluded the second hypothesis was proven or accepted. The following is a comparison test to compare the estimated average score of HOTS learning outcomes in the two groups based on high and low self-efficacy levels according to the following Table 7.

Table 7. Mean Score of Self-Efficacy

self efficacy	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
High	72.045	.836	70.360	73.731
Low	64.615	.769	63.065	66.166

Based on the Table 7, the HOTS learning outcomes estimated the mean score for the high SE level group of 72.045, which is in the range of scores below 70.360 and the upper limit of 73.731, with a standard error of 0.836, while for low self-efficacy levels, the estimated average score was 64.615, between the score range of 63.065 to 66.166 with a standard error of 0.769. The results showed differences in the estimated mean scores for HOTS learning outcomes in groups based on self-efficacy. The test results showed that the estimated mean score of HOTS learning outcomes for groups with high levels of self-efficacy was significantly higher than for groups with low levels of self-efficacy.

Interaction between Learning Approach and Self-Efficacy on HOTS Learning Outcomes

Based on Table 5, the results of the ANOVA analysis for the interaction of learning approaches with self-efficacy on HOTS learning outcomes obtained an F count of 32.569 with a probability significance value of 0.00. Based on this number, the probability significance value was < 0.05 ($0.00 < 0.05$). Thus, it can be concluded that H_0 was not accepted. This means there was no interaction between the learning approaches (heutagogy learning with andragogy learning) and SE (high and low) on the HOTS learning outcomes. Thus, hypothesis 3 of this study was not proven, rejected.

DISCUSSION

Discussion of the first hypothesis

The results of hypothesis testing showed 1) differences in HOTS learning outcomes between students who used the heutagogy learning approach and groups of students who used the andragogy learning approach. This means that the students using the heutagogy approach obtained higher HOTS learning outcomes than those using the andragogy approach. The results of this study were supported by Blaschke & Hase (2016), showing that

the heutagogy approach challenges students to be creative and to produce outcomes. It is in line with the research conducted by [Torfi et al. \(2020\)](#), and [Sulistya, \(2019\)](#) that the heutagogy approach strengthens training for teachers in the era of the industrial revolution 4.0, heutagogy approach strongly supports the development of student creativity ([Hase & Kenyon, 2003](#); [Wismaningrum et al., 2021](#)).

Discussion of the Second Hypothesis

The results of the second hypothesis test showed differences in HOTS learning outcomes between students with high self-efficacy and those with low self-efficacy. The results of this study were supported by [Hutagalung \(2016\)](#) that students with low self-efficacy feel pessimistic (incapable) when dealing with difficult tasks, considering them as challenges or getting to a dead end when completing tasks. On the contrary, students with high self-efficacy view difficult tasks as a challenge, stay optimistic about their abilities and tend to find solutions in learning, so they can avoid boredom while studying and get good learning outcomes. Students with high self-efficacy were confident in their abilities. These beliefs encourage them to learn and find solutions to complete the given task, while students with low self-efficacy did not have confidence in themselves that they could get better learning outcomes. The results of this study were supported by research conducted by [Sariningsih \(2017\)](#) and [Tarumasely \(2021\)](#) that students with high self-efficacy had high academic achievement, while students with low self-efficacy had low performance.

Discussion of the Third Hypothesis

The results of hypothesis testing showed that 3) there was no interaction between the heutagogy approach and self-efficacy in HOTS. In this study, the heutagogy and self-efficacy approaches partially influenced students' HOTS learning outcomes. Based on the calculated F value in [Table 5](#), it can be said that the influence of the heutagogy approach variable strongly influenced student learning outcomes rather than self-efficacy. Theoretical and empirical studies support this. Theoretically, heutagogy is a learning approach that allows students to manage their learning according to their abilities or competencies. In addition, heutagogy makes students adults who are capable of independently managing their classes to learn. Furthermore, [Moore et al. \(2011\)](#) assumed that students are adults who can control what will be learned in formal education. Apart from Heutagogy, self-efficacy also separately influences HOTS learning outcomes. This is evidenced by the research results showing that the flipped classroom learning outcomes and high self-efficacy are higher than conventional and low self-efficacy classes ([Berg- & Sams, 2017](#); [Arnawa & Setiawan, 2021](#)). Based on the results obtained, it can be said that a high level of self-efficacy provided high self-confidence in one's ability to carry out the tasks given. Even though they faced many obstacles, they did not give up on the situation but had strong encouragement to complete the given task.

CONCLUSION

Based on the calculation of analysis of variance (ANOVA), it can be concluded that the heutagogy-based learning approach was more effective in improving HOTS learning outcomes than andragogy-based learning approaches, both for participants with high self-efficacy and low self-efficacy. Students with a high level of self-efficacy obtained higher HOTS learning outcomes than those with a low level of self-efficacy, using both heutagogy-based and andragogy-based learning. However, both heutagogy and self-efficacy levels did not show any interaction effect on learning outcomes of high-order thinking skills. According to the conclusions above, it is expected that: 1) lecturers, especially lecturers in Learning

Planning courses can apply the heutagogy approach as an approach in the learning process, 2) students are advised to have higher-order thinking skills (HOTS) as a competency that must be possessed in the learning process in 21st-century learning, 3) Institutions can provide facilities and infrastructure to assist the implementation of the heutagogy approach, and 4) it is hoped that other researchers who will conduct further research related to the heutagogy approach can implement this for other subjects, other research subjects with a greater number and collaborate with other moderator variables.

REFERENCES

- Adhitiya, E. N., Prabowo, A., & Arifudin, R. (2015). Studi Komparasi Model Pembelajaran Traditional Flipped Dengan Peer Instruction Flipped Terhadap Kemampuan Pemecahan Masalah. *Unnes Journal of Mathematics Education*, 4(2), 116–126. <https://doi.org/10.15294/uime.v4i2.7451>
- Arnawa, I. N., & Setiawan, I. M. D. (2021). Pengaruh Flipped Classroom Berbantuan Google Classroom Terhadap Hasil Belajar Matematika Berdasarkan Tingkat Computer Self-Efficacy. *Jurnal Penelitian Dan Pengembangan Pendidikan*, 5(1), 34–42. <https://doi.org/10.23887/jppp.v5i1.29737>
- Berg-, J., & Sams, A. (2017). Jonathan Bergmann and Aaron Sams , Flipped Learning : Gateway to Student Engagement , International Society for Technology in Education : Eugene , Oregon and Washington , DC , 2014 ; 169 pp .: ISBN 978-1-56484-344-9. 7(Chapter 12), 173–176.
- Blaschke, L. M., & Hase, S. (2016). *Heutagogy: A Holistic Framework for Creating Twenty-First-Century Self-determined Learners*. In Lecture Notes in Educational Technology (Issue 9783662477236). https://doi.org/10.1007/978-3-662-47724-3_2
- Booth, M., Blaschke, L. M., & Hase, S. (2017). *Practicing the Practice: The Heutagogy Community of Practice*. In *Implementing Communities of Practice in Higher Education*. https://doi.org/10.1007/978-981-10-2866-3_24
- Cliffs, E., & Hall, J. (1991). *Social Cognitive Theory of Self-Regulation*. 38, 248–287.
- David R. Krathwohl, Lorin W. Anderson., E. a. (2021). *A Taxonomy For Learning Teaching and Assesing, A revision of Bloom' Taxonomy of educational Objectives*.
- Degeng, N. S. (2006). Ilmu pengajaran taksonomi variable /I Nyoman Sudana Degeng. Jakarta :: Departemen Pendidikan dan Kebudayaan, Direktorat Jenderal Pendidikan Tinggi, Proyek Pengembangan Lembaga Pendidikan Tenaga Kependidikan.
- Enfield, J. (2013). Looking at the Impact of the Flipped Classroom Model of Instruction on Undergraduate Multimedia Students at CSUN. *TechTrends*, 57(6), 14–27. <https://doi.org/10.1007/s11528-013-0698-1>
- Handayani, S. M., Yeigh, T., Jacka, L., & Peddell, L. (2021). Developing a heutagogy approach to promoting teacher competencies in Indonesia. *Cypriot Journal of Educational Sciences*, 16(3). <https://doi.org/10.18844/CJES.V16I3.5765>
- Hasanudin, C., Supriyanto, R. T., & Pristiwati, R. (2020). Elaborasi Model Pembelajaran Flipped Classroom dan Google Classroom sebagai Bentuk Self-Development Siswa Mengikuti Pembelajaran Bahasa Indonesia di Era Adaptasi Kebiasaan Baru (AKB). *Jurnal Intelegensia*, 8(2), 85–97. <https://doi.org/10.34001/intelegensia.v8i2.1414>
- Hase, S., & Kenyon, C. (2003). Heutagogy and developing capable people and capable workplaces : strategies for dealing with complexity. Proceedings of The Changing Face of Work and Learning Conference.
- Hutagalung, D. D. (2016). The Corelation Between Self Efficacy And Motivation Learning With

- Mathematics Learning Outcomes Students Class XI IPS SMA Negeri 5 BATAM Academic Year 2013/2014. *Jurnal Mercumatika*, 1(1). <https://doi.org/10.26486/mercumatika.v1i1.187>
- Kurniawati, M., Santanapurba, H., & Kusumawati, E. (2019). Penerapan Blended Learning Menggunakan Model Flipped Classroom Berbantuan Google Classroom Dalam Pembelajaran Matematika Smp. *EDU-MAT: Jurnal Pendidikan Matematika*, 7(1), 8–19. <https://doi.org/10.20527/edumat.v7i1.6827>
- Mary Beth Gilboy, R., & Scott Heinerichs EdD, ATC2 Gina Pazzaglia PhD, R. (2015). Enhancing Student Engagement Using the Flipped Classroom. *Journal of Nutrition Education and Behavior*, Volume 47, (Issue 1), 109–114. <https://10.1016/j.jneb.2014.08.008>
- Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). *E-Learning, online learning, and distance learning environments: Are they the same? Internet and Higher Education*. <https://doi.org/10.1016/j.iheduc.2010.10.001>
- Permendikbud. (2018). Permendikbud RI No 20 Tahun 2018 tentang Penguatan Pendidikan Karakter pada Satuan Pendidikan Formal. Permendikbud Nomor 20 Tahun 2018 Tentang Penguatan Pendidikan Karakter Pada Satuan Pendidikan Formal, 8–12. https://jdih.kemdikbud.go.id/arsip/Permendikbud_Tahun2018_Nomor20.pdf
- Sariningsih, R., & Purwasih, R. (2017). Pembelajaran problem based learning untuk meningkatkan kemampuan pemecahan masalah matematis dan self efficacy mahasiswa calon guru. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 1(1), 163-177. <http://dx.doi.org/10.33603/jnpm.v1i1.275>
- Rumiati, S. W. (2011). *Instrumen Penilaian Hasil Belajar Matematika SMP : Belajar dari PISA dan TIMSS*. Yogyakarta: Pusat Pengembangan Dan Pemberdayaan Pendidik Dan Tenaga Kependidikan (PPPPTK) Matematika, 55.
- Setyosari, P. (2010). *Metode Penelitian dan Pengembangan*. Jakarta: kencana.
- Sulistya, R. (2019). Heutagogi Sebagai Pendekatan Pelatihan Bagi Guru Di Era Revolusi Industri 4.0. *Jurnal Pendidikan Dan Kebudayaan*, 4(2), 127. <https://doi.org/10.24832/jpnk.v4i2.1222>
- Suo, J., & Hou, X. (2017). A Study on the Motivational Strategies in College English Flipped Classroom. *English Language Teaching*, 10(5), 62. <https://doi.org/10.5539/elt.v10n5p62>
- Tarumasely, Y. (2021). Pengaruh Self Regulated Learning dan Self Efficacy terhadap Prestasi Akademik Mahasiswa. *Jurnal Pendidikan Edutama*, 8(1), 71. <https://doi.org/10.30734/jpe.v8i1.1359>
- Torfi, J., Nateghi, F., & Jalalvandi, M. (2020). Study of the position of Pedagogy, andragogy and heutagogy educational Approaches in high school teacher's professional development. *Journal of School Administration*.
- Trizi Gapiriana, Prasetya ningsih, D. I. S. (2022). Pengembangan Instrumen Tes Esai Berbasis Higher Order Thinking Skills (HOTS) Tema Gelombang dan Bencana untuk Menumbuhkan Kemampuan Berpikir Kritis. 3(1), 87-. <http://dx.doi.org/10.20527/quantum.v13i1.11701>
- Wismaningrum, Y. dwi R., Prayitno, H. J., & Supriyanto, E. (2021). Heutagogy Approach: The Implementation of New Normal Era Learning. *Proceedings of the 5th Progressive and Fun Education International Conference (PFEIC 2020)*, 479. <https://doi.org/10.2991/assehr.k.201015.029>