

Facilities and Infrastructures' Implications Towards Teachers' Pedagogical Content Knowledge (PCK) Welcoming Merdeka Belajar Curriculum

Siti RODI'AH^a, Isatul HASANAH^b, Laila AFIFAH^c

^{ab}*Education Study Program Madrasah Ibtidaiyah, Universitas Islam Negeri of Sayyid Ali Rahmatullah Tulungagung, Tulungagung, Indonesia*

^c*English Education Department, Universitas Muhammadiyah Malang, Malang, Indonesia*

Corresponding author: hasanahisatul@gmail.com

Abstract

The Merdeka Belajar curriculum encourages teachers to develop Pedagogic Content Knowledge (PCK). To make learning more interesting, fun, and meaningful for students. However, facilities and infrastructure have not supported teachers to implement the Merdeka Belajar Curriculum in Elementary Schools. This study aims to (1) explain the facilities and infrastructure in the Institution, and (2) the relationship between facilities and infrastructure to the teacher's Pedagogic Content Knowledge (PCK). This research method is descriptive using a quantitative approach. The study sample is 12 people who teach grades 1 and IV. Data collection techniques include questionnaires in the form of google Forms, observation, interviews, and documentation. Data analysis techniques are in the form of the presentation of statistical data percentages. The results of this study are (1) the facilities and infrastructure in the Institution are still inadequate to meet the Merdeka Belajar Curriculum (2) the link between facilities and infrastructure to the teacher's Pedagogic Content Knowledge (PCK) is the use of lecture learning strategies 67%, student-centered 25%, and cooperative learning 8%. The lack of facilities and infrastructure causes the learning teachers to tend to lectures that are opposite to the orientation of the Merdeka Belajar Curriculum.

Keywords: Implication, infrastructures', PCK, Merdeka Belajar

Acknowledgments: The author would like to thank all those who helped/supported the research and writing of the article.

For citation:

Rodi'ah, S., Hasanah, I., & Afifah, L. (2022). Facilities and Infrastructures' Implications Towards Teachers' Pedagogical Content Knowledge (PCK) Welcoming Merdeka Belajar Curriculum. *Journal of Digital Learning and Distance Education*, 1(8), 319-328. <http://doi.10.56778/jdlde.v1i7.73>

Introduction

Education is a very important asset in improving and developing the quality of human resources. The progress that continues to grow can help a teacher to think more forward. In carrying out the teaching system, it is necessary to have a guide that is used as a guide in carrying out learning. That is, the guideline is the curriculum (Munajim et al., 2020). The development of the current education system certainly results in the use of the previous curriculum. Moreover, the COVID-19 pandemic has made the learning system less than optimal (Hasanah, 2021). This has an impact on the knowledge that students will gain and the learning system experiences a loss of learning (Budi et al., 2021). Therefore, the use of the curriculum initially used in the 2013 Curriculum was diverted to use the Merdeka Belajar Curriculum. The use of the Merdeka Belajar Curriculum aims to restore the learning system that experiences problems in the previous curriculum. The Minister of Education, Mr. Nadiem Makarim, explained that the Merdeka Belajar Curriculum would lead students to the independent learning process. This means that students are given the freedom to choose the subjects they are interested in. It is intended that students can optimize their talents and be able to make a good contribution to the nation.

Implementing the Merdeka Belajar Curriculum is not as easy as when the teacher chooses the media to be used in the learning process. But the teacher also needs time to understand to apply it properly. The expression conveyed by the Minister of Education directly leads students to the process of thinking independently (Sopiansyah et al., 2021). It means thinking freely. However, the Merdeka Belajar Curriculum has its concepts and assessments in the learning process. Although the learning is done independently. That is prioritizing in terms of projects. This means that students do more practice than analyzing theory. This certainly makes a teacher improve his competence further. Especially in understanding the material that will be supported by practice. The teacher is the spearhead in delivering student success. Increasing the quality of learning is strongly influenced by the teacher. Therefore, teachers must be ready for all changes that occur in the educational process. Especially in curriculum changes. Within the scope of education, facilities and infrastructure are needed to optimize the learning process. Moreover, the Merdeka Belajar Curriculum prioritizes terms practice. So teachers also need tools that can explain the theory well, so the students can understand it.

A good education is seen from the extent of the level of competence owned by teachers (Espinar et al., 2020).). Improving the quality of education will never be separated from the presence of teachers. If we know being a teacher is not easy. There are lots of things to pay attention to, starting in terms of attitudes, knowledge, and competencies that have to be owned. The competencies that must be owned by a teacher include four competencies, they are pedagogic, personality, professional, and social competencies (Asari et al., 2018). Of the four competencies, each has its concept and understanding. For example, a teacher must have pedagogic competence. This means that teachers must have abilities related to the understanding of students and managers of dialogical learning. Substantially, this competency includes the ability to understand students, improve mindsets, design learning, and develop students' potential. Understanding the purpose of pedagogical competence can be combined with content capabilities that give rise to Pedagogical Content Knowledge (PCK) (Figure 1).

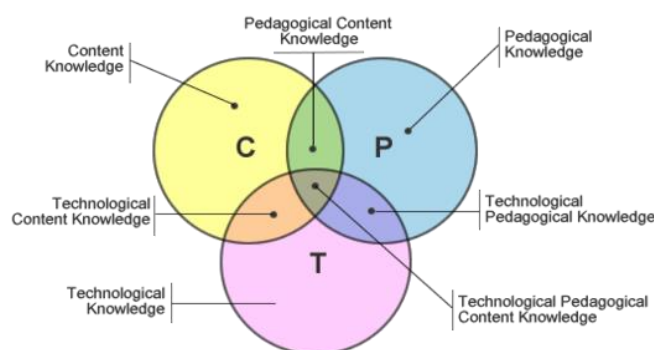


Figure 1. PCK in Learning

Figure 1 shows that the PCK concept is a combination of special abilities from content knowledge and pedagogics that are formed over time (Wu, Yu, & Zhang, 2019). This means that PCK ability does not just appear but requires a long process of gaining knowledge. Ismirawati stated that student learning activities are influenced by cognitive frameworks that are developed from their previous experiences and are influenced by other ideas such as the environment (Ismirawati, 2020). But in the scope of education, this can be obtained through the teaching process done by the teacher to the fullest. The development of science and technology is certainly one of the facilities and infrastructures that can be used to support the maximum learning process. Looking at the curriculum used today is the Merdeka Belajar Curriculum which must be able to lead students to the independent learning process and gain extensive knowledge. In this case, teachers can take advantage of existing facilities and infrastructure in schools. They are LCDs, computers, practicum rooms, sports fields, library rooms, courtyards, and other supporting rooms. This article aims to explain the facilities and infrastructure used in welcoming the Merdeka Belajar Curriculum and the impact of these facilities and infrastructure on Pedagogical Content Knowledge (PCK) welcoming the Merdeka Belajar Curriculum.

Methodology

Researchers in this study used descriptive research using a quantitative approach. In this study, researchers analyzed and described the implications of facilities and infrastructure for teachers' Pedagogical Content Knowledge (PCK) in welcoming the Merdeka Belajar Curriculum. This research was conducted at two schools, they were SDIT Ar-Rahman and SDIT Nurul Fikri Watulimo Trenggalek. The total population in this study was 36 teachers. The samples used were 12 teachers. They were grade 1 and 4 teachers. The sampling was based on the application of the Merdeka Belajar Curriculum which was only applied to the two classes. The sampling technique in this research used purposive sampling. While the data collection techniques in this study used observation, interviews, documentation, and instruments in the form of a questionnaire given to the teacher via google form. The data analysis technique is used in the form of the presentation of percentage statistical data.

Results

Researchers distributed questionnaires about supporting facilities and infrastructure in the learning process to 12 elementary school teachers. Furthermore, the researchers conducted interviews and direct observations of 12 elementary school teachers. Researchers analyzed the

facilities for supporting the learning process obtained by the teacher from the Institute. The results of the questionnaire could be presented by researchers through the following diagram:

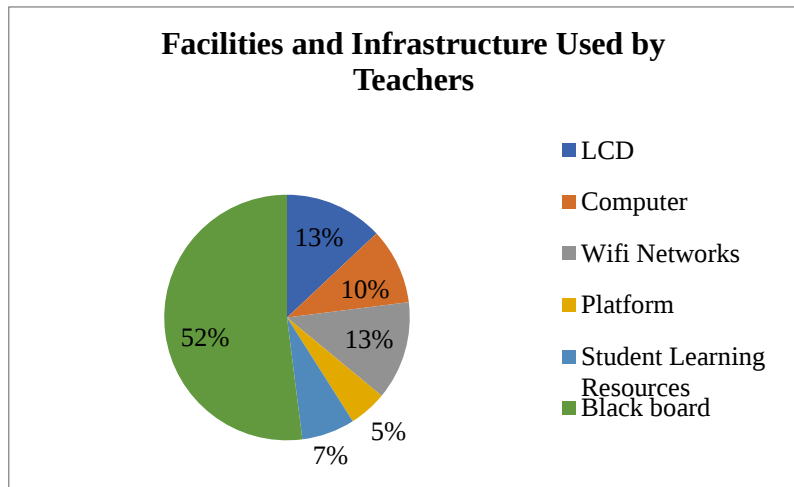


Figure 2. Facilities and infrastructure used by teachers

Based on the diagram, 52% of teachers used blackboards, LCD, and wifi networks 13%, computers by 10%, platforms 5%, and student learning resources 7%. This means that teachers tend to use the blackboard compared to other facilities and infrastructure. The results of interviews and observations of researchers in the field indicated that teachers tend to provide material notes on the blackboard. Because other facilities and infrastructure were still minimal. According to AG and AH, the wifi network already existed in the institution, but the use of LCD and computers was still limited. Furthermore, according to AA, the biggest obstacle was the limited student learning resources, which were modules, so that 2 JP's time was only used up for taking notes on the blackboard. AK revealed that fourth-grade students were still lagging with some materials because a lot of time was wasted on writing activities on the blackboard.

The explanation above explains that the lack of student learning resources has an impact on the ineffectiveness of learning. So, teachers tend to provide material notes on the blackboard. This is due to the lack of other facilities and infrastructure, as shown in picture 2.1. In addition, the effect of the lack of student learning resources is a slackening function of other facilities and infrastructure. According to AF, although the material is displayed in the form of an LCD screen, the students are less enthusiastic about participating in the lesson. Because students have not studied before. In addition, students must also record the material displayed in a notebook. Students become less concentrated on learning and show an unenthusiastic attitude.

Other facilities and infrastructure in the form of platforms have not been able to be felt by teachers. According to AB, only a few teachers can access the platform. Because it must have a teacher ID to be able to access the platform. Even though many features can help teachers in implementing the Merdeka Belajar Curriculum. Meanwhile, according to AE, even though teachers can access the platform, they are still confused about the application. So, the use of the platform is still less effective. That is in terms of the lack of users and teacher knowledge in applying it.

The explanation above can be concluded that the facilities and infrastructure are still minimal in use. While the blackboard is an alternative for teachers from the lack of other facilities and infrastructure. Especially the limited learning resources of students who become obstacles to learning. The lack of facilities and infrastructure affects the Pedagogic Content Knowledge (PCK) of elementary school teachers. Researchers conducted profound interviews and direct observations

about the learning strategies done by the teachers. Through this strategy, it will be able to analyze the relationship between facilities and infrastructure to the teachers' Pedagogic Content Knowledge (PCK). The following is a diagram of learning strategies in the era of the Merdeka Belajar Curriculum.

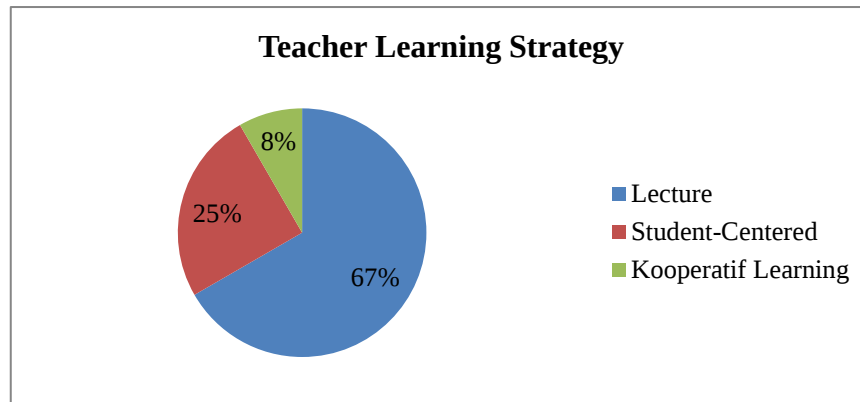


Figure 3. Teacher learning strategy

Based on diagram 3 the teacher uses a lecture strategy of 67%, 25% is student-centered, and 8% is cooperative learning. The tendency of choosing a lecture strategy is influenced by the facilities and infrastructure available in the Institution. As previously described, the biggest challenge for teachers is the lack of student learning resources and information technology systems in Institutions. AA revealed that learning emphasizes more on pursuing the material. That is, increasing giving material notes to students, then explaining and giving tasks. Furthermore, AK said that it could not provide interesting digital-based materials. So, sometimes provide photocopies of material and tasks to students. The lack of facilities and infrastructure has resulted in teachers not being innovative in the learning process.



Figure 4. Teaching and learning activities

The selection of other learning strategies that are more innovative is student-centered learning and cooperative learning. This is related to the facilities and infrastructure available at the Institution. AD is a grade IV teacher explaining that the facilities and infrastructure are adequate in the Institution, but only the wifi network is not yet available. AD focuses on student understanding and does not pursue the amount of material that must be delivered and mastered by students. Sometimes the material is delivered in the form of a video that is displayed via the LCD. Meanwhile, AJ and AL who are first-grade teachers explained that learning is oriented toward

reading and writing skills. Although the facilities and infrastructure are not adequate, they do not become obstacles in the learning process. Sometimes AL gives students sticky notes to complete the missing letters. Next, students paste on the board that is already available. AL revealed that learning in grade 1 should be fun and not burden students in the learning process.



Figure 5. Teaching and Learning Activities

Discussion

The concept of the Merdeka Belajar Curriculum is to give teachers the freedom to create meaningful learning and provide comfort for students in learning (Sutrisno et al., 2022). This needs to be supported by adequate facilities and infrastructure so that learning activities will be more interesting, varied, and meaningful (Sojanah et al., 2021). However, the results of the study indicate that the facilities and infrastructure are still minimal, that is teachers use blackboards 52%, 13% use LCD and wifi networks, 10% use computers, 7% use student learning resources, and 5% use platforms. This means that teachers tend to use the blackboard compared to other facilities and infrastructure. So, teachers find it difficult to implement interesting and meaningful learning.

The results of previous research explained that in Finland which was a reference to the Merdeka Belajar Curriculum policy the Institution gave full authority to teachers to choose and utilized technology in learning (Muryanti et al., 2022). While the essence of the Merdeka Belajar Curriculum starts from the independence of the teacher (Widiyono et al., 2021). This means that the availability of facilities and infrastructure in the form of technology in Institutions can support teachers in implementing independent learning activities. This is in line with Kang Haijun, et al., who explained that information and technology systems play a significant role in the effectiveness and development of learning (Kang et al., 2021). So, the use of technology and information systems can help teachers to overcome the limited learning resources of students in the form of modules.

In addition to the minimal use of technology and information, the limiting factor of student learning resources makes learning less effective. Previous research explained that the use of student learning resources such as modules will make learning more planned and complete with good results (Hadiya et al., 2015). Meanwhile, the level of platform usage is still low. Even though there is an independent teaching platform, teachers are helped and easy to find inspiration, references, literacy, and understanding in the application of the Merdeka Belajar Curriculum (Priantini et al., 2022). But the utilization is not yet effective. Because based on the results of the study, it was stated that teachers were still confused about applying it. Whereas through the platform, teachers can find solutions to problems in the learning process, such as the lack of student learning resources in the form of modules.

Based on the explanation above, the lack of facilities and infrastructure available in the Institution can obstruct learning activities. Despite this, the success of teaching and learning activities determines the success of teachers and schools in implementing education (Azhar, 2022).

The use of technology and information systems is a solution to the problem of the lack of other facilities and infrastructure, such as student learning resources. So that the educational process is in line with what is expected by the Merdeka Belajar Curriculum. This needs to be supported by the use of the platform. Through these media, teachers will be assisted in overcoming various obstacles in implementing the Merdeka Belajar Curriculum.

The Merdeka Belajar curriculum gives teachers the freedom to use learning strategies according to their abilities, class conditions, and student characteristics. Because the Merdeka Belajar Curriculum leads to the freedom of teachers in teaching. In addition, it provides learning happiness to both teachers and students. However, the Merdeka Belajar Curriculum expects teachers to develop their competencies, such as planning innovative and meaningful learning activities (Widiyono et al., 2021). This is related to the teacher's Pedagogic Content Knowledge (PCK) ability. That is the ability of a teacher to integrate content knowledge of a subject and pedagogical knowledge to teach that subject (Huang et al., 2018). Through the support of facilities and infrastructure, as well as the ability of qualified Pedagogic Content Knowledge (PCK) teachers, learning is more innovative and meaningful.

Based on the previous explanation that the lack of facilities and infrastructure makes learning less effective. The results showed that teachers tend to use the lecture method 67%, the student-centered method 25%, and the cooperative learning method by only 8%. The tendency of teachers to use the lecture method is based on the limited information and technology as well as student modules. The teacher focuses on providing material notes and practice questions that are recorded on the blackboard. Meanwhile, teachers who use student-centered and cooperative learning methods are influenced by adequate facilities and infrastructure. Despite this, in learning activities in elementary schools, various types of learning design models focus on student activity (Novalina et al., 2022). Although, only a few are not yet available in institutions such as wifi networks and module books. Thus, the teacher focuses on student understanding, not the amount of material that must be delivered.

The results of previous studies stated that one of the factors that influenced teachers to implement curriculum changes was support from the Institution (Zulhernanda, 2018). Suryanto explained that one of the factors of the Institution's readiness to implement the new curriculum was the poor availability of books (Suyanto, 2017). Furthermore, Park and Sung added that in addition to training, administrative and peer support plays an important role in facilitating curriculum implementation and seriously influences teachers' decisions to innovate in the classroom (Park et al., 2013). So, administrative support in the form of facilities and infrastructure from the Institution can influence the teacher's decision to implement the new curriculum.

The teacher's decision to use a strategy is influenced by the state of the facilities and infrastructure in the institution. AJ, who is burdened with the lack of facilities and infrastructure in the Institution, has to write and explain the material on the blackboard. AA explained that the obstacle to teaching was the limited number of module books. This affects the teacher's decision to use the lecture method. Although this strategy is less effective. According to AK, who is a fourth-grade teacher, he said students were still left behind with some materials from teaching activities that were oriented toward providing materials and practice questions. Even though giving a burden beyond the ability of students is an act that is contrary to the essence of independent learning (Nofia, 2020). However, teachers are not able to communicate and use learning strategies based on the Merdeka Belajar Curriculum because they are constrained by the lack of facilities and infrastructure.

While the teacher's decision to use student-centered learning strategies and cooperative learning is influenced by adequate facilities and infrastructure. AD stated that the facilities and infrastructure were adequate, although the wifi network could not be accessed in the Institution. However, AD can implement learning innovatively. AD, who is a grade IV teacher, explained that

learning was focused on students' understanding, not the amount of material that students had to learn. Meanwhile, AJ and AL who are first-grade teachers focus more on students' reading and writing skills. Thus, limited facilities and infrastructure do not affect the ability of teachers' Pedagogic Content Knowledge (PCK). Many interesting strategies according to student characteristics can be implemented with limited facilities and infrastructure. Like, such as adding letters to words that have been written on sticky paper to be attached to the media that has been provided.

Teaching orientation has the strongest relationship with the knowledge of strategies for teaching which leads to the teacher's Pedagogic Content Knowledge (PCK) ability (Nofia, 2020). Meanwhile, based on the results of previous research, shows that the low level of facilities and infrastructure has a positive effect on the low TPACK of teachers (Sojanah et al., 2021). That is in terms of the orientation of learning done by teachers based on the facilities and infrastructure available in the Institution. In addition, the related facilities and infrastructure of the teacher's Pedagogic Content Knowledge (PCK) are also influenced by the complexity of the material. The more complex the material, the greater the influence of facilities and infrastructure on the teacher's Pedagogic Content Knowledge (PCK). Meanwhile, the simpler the material being taught, the lower the relation of facilities and infrastructure to the teacher's Pedagogic Content Knowledge (PCK).

Conclusion

Based on the results and discussion of the study, it can be concluded that the facilities and infrastructure in the Institution are still inadequate in welcoming the Merdeka Belajar Curriculum. The results of the study explained that teachers tend to use the blackboard because of the limited facilities and other infrastructure. These facilities and infrastructure provide links to the teacher's Pedagogic Content Knowledge (PCK) which leads to learning strategies. The orientation of the learning strategy leads to the lecture method that is not by the concept of the Merdeka Belajar Curriculum. The government should provide facilities in the form of facilities and infrastructure that support the implementation of the Merdeka Belajar Curriculum in Elementary School Institutions. So that teachers can develop Pedagogic Content Knowledge (PCK) abilities. Thus, learning is more fun and innovative.

References

- Asari, S., Fauziyah, N., & Uchtiawati, S. (2018). Improving Teacher Pedagogic Competences in Remote Areas through Lesson Study Activity. *International Journal of Education and Literacy Studies*. <https://doi.org/10.7575/aiac.ijels.v.6n.2p.53>
- Azhar, R. R. P. M. S. (2022). Process Skills Through Student Worksheet Based on Around Nature in Materials Temperature and Heat. *Journal of Digital Learning and Distance Education*, 1(3), 108–113. Retrieved from <https://www.rjupublisher.com>
- Budi, S., Utami, I. S., Jannah, R. N., Wulandari, N. L., Ani, N. A., & Saputri, W. (2021). Deteksi Potensi Learning Loss pada Siswa Berkebutuhan Khusus Selama Pembelajaran Daring Masa Pandemi Covid-19 di Sekolah Inklusif. *Jurnal Basicedu*. <https://doi.org/10.31004/basicedu.v5i5.1342>
- Espinar, M. C., & Ramos, J. M. G. (2020). Measuring Teachers' Competence to Plan Clil and Diagnosis Teachers' Training Needs. *Bordon. Revista de Pedagogia*. <https://doi.org/10.13042/Bordon.2019.72250>
- Hadiya, I., Halim, A., & Adlim. (2015). Pengembangan Modul Pembelajaran Suhu dan Kalor Berbasis Masalah untuk SMA dalam Upaya Meningkatkan Minat Belajar Siswa. *Jurnal*

- Pendidikan Sains Indonesia*, 3(1).
- Hasanah, I. (2021). Menumbuhkan Jiwa Kreativitas Siswa Melalui Pembelajaran Berbasis IT Pada Era Pandemi Covid-19. *Journal Of Education And Teaching Learning (JETL)*, 3(3), 18–28. <https://doi.org/10.51178/jetl.v3i3.267>
- Ismirawati, N., Corebima, A. D., Zubaidah, S., Ristanto, R. H., & Nuddin, A. (2020). Implementing Ercore in Learning: Will Metacognitive Skills Correlate to Cognitive Learning result? *Universal Journal of Educational Research*. <https://doi.org/10.13189/ujer.2020.081808>
- Kang, H., Turi, J. A., Bashir, S., Alam, M. N., & Shah, S. A. (2021). Moderating Role of Information System and Mobile Technology with Learning and Forgetting Factors on Organizational Learning Effectiveness. *Learning and Motivation*, 76. <https://doi.org/10.1016/j.lmot.2021.101757>
- Mu, G. M., Liang, W., Lu, L., & Huang, D. (2018). Building Pedagogical Content Knowledge within Professional Learning Communities: An approach to counteracting regional education inequality. *Teaching and Teacher Education*, 73. <https://doi.org/10.1016/j.tate.2018.03.006>
- Munajim, A., Barnawi, B., & Fikriyah, F. (2020). Pengembangan Kurikulum Pembelajaran di Masa Darurat. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*. <https://doi.org/10.20961/jdc.v4i2.45288>
- Muryanti, E., & Herman, Y. (2022). Studi Perbandingan Sistem Pendidikan Dasar di Indonesia dan Finlandia. *Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(2).
- Nofia, N. N. (2020). Analisis Tantangan Implementasi Kebijakan “Merdeka Belajar Kampus Merdeka” Pada Perguruan Tinggi Islam Negeri di Indonesia. *Produ: Prokurasi Edukasi Jurnal Manajemen Pendidikan Islam*, 1(2). <https://doi.org/10.15548/p-prokurasi.v1i2.3328>
- Novalina Indriyani, Yeni Erita, Mayrisa Undari, W. S. (2022). Comparison of Civics and Social Studies Learning Design Models in Various Countries at the Elementary School Level. *Journal of Digital Learning and Distance Education*, 1(7), 258–270. <https://doi.org/http://doi.org/10.56778/jdlde.v1i7.44>
- Park, M., & Sung, Y. K. (2013). Teachers’ Perceptions of the Recent Curriculum Reforms and Their Implementation: What Can We Learn From the Case of Korean Elementary Teachers? *Asia Pacific Journal of Education*, 33(1). <https://doi.org/10.1080/02188791.2012.756391>
- Priantini, D. A. M. M. O., Suarni, N. K., & Adnyana, I. K. S. (2022). Analisis Kurikulum Merdeka dan Platform Merdeka Belajar untuk Mewujudkan Pendidikan yang Berkualitas. *Jurnal Penjamin Mutu*, 8(2). <https://doi.org/https://ojs.uhnsugriwa.ac.id/index.php/JPM>
- Sojanah, J., Suwatno, Kodri, & Machmud, A. (2021). Factors Affecting Teachers’ Technological Pedagogical and Content Knowledge (A Survey on Economics Teacher knowledge). *Cakrawala Pendidikan*, 40(1). <https://doi.org/10.21831/cp.v40i1.31035>
- Sopiansyah, D., & Masruroh, S. (2021). Konsep dan Implementasi Kurikulum MBKM (Merdeka Belajar Kampus Merdeka). *Reslaj: Religion Education Social Laa Roiba Journal*. <https://doi.org/10.47467/reslaj.v4i1.458>
- Sutrisno, S., Yulia, N. M., & Fithriyah, D. N. (2022). Mengembangkan Kompetensi Guru Dalam Melaksanakan Evaluasi Pembelajaran Di Era Merdeka Belajar. *ZAHRA: Research and Tought Elementary School of Islam Journal*. <https://doi.org/10.37812/zahra.v3i1.409>
- Suyanto, S. (2017). A reflection on the implementation of a new curriculum in Indonesia: A crucial problem on school readiness. *AIP Conference Proceedings*, 1868. <https://doi.org/10.1063/1.4995218>
- Widiyono, A., & Millati, I. (2021). Peran Teknologi Pendidikan dalam Perspektif Merdeka Belajar di Era 4.0. *Journal of Education and Teaching (JET)*. <https://doi.org/10.51454/jet.v2i1.63>
- Wu, P., Yu, S., & Zhang, L. (2019). The Function and Integration of Components of Pedagogical Content Knowledge (PCK) in Classroom Teaching: A Case Study of Business English

-
- Teachers. *Educational Studies*. <https://doi.org/10.1080/03055698.2018.1509770>
- Zulhernanda, W. (2018). Teachers' Perceptions on Application of 2013 Curriculum for Elementary School in Medan. *Advances in Language and Literary Studies*, 9(1). <https://doi.org/10.7575/aiac.alls.v.9n.1p.62>