



Combination Learning Models with Technology to Hone Critical Minding Patterns on National Insights

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Abstrak

Tantangan dunia pendidikan semakin berat. Siswa tidak lagi berpikir logis dan kehilangan pola berpikir kritisnya. Apalagi situasi pandemi covid-19 menyebabkan pembelajaran harus dialihkan ke pembelajaran online. Sebagian besar guru menggunakan WhatsApp untuk melakukan proses pembelajaran. Namun dampak dari pembelajaran ini tidak maksimal yang membuat mahasiswa menjadi pasif dan pembelajaran hanya terpusat pada dosen. Perlu dicari model pembelajaran yang dapat meningkatkan pola berpikir kritis siswa. Penelitian yang dilakukan akan menggabungkan pembelajaran kooperatif tipe time token dengan aplikasi zoom. Tujuan dari penelitian ini adalah apakah ada pengaruh kombinasi pembelajaran kooperatif tipe time token dengan aplikasi zoom terhadap berpikir kritis siswa pada mata kuliah kewarganegaraan pada wawasan kebangsaan. Pendekatan penelitian dengan desain eksperimen semu. Sampel kontrol dan eksperimen berjumlah 62 siswa. Kelompok kontrol belajar kewarganegaraan dengan WhatsApp, dan kelompok eksperimen belajar dengan kombinasi token waktu tipe pembelajaran kooperatif dengan aplikasi zoom. Analisis data dengan uji homogenitas, uji normalitas, dan uji hipotesis. Hasil yang diperoleh adalah nilai Sig dua ekor pada angka 0,00 yang lebih kecil dari angka 0,05. H_0 tidak dapat diterima, dan H_a dapat diterima. Pola pikir kritis siswa yang menggunakan model pembelajaran kooperatif tipe time token menggunakan aplikasi zoom lebih baik daripada siswa yang belajar menggunakan WhatsApp.

Kata kunci: Kewarganegaraan, Wawasan Kebangsaan, Token Waktu Jenis Pembelajaran Kooperatif

Abstract

The challenges of the world of education are getting tougher. Students no longer think logically and lose their critical thinking patterns. Moreover, since the covid-19 pandemic situation causes learning must be switched to online learning. Most teachers use WhatsApp to conduct the learning process. But the impact of this learning is not maximum which makes students passive and learning is centered only on the lecturer. It is necessary to find a learning model that can improve students' critical thinking patterns. The research conducted will combine the cooperative learning type time token with the zoom application. The purpose of the research is whether there is a combined effect of the cooperative learning type time token with the zoom application on students' critical thinking in the citizenship course on national insight. Research approach with a quasi-experimental design. The control and experimental samples were a total of 62 students. The control group learns citizenship with WhatsApp, and the experimental group learns with a combined cooperative learning type time token with the zoom application. Data analysis with homogeneity test, normality test, and hypothesis testing. The results obtained are Sig value two tails at the number 0.00, which is smaller than the number 0.05. H_0 is unacceptable, and H_a is acceptable. The critical mindset of students who use the time token type of cooperative learning model using the zoom application is better than students who learn to use WhatsApp.

Keywords: Citizenship, National Insight, Cooperative Learning Type Time Token

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1. INTRODUCTION

The challenges of the world of education are getting tougher. Education's central function is to produce knowledgeable and intelligent graduates, far from being burnt by fire (Aspiras & Aspiras, 2021; Christian et al., 2021; Das, 2021). Students no longer think logically in their actions. The critical mindset is gone. Tend to think spontaneously without mature thinking (de Graaf, 2021; Thambu et al., 2021). One proof is that student

organizations ask the President to step down when the government is drained of its energy dealing with COVID-19—followed by certain elements which are also student-based. The opinion is not wrong, as long as it is in the right place (Purba & Verawardina, 2021; Verawardina & Jama, 2018; Wardina et al., 2019). The student's response indicated that education, concentrating on creating cultured and dynamic human beings, had experienced a setback in realizing this noble goal.

The decline in students' logical thinking and the loss of critical thinking patterns are due to the lack of challenge for educators to emphasize the importance of loving the homeland and nation (Santika, 2021). The illogical attitude and the lack of a critical mindset because students are less aware of their importance to the country's future. The reason is the lack of a solid national foundation taught through citizenship courses (Saputra, 2021). Citizenship education in higher education is essential to improve, so students understand national insight more deeply (Ismail et al., 2021). Students must understand when the momentum or time is right in conveying aspirations as part of a critical mindset. Students are not wrong to be critical, as long as at the right time and place. National insight is the capital to fuse with society. Emphasizes that the learning of citizenship courses must be strengthened (Izudin, 2021; Lynch et al., 2021). Students' critical mindset related to national insight is returned and improved, so student militancy in the state can be better (Triana & Iskatriah, 2021; Yusrie et al., 2021). National standardization of the coverage of citizenship courses; 1) Unity and Unity of the nation; 2) Norms, laws, and regulations; 3) Human rights; 4) Citizens' needs; 5) State Constitution; 6) Power and politics; 7) Pancasila; 8) Globalization. This standardization must be embedded in civics learning for students (Arbarini et al., 2021; Syaifullah, 2021).

Zoom is an online learning media that are commonly used during the COVID-19 pandemic. Learning with Zoom is by the situation and conditions, both from the content of the material or the state of the student environment (Sari et al., 2021). Submission of a concept to students will be conveyed well if it requires students to be directly involved. Zoom can be categorized as an online learning medium. Zoom as an online learning media can be used as an alternative to electronic-based learning that provides many benefits, especially for the educational process carried out remotely (Astutik & Yuwana, 2021). Zoom can overcome the limitations of space, time, and the five senses. Accelerate the learning and teaching process, generate enthusiasm for learning, provide opportunities for students to interact directly, and allow students to learn independently based on their abilities and interests (Garad et al., 2021; Tejedor et al., 2021).

It is in line with previous research which states that most teaching processes, especially in pandemic situation, are still dominated by teachers (Silalahi & Hutauruk, 2020). As a result, teaching and learning activities place more emphasis on teaching and not on learning. The absence of a physical meetup becomes an obstacle that can be minimized by the adaptation of the teacher to the distance learning process. Therefore, distance learning media is needed that can provide solutions to these problems, namely Zoom meetings. Media combined with appropriate learning models will produce better learning outcomes. In addition, this is also supported by previous research which explored the use of cooperative learning by using the feature of breakout room in Zoom application for Malaysian University English Test (MUET) (Suhaimi & Yunus, 2021). Findings reveal that the participant had a positive perception of online cooperation learning via breakout room in the zoom application. The implication that can be derived from this study is that even in virtual classroom cooperative learning improves the participants' social and problem-solving skills.

The purpose of this study is whether there is a simultaneous effect of combining the cooperative learning model time token type with the zoom application on students' critical thinking in the citizenship course on national insight. Based on searches and studies related to

research and scientific publications, no research has combined the cooperative learning model time token type with the zoom application, especially in learning citizenship courses, to improve students' critical thinking about national insight. It becomes the novelty of this research. It is hoped that researching the cooperative learning model time token type with the zoom application can improve students' critical thinking in the citizenship course on national insight. In addition, it can also be used as material to optimize learning variations to increase student activity by using a suitable model. This research will also be helpful for alternative learning in times of natural disasters. In Indonesia, natural disasters often occur, which causes learning to occur in abnormal conditions and situations.

2. METHODS

The approach used a quasi-experimental design (Cargill & O’Connor, 2021). With pretest-posttest, but in the study, the experimental and control groups were not chosen randomly for the implementation, namely between groups that learn citizenship with WhatsApp and groups that study with a combination of the cooperative learning type time token with the zoom application. For the research population, all students of the Informatics Management Study Program at the Politeknik Unggul LP3M. With random cluster sampling. The combined technique of cluster sampling and random sampling. The final sample was from the MI 4 A and MI 4 B groups as controls with 31 students and the MI 4 C and MI 4 D groups as experiments with a total of 31 students. Where is the control group, the group that learns citizenship with WhatsApp, and the experimental group that learns by the combination of the cooperative learning type time token with the zoom application? The variables and indicators of the research conducted are; 1) The independent variables, namely the cooperative learning type time token with indicators; 2) The dependent variable, namely the increase in students' critical thinking in the Informatics Management Study Program Politeknik Unggul LP3M. Data analysis will be carried out with Homogeneity Test, Normality Test, and Hypothesis Testing. The following is a description of the instruments used to support research performance, as shown in Table 1.

Table 1. Overview of the Instruments Used

No	Critical Mindset	Activity
1	Delivering a brief presentation	a. Digging exposure b. Inquire about exposure c. Provide answers related to the exposure asked
2	Forming the initial mindset	a. Observing and reviewing the results of observations b. Assessing the validity of a basis
3	Making Conclusions	a. Making Conclusions
4	Delivering a follow-up presentation	a. Define meaning and examine the product of thought b. Assessing the decision reaction
5	Organizing tips and tricks	a. Deciding what to do b. Interact and communicate

3. RESULTS AND DISCUSSION

Result

When the test was carried out to obtain learning scores, it was found that the score obtained for the control group who learned to use WhatsApp with an average of 24. Meanwhile, the score obtained for the experimental group who learned to use a combination

of cooperative learning type time token and zoom application with an average of 27. Then a uniformity test was carried out using Levene, and it was found that the acceptance value was .651. This acceptance value is more significant than .05. Assuming a one-sided hypothesis test. Based on this, it can be concluded that the version of the data in terms of the post-test for the control group who learns to use WhatsApp and the post-test for the experimental group that learns to use a combination of the cooperative learning type time token and the zoom application both have similar results or can be said to be uniform.

Next, for the uniformity test with a similar test, using Levene, the acceptance value was found to be .651. This acceptance value was more significant than .05. Based on this, similar to the above, it can be concluded that the version of the data in terms of the posttest for the control group that learns using WhatsApp and the posttest for the experimental group that learns to use a combination of the cooperative learning type time token and the zoom application both have similar results or can be said to be uniform. The accumulated results are presented in Table 2.

Table 2. Accumulated Uniformity Test

Category	Group	Lev Stat	df1	df2	Sig
Learning Value	mean	0.207 - 0.242	1	0.60 - 0.60	0.651- 0.624
	Middle value – df adjustment - Mid value trimming	0.242 - 0.231	1	0.60- 0.60	624 - 0.632

Then a normality test was carried out to obtain information if the research data used had a normal or abnormal distribution. If the acceptance of the numerical value is more significant than 0.05, it is said that the data distribution is in the normal category. If the opposite is true, then the data distribution is said to be not in the normal category. The accumulation of normality test results is shown in Table 3.

Table 3. Accumulation of Normality Test

Category	Group	Kolmo-Smir			Shapiro		
		Stat	df	sig	Stat	df	sig
Learning Value	Experi ment Pretest - Control	0.121 - 0.145	31	0.200 - 0.094	0.973 - 0.949	31	0.591 - 0.143
	Experi ment Posttest - Control	0.121 - 0.133	31	0.200 - 0. 172	0.951 - 0.965	31	0.169 - 0.383

By the acquisition of accumulated scores based on the normality test, for the experimental group that learned to use a combination of the cooperative learning type time token and the zoom application, it was found that the post-test value was 0.2, meanwhile for the control group that learned to use WhatsApp the posttest value was 0.172 the accumulated value is greater than the acceptance level, where p-sig is at 0.05. So it can be concluded that the control group that learns using WhatsApp and the experimental group that learns to use a

combination of the cooperative learning type time token and the zoom application have numbers with a normal distribution because the p sig number is more significant than 0.05.

Then the hypothesis test was carried out with the t-test. Where for the t-test, the level of acceptance is 0.05. The parameters include: H_0 μ_1 value is smaller than the number μ_2 , meaning that there is no potential impact of learning using a cooperative learning type time token with a zoom application that affects critical thinking patterns in citizenship courses on national insight. H_a , μ_1 value is greater than the number μ_2 , meaning that the potential impact of learning using the cooperative learning type time token with the zoom application affects critical thinking patterns in citizenship courses on national insight. The accumulated results are shown in Table 4.

Table 4. Accumulated t-test

Category	Group	Levene Test		t-test					Interval	
		<i>f</i>	<i>sig</i>	<i>f</i>	<i>df</i>	2-tail	Mean-def	Std e-dif	Low	Upp
Learning Value	Equal	207	651	6.445	80	00	2.806	435	1.907	3.676
	Equal Not			6.455	59.725	00	2.806	435	1.907	3.676

By accumulating the hypothesis test with the free sample test, the numerical value in the component assumption of the same variance was found to have accumulated a Sig value of 2 tails at .00, which number is smaller than the .05 number. From this accumulation, it can be concluded that H_0 is unacceptable and H_a is acceptable. So that it can be concluded if there are different assumptions in terms of acceptance of the average critical thinking pattern of learning using the cooperative learning type time token with the zoom application and learning by learning using WhatsApp.

Discussion

The purpose of the study was to see if there was a simultaneous effect of the combination of the cooperative learning model time token type with the zoom application on the critical thinking of students in the citizenship course on national insight. The experimental group learns by using the cooperative learning model time token type with the zoom application, and the control group learns by using WhatsApp. The tables in the results section carry out the research stages; it is clear how the resulting assessment is by the research steps carried out. It can be seen that each group, both the experimental group and the control group, had their respective values according to the actual conditions that occurred in the field when the research was conducted. The experimental group whose learning journey uses a cooperative learning model time token type with the zoom application scores above the control group whose learning only uses WhatsApp media.

In the research conducted, it is clear that the experimental group's results, where the acquisition value is higher than the control group. It happened because the experimental group that studied using the cooperative learning model time token type with the zoom application included and opened up space for students to give their thoughts and communicate intensively with other students during the learning activities of citizenship courses national insight. Each student is allowed to express opinions that cause them to be more courageous and confident to open up space to express their thoughts on citizenship courses on national insight (Tsang et al., 2021). Students are given the opportunity and space

is opened to express their opinions and provide feedback on the opinions of others; then, these students will be more open-minded and more confident to convey their thoughts (Chen & Chuang, 2021). Students who are given the freedom to express their thoughts, and are directed to what is right to do, will slowly change their mindset and perspective of the student towards wisdom and maturity (Daddow et al., 2021). Students should be allowed to communicate in their way but still under direction and supervision. If it has widened, the teacher must provide direction so that communication returns to the initial material (Kurniawan et al., 2021). The results seen from the acquisition of the experimental class show how research can produce learning that can open students' horizons. It is different from before the research was conducted, where students were only monotonous in learning which caused students not to open up their insights. The research carried out is up-to-date compared to previous research. The research conducted can open opportunities for lecturers and students to improvise in the learning process.

The study results found that the accumulation of the hypothesis test with the free sample test obtained a numerical value in the component assumption of the same variance; it was found that the accumulation of Sig value 2 tails was at 0.00, which the number was smaller than the number 0.05. From this accumulation, it can be concluded that H_0 is unacceptable and H_a is acceptable. So that it can be concluded if there are different assumptions in terms of acceptance of the average critical thinking pattern of learning using the cooperative learning model time token type with the zoom application and learning by learning using WhatsApp. When juxtaposed with the right technology media, the suitable model will result in a good learning journey and produce good learning outcomes (Chu et al., 2021; Diao, 2021). When combined with the right technology media, the time token type of cooperative learning model will be able to acquire student learning outcomes as expected (Metekohy et al., 2021; Salgado-Jauregui et al., 2021). In the research conducted, it is clear how the combination of the selected models can provide learning outcomes in line with expectations. Other researchers have never studied the combination of the model and the technology chosen by the researcher. It makes it different from previous research.

The results are in line with the research results that occurred previously (Permata et al., 2018). The steps with similar treatment were carried out for the experimental group and the control group. The experimental group received treatment using a cooperative learning model time token type, while the control group did not use the model. However, both groups use technology media in their learning process. The results found the potential impact of learning using a cooperative learning model time token type with a zoom application that affects national insight's critical thinking in citizenship courses. It is also supported by other study that state different treatments of the research group will result in different results (Supena et al., 2021). There will be a gap in results between the two groups that experience the treatment as the research object. In the future, all existing groups must receive the same treatment so that the results can be maximized and there are no gaps. Thus, the whole group's learning outcomes will align with expectations (Reynolds & Kao, 2021).

The study results on the learning control group using WhatsApp only some students played an active role during learning activities. Only a few students actively asked questions and gave responses. Even students wait to be asked by the lecturer. If the lecturer does not challenge and asks questions directly, students stay silent until the learning activity is completed. Inappropriate media and inappropriate methods will end in vain. Especially in learning with students, students' thinking will not develop and be honed (Herro et al., 2021). If learning only focuses on one party, then what happens is boredom which will lead to setbacks and laziness (Fitzgerald, 2021). Students at any level must be given the freedom to absorb and convey their aspirations and thoughts. If not, there will be a shallowing of knowledge which, in the end, makes learning, not in line with expectations (el Majidi et al.,

2021). The learning model and technology used in the research can change the learning conditions better than before. It is proven that the achievement obtained by the experimental group is above the control group. The experimental group that has been given previous training has proven to be successful in achieving results in line with expectations, whereas previously, the achievements were standard and not in line with expectations.

The results of the data analysis that have been done, the cooperative learning model time token type using the zoom application used in the Citizenship course on national insight in terms of critical thinking has an impact—affirming. The cooperative learning model time token type using the zoom application can improve students' critical thinking in the Citizenship course on national insight. It is different from the learning model using WhatsApp—using a cooperative learning model time token type using the zoom application impacts increasing the critical mindset of students of the Informatics Management Study Program at the Politeknik Unggul LP3M in the city of Medan. Combining the suitable model and technology will challenge educators and students to improvise according to their respective parts. Especially if given more space and opportunities to students or students, they will be more honed and broaden their horizons (Sajidin & Ashadi, 2021; Ticheloven et al., 2021). Models and technology will become innovations for learning tools. Especially in addressing the educational process in critical situations or not as usual (Ploj Virtic et al., 2021; Supriadi et al., 2021). When paired with the right technology, a good learning model will be a new learning advancement that will provide significant benefits in the field of education (Bayaga et al., 2021; Sutarni et al., 2021). Not only that, but the resulting impact will also be in line with expectations because all existing elements can carry out activities according to their respective parts to the maximum (Jalinus, 2021).

The stages of the research carried out make this research new and different from previous research. Combining the cooperative learning model with the time token type using the zoom application is a new combination of research. The steps, which are the stages of research, are also a novelty in this study, wherein in this study, the experimental group and the control group were first given direction and treatment. After that, the research phase was carried out. The next update is the discussion on strengthening national insight at the university level, which is still very little done, while this national insight is critical. This research will be used as a reference for other allied or intersected studies. In addition, this research will also contribute to learning from abnormal situations. Where in abnormal situations, learning can happen from anywhere. However, the model and technology users can use the results of this research, namely the cooperative learning model of the time token type using the zoom application.

4. CONCLUSION

The critical mindset of students who use the time token type of cooperative learning model using the zoom application is better than students who learn to use WhatsApp. There is a significant difference between students' average critical thinking patterns between students who learn to use the cooperative learning model time token type using the zoom application and students who learn to use WhatsApp. It further strengthens if there is a significant impact on using the cooperative learning model time token type by using the zoom application to students' critical thinking in the citizenship course on national insight. Therefore, the study aimed to a simultaneous effect of the combination of the cooperative learning model time token type with the zoom application on the critical thinking patterns of students in the citizenship course on national insight. It means that the research conducted has succeeded in increasing students' critical thinking patterns. In addition, this research also produces a combination of learning models with technology that can and is appropriately used in abnormal situations.

5. REFERENCES

- Arbarini, M., Suminar, T., & Desmawati, L. (2021). Promoting Financial and Cultural Citizenship Literacy as Multiliteracy in Tourism Village. *Journal of Nonformal Education*, 7(1). <https://doi.org/10.15294/jne.v7i1.27874>.
- Aspiras, L., & Aspiras, E. D. (2021). Youth Off-Script: Unleashing the Life Stories and Hopes of the Out-of School-Youths. *American Journal of Qualitative Research*, 5(1), 222–242. <https://doi.org/10.29333/ajqr/10913>.
- Astutik, W. B., & Yuwana, S. (2021). Development of Non-Fiction Text Digital Learning Media in Narrative Writing Skills for Fourth Grade Elementary School Students. *IJORER: International Journal of Recent Educational Research*, 2(3), 275–292. <https://doi.org/10.46245/ijorer.v2i3.99>.
- Bayaga, A., Bossé, M. J., Sevier, J., Fountain, C., Williams, D., Bosire, S., & Blignaut, S. (2021). University Faculty Opinions of Preservice Teachers' Technological Readiness. *Canadian Journal of Science, Mathematics and Technology Education*, 21(1), 44–64. <https://doi.org/10.1007/s42330-021-00146-6>.
- Cargill, M., & O'Connor, P. (2021). *Writing scientific research articles: Strategy and steps*. John Wiley & Sons.
- Chen, H., & Chuang, Y. (2021). The effects of digital storytelling games on high school students' critical thinking skills. *Journal of Computer Assisted Learning*, 37(1), 265–274. <https://doi.org/10.1111/jcal.12487>.
- Christian, D. D., McCarty, D. L., & Brown, C. L. (2021). Experiential education during the COVID-19 pandemic: A reflective process. *Journal of Constructivist Psychology*, 34(3), 264–277. <https://doi.org/10.1080/10720537.2020.1813666>.
- Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., & Lee, C. W. Y. (2021). *21st century skills development through inquiry-based learning from theory to practice*. Springer.
- Daddow, A., Cronshaw, D., Daddow, N., & Sandy, R. (2021). Strengthening inter-cultural literacy and minority voices through narratives of healthy religious pluralism in higher education. *International Journal of Inclusive Education*, 25(10), 1174–1189. <https://doi.org/10.1080/13603116.2019.1600056>.
- Das, R. (2021). Challenges Of Virtual Mode Of Education Faced By The Higher Secondary Students During Covid 19 Lockdown. *Psychology and Education Journal*, 58(1), 5942–5946. <https://doi.org/10.23887/jpp.v55i1.39889>.
- de Graaf, G. (2021). Value conflicts in academic teaching. *Teaching Public Administration*, 39(1), 107–124. <https://doi.org/10.1177/0144739420937755>.
- Diao, J. (2021). Instructional design with the ICE approach in academic libraries: A framework that integrates assessing, learning, and teaching. *The Journal of Academic Librarianship*, 47(6), 102402. <https://doi.org/10.1016/j.acalib.2021.102402>.
- el Majidi, A., Janssen, D., & de Graaff, R. (2021). The effects of in-class debates on argumentation skills in second language education. *System*, 101, 102576. <https://doi.org/10.1016/j.system.2021.102576>.
- Fitzgerald, A. (2021). Exploring 'Next Practice': Principals' Perceptions of Graduate Skills and Attributes for Future Classrooms. *Australian Journal of Teacher Education*, 46(5), 1. <https://doi.org/10.3316/informit.050992774770011>.
- Garad, A., Al-Ansi, A. M., & Qamari, I. N. (2021). The role of e-learning infrastructure and cognitive competence in distance learning effectiveness during the covid-19 pandemic. *Jurnal Cakrawala Pendidikan*, 40(1), 81–91. <https://doi.org/10.21831/cp.v40i1.33474>.
- Herro, D., Quigley, C., Plank, H., & Abimbade, O. (2021). Understanding students' social interactions during making activities designed to promote computational thinking.

- The Journal of Educational Research*, 114(2), 183–195.
<https://doi.org/10.1080/00220671.2021.1884824>.
- Ismail, S., Suhana, S., & Zakiah, Q. Y. (2021). Analisis Kebijakan Penguatan Pendidikan Karakter Dalam Mewujudkan Pelajar Pancasila Di Sekolah. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, 2(1), 76–84. <https://doi.org/10.38035/jmpis.v2i1.388>.
- Izudin, A. (2021). Revealing the Orientation of the Post-Reformation Islamic Student Movement in Indonesia. *Politika: Jurnal Ilmu Politik*, 12(1), 11–24. <https://doi.org/10.14710/politika.12.1.2021.11-24>.
- Jalinus, N. (2021). Developing Blended Learning Model in Vocational Education Based On 21st Century Integrated Learning and Industrial Revolution 4.0. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(8), 1239–1254. <https://doi.org/10.17762/turcomat.v12i8.3035>.
- Kurniawan, D. A., Hoyi, R., & Sukarni, W. (2021). Description of Student Response on The Implementation of Cooperative Learning Models of Jigsaw and Role Playing on The Physics Learning. *Jurnal Pendidikan Fisika Indonesia*, 17(1), 77–85. <https://doi.org/10.15294/jpfi.v17i1.24315>.
- Lynch, M., Andersson, G., & Johansen, F. R. (2021). Merging Systems Thinking with Entrepreneurship: Shifting Students' Mindsets towards Crafting a More Sustainable Future. *Sustainability*, 13(9), 4946. <https://doi.org/10.3390/su13094946>.
- Metekohy, B., Sahertian, N. L., & Ming, D. (2021). Contribution of Token Type Cooperative Learning Models for in the Haruru Christian Middle School. *Psychology and Education*, 58(2), 982–994. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3800520.
- Permata, D., Slameto, & Radia, E. H. (2018). Implementation of cooperative learning model type Jigsaw in social science to increase students' learning outcome. *Pendidikan Dan Pengajaran*, 51(2), 61–67. <https://doi.org/10.23887/jpp.v51i2.15415>.
- Ploj Virtic, M., Dolenc, K., & Šorgo, A. (2021). Changes in Online Distance Learning Behaviour of University Students during the Coronavirus Disease 2019 Outbreak, and Development of the Model of Forced Distance Online Learning Preferences. *European Journal of Educational Research*, 10(1), 393–411. <https://eric.ed.gov/?id=EJ1284206>.
- Purba, R. A., & Verawardina, U. (2021). Deteksi Mahasiswa Yang Dapat Menyusun Tugas Akhir dengan Metode Visekriterijumsko Kompromisno Rangiranje (VIKOR). *Techno. Com*, 20(2), 210–220. <https://doi.org/10.33633/tc.v20i2.4360>.
- Reynolds, B. L., & Kao, C.-W. (2021). The effects of digital game-based instruction, teacher instruction, and direct focused written corrective feedback on the grammatical accuracy of English articles. *Computer Assisted Language Learning*, 34(4), 462–482. <https://doi.org/10.1080/09588221.2019.1617747>.
- Sajidin, S., & Ashadi, A. (2021). How Do Their" Group Work" Works As An Active Learning Strategy Of Efl Learning. *Jurnal Cakrawala Pendidikan*, 40(2). <https://doi.org/10.21831/cp.v40i2.36234>.
- Salgado-Jauregui, E., Martindale, R. C., Ellins, K., Reyes, E., & Weiss, A. (2021). Learning outcomes of the educational board game “Taphonomy: Dead and Fossilized,” evaluated with high school learners in a summertime program. *Journal of Geoscience Education*, 1–19. <https://doi.org/10.1080/10899995.2021.1965828>.
- Santika, I. G. N. (2021). Grand Desain Kebijakan Strategis Pemerintah Dalam Bidang Pendidikan Untuk Menghadapi Revolusi Industri 4.0. *Jurnal Education and Development*, 9(2), 369–377. <https://doi.org/10.37081/ed.v9i2.2500>.
- Saputra, T. (2021). Kendala dan Upaya Dalam Aktualisasi Pendidikan Kewarganegaraan berbasis Living Values Education di Sekolah Menengah Atas. *Civic-Culture: Jurnal*

- Ilmu Pendidikan PKN Dan Sosial Budaya*, 5(1), 421–435.
<https://doi.org/10.31597/ccj.v5i1.555>.
- Sari, M. W., Indriyanti, N. Y., Antrakusuma, B., & Utami, B. (2021). The Effectiveness Of Learning Video Usage To Support Online Learning In Basic Chemistry Course During The Covid-19 Pandemic. *Jurnal Penelitian Pendidikan IPA*, 6(1), 25–30.
<https://doi.org/10.26740/jppipa.v6n1.p25-30>.
- Silalahi, T. F., & Hutaaruk, A. F. (2020). The application of cooperative learning model during online learning in the pandemic period. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 3(3).
<https://scholar.archive.org/work/phbfjnyuwvd5fnmzwgmwxj4lxy/access/wayback/http://bircu-journal.com/index.php/birci/article/download/1100/pdf>.
- Suhaimi, L. P., & Yunus, M. M. (2021). ‘Zoom’ing into MUET Students’ Perception in Writing Skills Through Online Cooperative Learning.’ *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 6(9), 493–503.
<https://doi.org/10.47405/mjssh.v6i9.975>.
- Supena, I., Darmuki, A., & Hariyadi, A. (2021). The Influence of 4C (Constructive, Critical, Creativity, Collaborative) Learning Model on Students’ Learning Outcomes. *International Journal of Instruction*, 14(3), 873–892.
<https://eric.ed.gov/?id=EJ1304598>.
- Supriadi, D., Usman, H., & Jabar, C. S. A. (2021). The Moderation Effect Of Information Systems On Vocational High School Principal Decision-Making Model. *Jurnal Cakrawala Pendidikan*, 40(1), 43–55. <https://doi.org/10.21831/cp.v40i1.31268>.
- Sutarni, N., Ramdhany, M. A., Hufad, A., & Kurniawan, E. (2021). Self-Regulated Learning And Digital Learning Environment: Effect On Academic Achievement During The Pandemic. *Jurnal Cakrawala Pendidikan*, 40(2).
<https://doi.org/10.21831/cp.v40i2.40718>.
- Syaifulloh, D. H. (2021). The Effect of Employee Engagement and Organizational Citizenship Behavior on the Performance of Employees of the Research & Development and Education & Training Agency of the Ministry of Religion of the Republic of Indonesia. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(5), 1077–1084. <https://doi.org/10.17762/turcomat.v12i5.1753>.
- Tejedor, S., Cervi, L., Pérez-Escoda, A., Tusa, F., & Parola, A. (2021). Higher education response in the time of coronavirus: perceptions of teachers and students, and open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 43. <https://doi.org/10.3390/joitmc7010043>.
- Thambu, N., Prayitno, H. J., & Zakaria, G. A. N. (2021). Incorporating active learning into moral education to develop multiple intelligences: A qualitative approach. *Indonesian Journal on Learning and Advanced Education (IJOLAE)*, 3(1), 17–29.
<https://doi.org/10.23917/ijolae.v3i1.10064>.
- Ticheloven, A., Blom, E., Leseman, P., & McMonagle, S. (2021). Translanguaging challenges in multilingual classrooms: scholar, teacher and student perspectives. *International Journal of Multilingualism*, 18(3), 491–514.
<https://doi.org/10.1080/14790718.2019.1686002>.
- Triana, I. D. S., & Iskatriah, I. (2021). Implementasi Nilai-Nilai Pancasila Di Dalam Menciptakan Pendidikan Karakter Yang Kuat Bagi Bangsa Indonesia Dalam Tatanan Hukum Nasional. *Jurnal Pendidikan Kewarganegaraan Undiksha*, 9(2), 356–567.
<https://doi.org/10.23887/jpku.v9i2.34138>.
- Tsang, Y. P., Wu, C.-H., Lam, H. Y., Choy, K. L., & Ho, G. T. S. (2021). Integrating Internet of Things and multi-temperature delivery planning for perishable food E-commerce logistics: a model and application. *International Journal of Production Research*,

- 59(5), 1534–1556. <https://doi.org/10.1080/00207543.2020.1841315>.
- Verawardina, U., & Jama, J. (2018). Philosophy TVET Di Era Derupsi Revolusi Industri 4.0 Di Indonesia. *Jurnal Filsafat Indonesia*, 1(3), 104–111. <https://doi.org/10.23887/jfi.v1i3.17156>.
- Wardina, U. V., Jalinus, N., & Asnur, L. (2019). Kurikulum Pendidikan Vokasi Pada Era Revolusi Industri 4.0. *Jurnal Pendidikan*, 20(1), 82–90. <https://doi.org/10.33830/jp.v20i1.240.2019>.
- Yusrie, C. S., Aminah, S., Wasliman, I., & Sauri, R. S. (2021). Kebijakan Publik dan Kinerja Birokrasi Pendidikan Dalam Kompleksitas Perkembangan. *Jurnal Dirosah Islamiyah*, 3(2), 126–143. <https://doi.org/10.47467/jdi.v3i2.342>.