

## A NEW TREND IN INDONESIA: NEWEST CURRICULUM AND ITS' IMPACT ON MIDDLE SCHOOL LEVEL

Wanda Nugroho Yanuarto<sup>1\*</sup>, Joko Purwanto<sup>2</sup>, Anton Jaelani<sup>3</sup>

<sup>1,2,3</sup> Pendidikan Matematika, Universitas Muhammadiyah Purwokerto, Indonesia

[wandanugrohoyanuarto@ump.ac.id](mailto:wandanugrohoyanuarto@ump.ac.id)<sup>1</sup>, [jokopurwanto@ump.ac.id](mailto:jokopurwanto@ump.ac.id)<sup>2</sup>, [antonjaelani@ump.ac.id](mailto:antonjaelani@ump.ac.id)<sup>3</sup>

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### ABSTRAK

**Abstrak:** Penerapan revolusi industri 4.0 memberi dampak kepada dunia pendidikan dalam menerapkan teknologi dari segala aspek pembelajaran di sekolah. Making Indonesia 4.0 adalah salah satu upaya pemerintah untuk menyelaraskan kehidupan Indonesia dengan laju teknologi. Salah satu program dalam making Indonesia 4.0 adalah pendidikan 4.0 di Indonesia. Pendidikan 4.0 di Indonesia adalah program yang diciptakan untuk meningkatkan kualitas pendidikan dengan berlandaskan teknologi dalam aktivitasnya di pembelajaran kelas. Tujuan kegiatan ini untuk mengetahui program pendidikan 4.0 di Indonesia dan dampak yang dihadapi dari pendidikan 4.0 di sekolah, khususnya di Muhammadiyah Ajibarang Middle School. Peserta kegiatan ini adalah guru-guru Muhammadiyah Ajibarang Middle School sebanyak 36 orang. Evaluasi yang dilakukan dalam kegiatan ini adalah kuesioner pemahaman pengetahuan pendidikan 4.0. Hasil pelatihan ini adalah pemenuhan pendidikan 4.0 di Muhammadiyah Ajibarang Middle School dengan peningkatan pemahaman pengetahuan pendidikan 4.0 sebanyak 63% dari pengetahuan awal. Diharapkan kegiatan ini dapat menjadi alternatif penyelesaian masalah terkait penerapan pendidikan 4.0 di SMP Muhamamdiyah Ajibarang sebagai upaya terciptanya roadmap making Indonesia 4.0.

**Kata Kunci:** pendidikan 4.0; roadmap making Indonesia 4.0; platform e-learning; innovation workshop; school-industry.

**Abstract:** The application of the industrial revolution 4.0 has an impact on the field of education in adopting technology from all aspects of learning in schools. Making Indonesia 4.0 is one of the government's efforts to synchronize Indonesian living with the pace of technology. One of the programs in establishing Indonesia 4.0 is education 4.0 in Indonesia. Education 4.0 in Indonesia is a program established to improve the quality of education based on technology in its activities in classroom learning. The goal of this activity is to find out the 4.0 education program in Indonesia and the impact suffered by 4.0 education in schools, especially at Muhammadiyah Ajibarang Middle School. The participants of this exercise were instructors of Muhammadiyah Ajibarang Middle School as many as 36 people. The evaluation carried out in this activity was a questionnaire on comprehending education knowledge 4.0. The result of this training is the fulfillment of education 4.0 at Muhammadiyah Ajibarang Middle School with an increase in understanding of education 4.0 knowledge as much as 63 percent of starting knowledge. It is hoped that this activity can be an alternative to solving challenges linked to the implementation of education 4.0 at Muhamamdiyah Ajibarang Middle School as an effort to build a roadmap for making Indonesia 4.0.

**Keywords:** Education 4.0; making Indonesia 4.0 roadmap; e-learning platform; innovation workshop; school-industry engagement.



#### Article History:

Received: 26-04-2022

Revised : 17-05-2022

Accepted: 20-05-2022

Online : 11-06-2022



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## A. INTRODUCTION

The World Economic Forum (WEF) has been promoting the idea of R.I. 4.0 since 2016 (Donald, 2020). As a result of the adoption of R.I. 4.0, the world's ability to use technology from all aspects of one's existence has been significantly enhanced (Alakrash & Razak, 2021). One of these is the use of technology in the classroom. Which Indonesian school has been able to adopt R.I.4.0 to a satisfactory degree?

However, a program called the "Making Indonesia 4.0" masterpiece blueprint was launched in 2018 by the Indonesian government and aims to answer this question. This was done in order to catch up technologically with countries like Malaysia and Singapore. Human Resources (HR) enhancement is one of 10 programs of Indonesia's program, which was introduced in January (Hariharasudan & Kot, 2018). To improve the quality of life in Indonesia, Sukartono (2018) claims that human resources are Indonesia's most significant capital. Due to Indonesia's people resources, the country is capable of transforming its educational paradigm from the one of the past (Airlangga, 2019), as shown in Figure 1.



**Figure 1.**The Priority of Making Indonesia 4.0  
(source: indonesiabaik.id)

Increased human resource quality is a top concern, as illustrated in Figure 1. To improve the quality of Indonesia's workforce, the country's 4.0 education program aims to train more individuals. For example, changing the mindset of Indonesian educators, creating a technology-based curriculum, or providing a range of programs to improve the quality human resources in the technology sector, such as the talent mobility program for professionals in Indonesia, can all help improve human resources in the country (Aisjah, 2018).

As a result, the term "education 4.0" refers to a strategy for enhancing classroom instruction through the integration of new technologies (Oliveira & de Souza, 2021). Education 4.0 is expected to result in the generation of

human resources capable of functioning in the twenty-first century in Indonesia, where the learning process is based on technology. Indonesia's 4.0 education initiative is widely expected to be a challenge for many parties, particularly the government and educational institutions themselves, but this is largely acknowledged (Genkin, Valenta, & Yarom, 2017). As part of the execution of the 4.0 education program, the government must engage with educational institutions and provide the required facilities and infrastructure. As a result, the rollout of education 4.0 may go down without a hitch. With regard to creating a digital environment on school and university campuses in Indonesia, both the government and educational institutions have equal obligation and liability (Lawrence, Ching, & Abdullah, 2019).

Many obstacles stand in the way of implementing the Education 4.0 program, including: (1) an education system and culture that do not produce significant results (Heriyanto, Sator, Komariah, & Suryana, 2019); (2) most educators and students expressed dissatisfaction with the platforms or learning media used in online learning (Avalos, Tellez, & Navarro, 2010); and (3) many students do not succeed in examinations seeing as (Lukita, Suwandi, Harahap, Rahardja, & Nas, 2020).

Teacher-student exchanges in online learning at school and at home have only been possible, according to Pratidhina, through video conferencing and instant messages (Pratidhina, 2020). As a result, online learning at home is less effective as a result of a lack of understanding among instructors and students regarding communication technologies. Another problem the Indonesian government is encountering is finding an acceptable platform for each and every school and educational unit in Indonesia, as stated by Goh and Abdul-Wahab (2020). As a result, each region of Indonesia has its own own culture and set of customs, making it difficult to generalize. Indonesians face difficulty in deciding which platforms they can run on simultaneously. Schools should be allowed to choose their own platform, as long as it is considered the most suited for their specific needs by the federal government.

It is also a challenge for Indonesian education units to adopt and adhere to learning methods that are compatible with the technology being used in education 4.0. In order to meet the needs of today's technologically advanced learners, educators now have more freedom in selecting and implementing effective instructional strategies. But if facilities and infrastructure are inadequate, the freedom to choose facilities and infrastructure in accordance with the suitable learning technology does not produce a good push for learning advancement (Himmetoglu, Ayduğ, & Bayrak, 2021). It is also used as a hurdle by educational institutions to make financial changes and to allocate additional cash for the introduction of effective learning technology (ALT). As a result, educational technology is evolving in a less effective manner.

The Muhammadiyah Ajibarang Middle School is recognized as one of the most prestigious Muhammadiyah schools in the Banyumas region. In the process of getting ready for the Education 4.0 program, the author has made it a top priority to get Muhammadiyah Ajibarang Middle School ready as a pilot project. It has been determined that The Muhammadiyah Ajibarang Middle School, which serves as a model institution for education that is supported by technological advancements, is prepared to participate in the Education 4.0 initiative. It is intended that with the availability of science and technology for this community, all members of the school may comprehend the need to attain this 4.0 Education program and prepare themselves to complete it.

However, according to the findings of a preliminary interview with the Principal of Muhammadiyah Ajibarang Middle School, he explained that he was familiar with the Education 4.0 program despite the fact that he had never heard of it before. Because of this, the implementation and preparation of schools has not yet taken place. This presents an additional barrier to overcome in order to bring the Education 4.0 initiative to fruition at Muhammadiyah Ajibarang Middle School.

With the help of this program, it is hoped that educators will obtain a comprehensive understanding of the preparations and infrastructure that support the Education 4.0 program. Furthermore, it is hoped that an understanding of the Roadmap Making Indonesia 4.0 will become a good understanding, particularly in the area of education.

Based on the issues raised above, the authors believe that education units need to be aware of the consequences of education 4.0 and how it will affect students in school settings. According to Donald (2020), schools must implement education 4.0 as soon as possible due to the urgency of the situation.

## **B. METHOD**

There has just been a brief introduction to some of the issues that the Education 4.0 Program has to deal with, as detailed in the Making Indonesian 4.0 roadmap. Also included are examples of other programs that have been successfully implemented in other schools, and questions and answers for the audience.

Secondly, instructors at Muhammadiyah Ajibarang Middle School will undergo a dialogue process as part of the Making Indonesia 4.0 plan. Each leader (principal, deputy principal, IT team, and a few teachers) must take part in this peer teaching or peer discussion activity. Participants will share their experiences at Muhammadiyah Ajibarang Middle School with implementing the Education 4.0 project.

A class-observation program that involves the practice of adopting Education 4.0, which is included in the Making Indonesia 4.0 roadmap, follows. The following poll was conducted at Muhammadiyah Ajibarang

Middle School to examine how far instructors have progressed toward the Education 4.0 program as a result of adopting the Science and Technology for the Community program.

Finally, a questionnaire-based performance evaluation of each stage of community training program implementation is conducted. In order to draw conclusions from this course's implementation, the assessment process has been finished.

## C. RESULT AND DISCUSSION

### 1. Presentation

At Muhammadiyah Ajibarang Middle School, the 4.0 education program began with lectures by the project's resource employees. Several themes were discussed throughout this activity, including the following: The three components of Indonesian Education 4.0 are as follows: There are three ways in which education 4.0 is being implemented in Indonesia: (1) in the classroom, (2) in policy, and (3) in policymaking. Some of these explanations, as well as the source material itself, provide for a succinct explanation.

A new generation of Indonesian education. Developing a 4.0 education system in Indonesia is critical to the country's global competitiveness and the development of a new generation of educated citizens in Indonesia. According to Donald (2020), education 4.0 in Indonesia is a requirement for schools in Indonesia to implement (see Figure 2). Indonesia's 4.0 education system digitization is more urgent than ever because of the following factors:

#### a. Transition to Digital for Industry.

It is possible that Indonesia's education programs will serve as the foundation for the development of the education business in the digital age, as we move into the R.I 4.0 era. When it comes to digital innovations in the workplace, education has the ability to serve as the basis. When it comes to reforming education in Indonesia and bringing about change in the direction of digitalization, this has a favorable impact on both, as shown in Figure 2.



**Figure 2.** The Urgency of Education 4.0 in Indonesia

This key issue is the motivating reason behind the necessity for education 4.0 to be adopted in schools as soon as possible. Furthermore,

boosting the overall quality of human resources is the most significant component in overcoming these difficulties. Human resources with good credentials in the creation of a digital industry trend can help to generate a favorable technical environment for policymakers in the sphere of higher education. As a result, the implementation of education 4.0 in Indonesia can be achieved in conjunction with the stakeholders who profit from these educational services. Furthermore, the implementation of education 4.0 in Indonesia creates a suitable atmosphere for students to become more familiar with technology and to work together to integrate it into the world of Indonesian education.

b. Global Competition is becoming more Intense

Every area of human life has been affected by digital technology from its birth in 2016, according to Lukita and colleagues (2020), this is one of the reasons for the emergence of Indonesia's education 4.0. Prerequisites for the universal implementation of education 4.0 include enhancing the overall quality of technology. Education and competition reforms are creating a global shortage of work specialists who know how to make the most of these changes for the better. The idea of international rivalry in educational technology is gaining traction. Indonesia will be able to catch up and prevent delays in the training of digital technology experts thanks to the adoption of education 4.0 in schools. Indonesia will be able to compete with other countries in the future because of technological improvements and its global economic market. There are questions from participants during the debate of this topic about the qualities of Indonesian education 4.0 that allow it to compete with other countries, as shown in Figure 3.



**Figure 3.** The Discussion Session with Training Participants

c. Education Policy in the Digital Age

Education policy in Indonesia must take into account two essential aspects in the digital age: the use of e-learning platforms for learning and the interaction between schools and industry. To begin with, implementing education 4.0 in schools requires integrating e-learning into all of the school's primary educational activities. Learning, the most



crucial talent that students possess, has been found to benefit from the usage of e-learning in major learning. When these habits are developed, they can then be evaluated for their believability. Students can more easily debate classroom topics and theories when they use e-learning to attain major learning objectives. Individually or in groups, this discourse can be carried out. There are two ways to learn in an online environment: individually and collaboratively. Additional details can be found in Figure 4, which shows the above-mentioned rationale more clearly, as shown in Figure 4.



**Figure 4.** The School Digitalization System (source: [indonesiabaik.id](http://indonesiabaik.id))

Second, the cornerstone for school-industry engagement is collaboration between the realms of education and industry. In order for this cooperation to succeed, there needs to be a connection between educational production and industry need. As a result, all parties involved benefit from the future cooperation, which is founded on a genuine need and mutual success. Industrialized countries, for example, already have school-industry engagement programs on their curriculum agendas, and these activities are carried out on a regular basis throughout the school year. It is therefore necessary to include this cooperation process in Indonesian school curriculums so that collaboration can be established in a systematic and quantifiable manner on a continuous basis. Some difficulties must be addressed, such as how Indonesian students may positively contribute to the development of their country in the industrialized world. It is possible to interpret Education 2.0 as Indonesia's conscious effort to meet the needs of its people while also improving human resource quality in order to realize Indonesia's Golden Indonesia 2045 goal.

#### d. Implementation of Education 4.0 in Schools

The information presented to the last resource person provided information on how schools can adopt education and, especially, how Muhammadiyah Ajibarang Middle School can carry out the techniques required to execute Education 4.0. The two photos below demonstrate how education 4.0 is being implemented in a school.

First, an invention workshop. Students at all educational institutions, including schools and colleges, must be provided with customized innovation workshops. This ceremony served as a catalyst for a slew of ground-breaking conceptions and ideas to emerge from the minds of young people in the years to come. 4.0 education has a good influence and is a breath of fresh air for all students and stakeholders working together to generate innovations that are in line with market demands.

First and foremost, the 2030-2040 demographic bonus. As a result, Indonesia's demographic advantage in the 2030s to 2040s is a major worry in the implementation of education 4.0 in Indonesia. Because of Indonesia's small commercial fields and the large number of business demands (Lawrence et al., 2019), this is a major issue in the country. Industrial service consumers are interested in high-quality human resources who are also reliable in terms of technology, as a result. Another thing to keep in mind is that today's working-age population can compete with people all across the globe. To measure Indonesia's educational 4.0 progress, we go to the workplace, where high standards of excellence are expected.

## 2. The Peer-Teacher

During the peer-teacher stage, the training group members share their own experiences with the resource people. In order to accomplish Indonesia Gold 2045 and the Making Indonesia 4.0 plan, the purpose of the peer-teacher implementation session is to introduce and reinvigorate schools, notably Muhammadiyah Ajibarang Middle School. It is hoped that this training would improve the school's planning and implementation of the Education 4.0 program. The following actions should be performed to better prepare pupils for future global challenges. In addition to the school's students and faculty, Muhammadiyah Ajibarang Middle School's local community can benefit from Education 4.0. A complete understanding of the preparations and infrastructure supporting the Education 4.0 initiative, as well as a comprehension of the Making Indonesia 4.0 Roadmap, which is particularly crucial in the education sector, is expected.



### **3. The Class-Observation**

After the training has been finished, the process moves on to the stage of class observation. The resource personnel saw a class at Muhammadiyah Ajibarang Middle School to see some of the benefits that had been achieved as a result of the training. Some of the trainings for Muhammadiyah Ajibarang Middle School result in three distinct outcomes.

As a first step into the realm of education 2.0, the application of e-learning in major learning takes place on an e-learning platform. In order to prepare for the use of technology in the classroom, a key learning objective is selected. The goal of this approach is to help students get used to using technology in the classroom so that they may eventually be the ones to spearhead the move from traditional to digital learning. For this reason, it has been designed in accordance with current market and industrial demands, which place a larger value on the use of new technologies to expedite manufacturing and produce higher-quality goods. E-learning platforms are therefore essential for Muhammadiyah Ajibarang Middle School to construct the necessary facilities and infrastructure for digital learning that is competitive with other types of online education.

The most crucial step in e-effectiveness learning's is to ensure that the facilities and infrastructure, as well as the basic necessities and supporting variables, are in place. Education at Muhammadiyah Ajibarang Middle School should focus on developing e-learning programs that are ready for implementation by all teachers and students at Muhammadiyah Ajibarang Middle School. As predicted, schools will benefit from the completion of a digital curriculum in order to create a 4.0 learning environment.

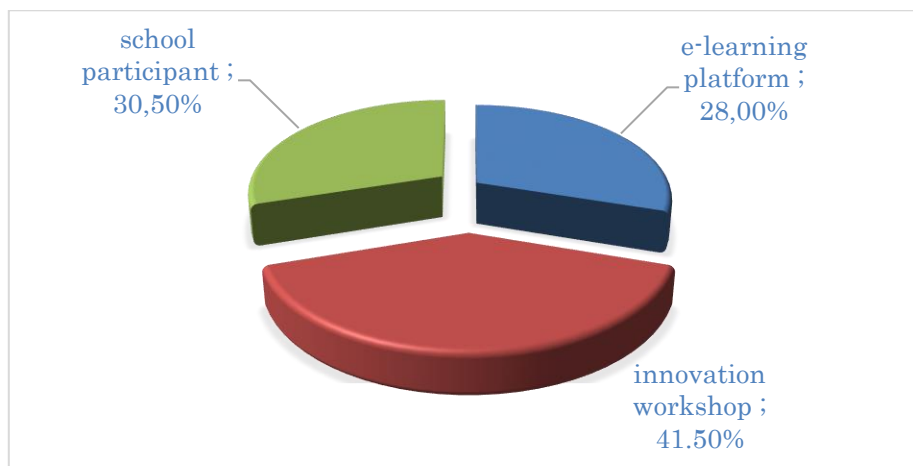
Due to these developments in education, schools and institutions are now required to offer user-friendly, simple-to-understand innovation workshops as part of their curriculum. Continuing innovation in learning can be achieved from this point forward. Students' output based on technical competence and meeting market needs as the major goal of successful classroom learning are some of the improvements that Muhammadiyah Ajibarang Middle School can undertake. As a result, the Muhammadiyah Ajibarang Middle School will be expected to digitize all student activities and outputs in the near future as part of the learning and education system 4.0.

A third consideration is the need of fostering relationships between educational institutions and the business community so that students may better prepare for the labor market when they graduate. The usage of curriculum in developed countries, for example, already incorporates education and industry efforts within the educational system. Because of this, in Indonesia, the realms of industry and education combine together, creating a unique organism that cannot be found in a foreign country. Both must be readily seen and demonstrated in the curriculum. In order for a school to be successful, it must include student exchanges, student

internships, and student field work lectures at service supply companies on its annual agenda and in its curriculum. This has had a positive effect on the implementation of education 4.0 in Indonesia. As their market share, Muhammadiyah Ajibarang Middle School must map out their industrial world in order to engage with other schools and businesses in order to promote healthy partnerships between schools and industry. Co-operation with foreign parties is necessary for Muhammadiyah Ajibarang Middle School in order to boost quality and competitiveness when competing against foreign parties. Participation in school-industry partnerships is an excellent way for students to see how this is done in action.

#### 4. Performance Evaluation

The performance evaluation is carried out when the class observation method has been finished. The e-learning platform, the innovation workshop, and the involvement of schools and industry participants are all evaluated in this program (See Figure 5). Education 4.0's implementation in schools will be judged by Muhammadiyah Ajibarang Middle School's progress through its three stages. A review of performance is important to identify the most critical areas that need attention in order to get the Education 4.0 program up and running smoothly, as shown in Figure 5.



**Figure 5.** The Performance Evaluation Result

#### D. CONCLUSION

A better and more innovative classroom is feasible, thanks to the dedication of Muhammadiyah Ajibarang Middle School's teachers to education 4.0 training in Indonesia and its implementation in the Muhammadiyah Ajibarang Middle School classroom. The class has a teacher. According to the findings, teachers at Muhammadiyah Ajibarang Middle School showed significant interest in learning the skills necessary to implement 4.0 education, with a motivation of 28%; a comprehension of 30%; and an understanding of 50%; and a desire to improve their knowledge of strategies for implementing 4.0 education in schools of 41%.

Teachers at Muhammadiyah Ajibarang Middle School could benefit from short-term service activities for teachers implemented through the adoption of education 4.0 in schools. It is imperative that this training be repeated in order for the benefits to be felt by all residents of Muhammadiyah Ajibarang Middle School. According to some, the use of technology in education is a necessity that cannot be avoided in order to teach educators and students about the importance of technology in today's digital era.

## ACKNOWLEDGMENTS

A special thanks goes out to the Universitas Muhamamdiyah Purwokerto's Institute for Research and Community Program (LPPM), which has provided financial support for this community program.

## REFERENCES

- Airlangga, H. (2019). Making Indonesia. *Jurnal Paedagogi*, 1–8. <https://doi.org/10.7591/9781501719370>
- Aisjah, A. S. (2018). Penyusunan capaian pembelajaran. *Jurnal Penelitian Pendidikan*, 4(2), 27–40.
- Alakrash, H. M., & Razak, N. A. (2021). Education and the fourth industrial revolution: Lessons from COVID-19. *Computers, Materials and Continua*, 70(1), 951–962. <https://doi.org/10.32604/cmc.2022.014288>
- Avalos, B., Tellez, F., & Navarro, S. (2010). Learning about the effectiveness of teacher education: a Chilean study. *Perspectives in Education*, 28(4), 11–21. Retrieved from [http://www.sabinet.co.za/abstracts/persed/persed\\_v28\\_n4\\_a3.html](http://www.sabinet.co.za/abstracts/persed/persed_v28_n4_a3.html)
- Donald, D. (2020). The Education 4.0 Revolution. *Journal Basic of Education*, 4(1), 3–18.
- Genkin, D., Valenta, L., & Yarom, Y. (2017). May the Fourth Be With You: Creating Education 4.0. *Journal of Learning for Development*, 6(2), 845–858. <https://doi.org/10.1145/3133956.3134029>
- Goh, P. S. C., & Abdul-Wahab, N. (2020). Paradigms to drive higher education 4.0. *International Journal of Learning, Teaching and Educational Research*, 19(1), 159–171. <https://doi.org/10.26803/ijlter.19.1.9>
- Hariharasudan, A., & Kot, S. (2018). A scoping review on Digital English and Education 4.0 for Industry 4.0. *Social Sciences*, 7(11). <https://doi.org/10.3390/socsci7110227>
- Heriyanto, Sator, D., Komariah, A., & Suryana, A. (2019). Character education in the era of industrial revolution 4.0 and its relevance to the high school learning transformation process. *Utopia y Praxis Latinoamericana*, 24(Extra5), 327–340.
- Himmetoglu, B., Aydug, D., & Bayrak, C. (2021). Education 4.0: Defining The Teacher, The Student, And The School Manager Aspects Of The Revolution. *Turkish Online Journal of Distance Education*, 21(July), 12–28. <https://doi.org/10.17718/TOJDE.770896>
- Lawrence, R., Ching, L. F., & Abdullah, H. (2019). Strengths and Weaknesses of Education 4.0 in the Higher Education Institution. *International Journal of Innovative Technology and Exploring Engineering*, 9(2S3), 511–519. <https://doi.org/10.35940/ijitee.b1122.1292s319>
- Lukita, C., Suwandi, S., Harahap, E. P., Rahardja, U., & Nas, C. (2020). Curriculum 4.0: Adoption of Industry Era 4.0 as Assessment of Higher Education Quality. *IJCCS (Indonesian Journal of Computing and Cybernetics)*

- Systems*), 14(3), 297. <https://doi.org/10.22146/ijccs.57321>
- OLIVEIRA, K. K. de S., & de SOUZA, R. A. C. (2021). Digital Transformation towards Education 4.0. *Informatics in Education*, 3(5), 4–16. <https://doi.org/10.15388/infedu.2022.13>
- Pratidhina, E. (2020). Education 4.0: Pergeseran pendidikan sebagai konsekuensi revolusi industri 4.0. *Humanika*, 20(1), 1–12. <https://doi.org/10.21831/hum.v20i1.29290>
- Sukartono. (2018). Revolusi Industri 4.0 dan Dampaknya terhadap Pendidikan di Indonesia. *FIP PGSD Universitas Muhammadiyah Surakarta*, 2(4), 1–21.