



Development of Pedagogical Competence Based on Digital Learning for Teacher on Digital Era

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ABSTRACT

The rapid development of the times has an impact on many aspects of life. The education aspect is no exception. Education in the digital era cannot be separated from the implementation of technology in learning. However, the rapid development of technology in Indonesia has not been in line with the development of the ability of educators to implement digital technology in the educational process. This service aims to improve the pedagogic competence of educators in the digital era. The method used in this service activity is through an e-course which has some content that can be accessed by participants within ten days. This service is carried out in the city of Cirebon, but access is opened for educators throughout Indonesia. The results of this activity illustrate that service activities through e-courses are quite effective in improving the competence of educators in the digital era. Of the 160 participants who accessed the learning process to completion, the final score was obtained with an average learning completeness of 85%.

Perkembangan zaman yang begitu pesat berdampak pada banyak aspek kehidupan. Tak terkecuali aspek pendidikan. Pendidikan di era digital tidak lepas dari penerapan teknologi dalam pembelajaran. Namun, pesatnya perkembangan teknologi di Indonesia belum sejalan dengan perkembangan kemampuan pendidik dalam mengimplementasikan teknologi digital dalam proses pendidikan. Layanan ini bertujuan untuk meningkatkan kompetensi pedagogik pendidik di era digital. Metode yang digunakan dalam kegiatan pengabdian ini adalah melalui e-course yang memiliki beberapa konten yang dapat diakses oleh peserta dalam waktu sepuluh hari. Pengabdian ini dilakukan di kota Cirebon, namun dibuka akses bagi para pendidik di seluruh Indonesia. Hasil kegiatan ini menggambarkan bahwa kegiatan pengabdian melalui e-courses cukup efektif dalam meningkatkan kompetensi pendidik di era digital. Dari 160 peserta yang mengakses proses pembelajaran hingga tuntas, diperoleh skor akhir dengan rata-rata ketuntasan belajar 85%.

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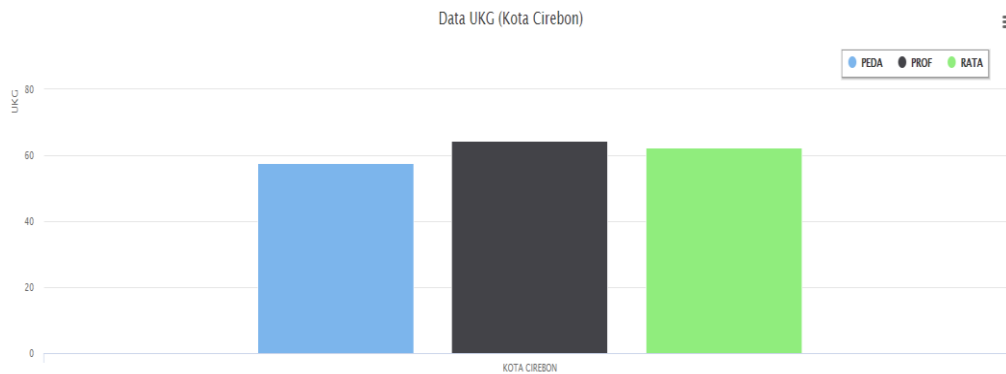
1. PRELIMINARY

Digital technology is now very attached to people's daily lives, for example in the field of education. Currently, education in Indonesia itself is no stranger to the use of various digital technologies. In various learning processes, many have used digital technology. Several models of learning development based on Information and Communication Technology (ICT), namely: CBI (Computer Based Instruction), CBT (Computer Based Training), Distance Learning, Distance Education, CLE (Cybernetic Learning Environment), Desktop Video Conferencing, ILS (Integrated Learning System), LCC (Learner-Cemterted Classroom), Teleconferencing, WBT (Web Based Training), and so on (Herlambang, 2018). The learning is not only done by the teacher only to improve the ability of students to use technology, but with the technology it can help teachers in improving the psychomotor abilities, affective abilities, or cognitive abilities of students in everyday learning. Success in the learning process itself is one of the main goals of education. Therefore, in the digital era like now, an educator should be able to implement digital technology with teaching and learning activities in the classroom. Educators must be able to design forms of digital learning that suit the needs of students and also in accordance with technological developments.

For this reason, it is necessary to have qualified abilities and competencies in managing classes so that an educator can guide students well. An educator must also be trained in advance about today's technology, so that when implementing it in the classroom the teacher does not seem "untechnical" and can follow the lesson well. This is based on the age difference between teachers and students, where the learning process in ancient times was still completely manual or traditional and accessing the internet or using computers/laptops/mobile phones was still very rare and limited. In contrast to today's learning where students can access the internet without limits, surf on any website page to be able to find additional learning materials, (Afandi et al., 2016) argues that with technological advances and the increasingly advanced development of the industrial revolution 4.0, which has an impact on changes in the world of education, the changes in question are not only changes in the curriculum, but also changes in the pedagogical field that require teachers to be able to make changes in their learning system to be technology-based. With these conditions, teachers are required to be sensitive to every change and development of the times that occur in order to improve their competence and expertise,

including in pedagogic science. Furthermore, pedagogic competence is the qualification or ability of a teacher in managing learning (Sumiarsi & Pendidikantarakan, 2015).

The teacher competency data in the Cirebon City area, seen from the results of the teacher competency test, is shown in the following diagram.



Source: Cirebon City UKG data (web: <https://npd.kemdikbud.go.id/>)

If the average competency based on the results of the teacher competency test is that the Teacher Competency Test (UKG) in Cirebon City has only reached a score of 57.5, while the Kemendikbud standard is 80. Based on the data that has been presented, it can be seen that the competence of teachers in Cirebon City is still low.

This condition is exacerbated by the ability of teachers to use digital media, most teachers in Indonesia currently tend to be grouped into the early majority group, in which respondents are still experimenting with various existing technologies and their use requires a long time of consideration (Zulham, 2014). The results of research on the use of digital media teachers with the results of entering the early majority group are strengthened by research from Dinni Rosida which reveals 7 out of 22 teachers who have not been able to master Information and Communication Technology reasoned that the age factor triggers their slow ability to understand information and communication technology, so they are reluctant to use ICT as a means of conducting teaching and learning activities. In the midst of the development of Generation Z, which was born above 1994, which is typical of easy access and daily life, which is surrounded by information and communication technology. The use of digital media among teachers is only limited as a tool to find sources of information related to the provision of teaching and learning materials (Gerrits, 2015).

It has been stated that the industrial revolution 4.0 comes to have an influence on various sectors of life, including the education sector. The presence of the industrial revolution 4.0 also presents opportunities and challenges for education, including challenges for students who have not been able to use information and digital technology appropriately. Digital literacy skills are expected to be able to assist educators in using information and digital technology appropriately and become role models in the use of digital media for their students.

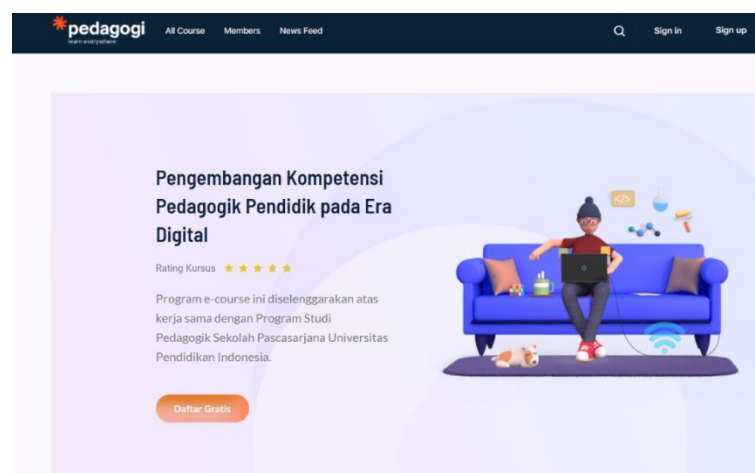
Based on the problems above, building critical awareness of the importance of educating competence is a fundamental thing that needs to be done. Therefore, through community service based on the results of this research. It is hoped that it can become a learning vehicle for educators in the city of Cirebon. So that learning outcomes are realized in the form of critical and futuristic pedagogic competencies.

2. METHOD

The method used in this service activity is the E-Course method. This e-course is carried out through a digital platform developed by the team in collaboration with edupena.

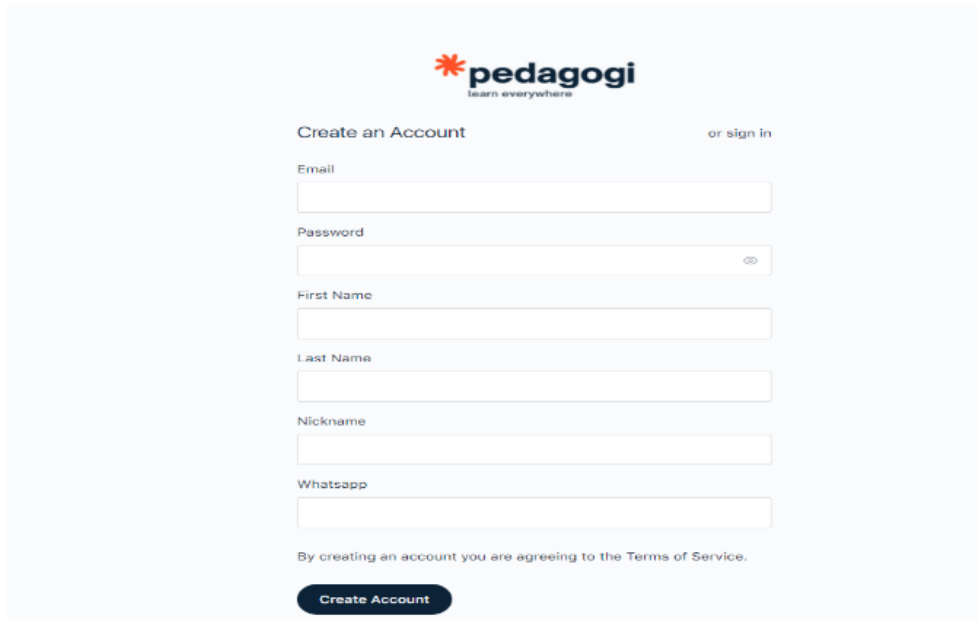
3. RESULTS AND DISCUSSION

The implementation phase begins with disseminating activity information through social networks. Dissemination of activity information is carried out for one week.



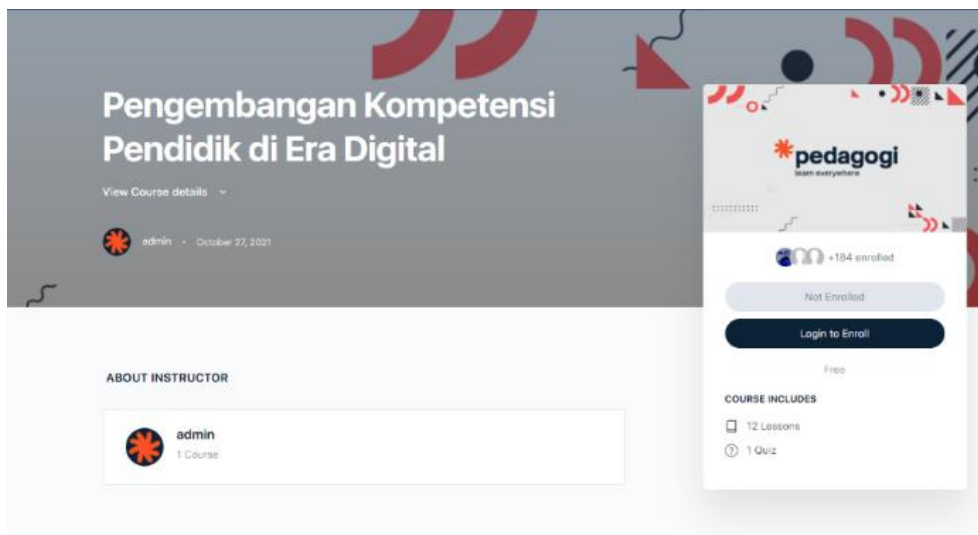
Picture. 3.2. Landing Page

Furthermore, participants will get an information link that leads to the registration form. Registration is done with a digital form which will automatically respond or send to the participant's email containing a user name and password for access to the learning platform.

The image shows a registration form for 'pedagogi learn everywhere'. The form is titled 'Create an Account' and includes a link for 'or sign in'. The fields to be filled are: Email, Password (with a toggle for visibility), First Name, Last Name, Nickname, and Whatsapp. Below the fields, there is a note: 'By creating an account you are agreeing to the Terms of Service.' and a dark blue 'Create Account' button.

Picture. 3.3. Registration form or account creation

After participants create an account, participants will be able to log in with the account that has been created and will be directed to the main page of the activity. On the main page, participants get information related to activities and access limits for the online course.



Picture. 3. 4. Main page of online course

The learning activities carried out by participants on the digital platform consist of several sessions. Each session will contain a contextual explanation video. In each video there is an interactive pop-up in the form of a quiz that requires participants to answer correctly, if the participant's answer is wrong, the duration of the video will return to the explanation of the quiz. This popup quiz is intended so that participants can listen carefully and participants can study thoroughly the material provided. For participants who want to discuss, a discussion column is provided between participants. On this platform, participants cannot skip through any of the content stages before they complete the content one by one. It is intended that participants can understand this learning holistically.

On this platform there are five sessions consisting of ten learning content. Course activities on the platform began with remarks by the head of PKM activities and introduction of tutors.



Picture. 3. 5. Video of the chief executive's welcome

The first session was about basic pedagogic concepts. This session discusses the fundamentals of the pedagogical competence of educators. Through this session, participants were invited to re-aware of the importance of pedagogical competence in an effort to provide solid educational services and the requirements for pedagogical values.



Picture. 3. 6. Basic pedagogic concepts

The next content is about digital technology, demographics of digital society and maturity in the development of digital content. This session provides technology concepts in learning, understands the distribution of the semography of digital learners and the level of maturity of a person in developing digital-based learning.



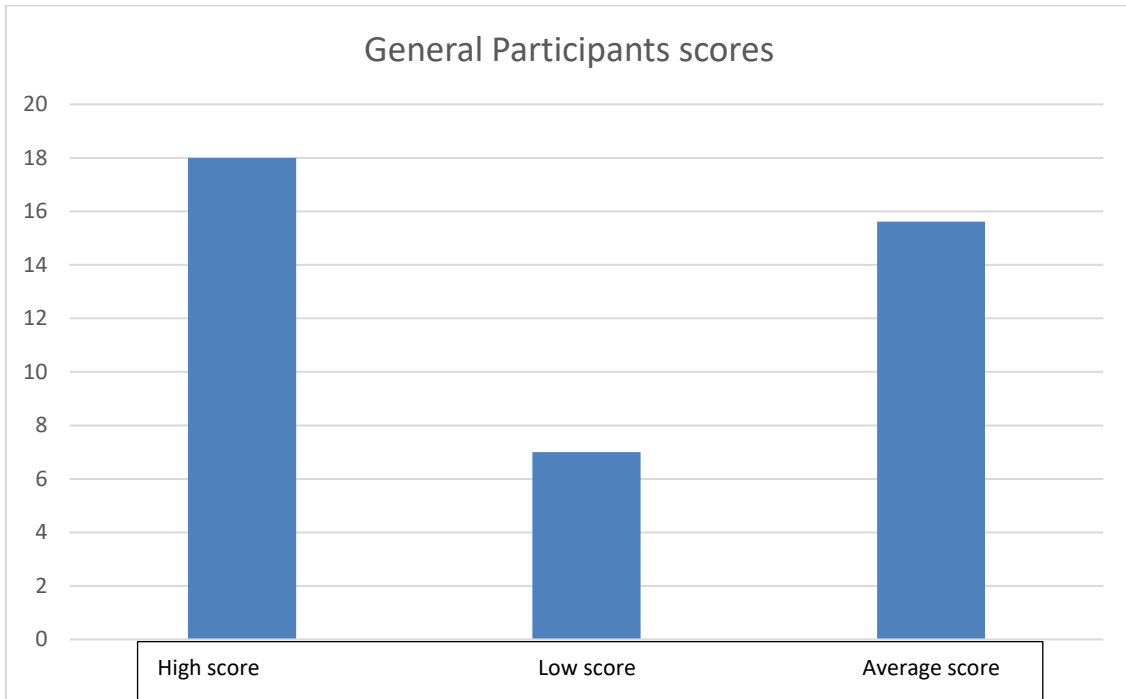
Picture. 3. 7. The concept of technology and its development in learning

In the next session, participants were invited to realize the nature of learning in the digital era and to overcome the problem of learning lost in digital-based learning. Through this session, participants were given awareness regarding the nature of digital-based learning, so that educators have a better approach in developing learning and providing excellent service in digital-based learning.



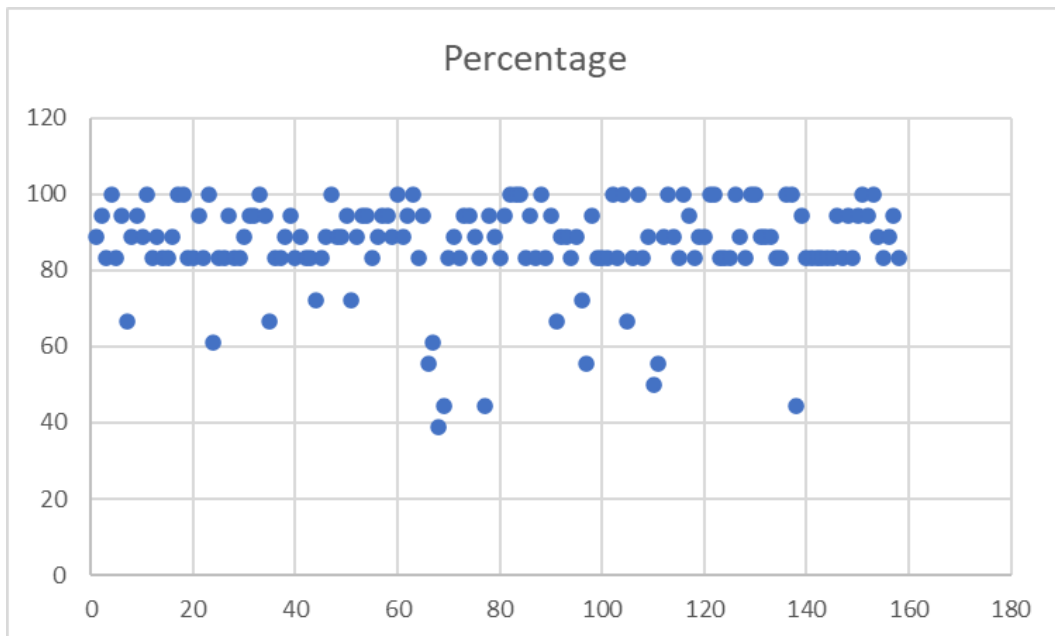
Picture. 3. 8. Pedagogic competence to overcome learning lost

After participants complete the entire program, the PKM team will evaluate the results of participants and send activity certificates to participants' emails. Participants are evaluated based on a summative test. Based on the general score of the participants, the highest score was 18 with the lowest score of 7 and the average score of 16.



Picture. 3. 9. Participants' scores

When viewed based on the percentage of complete learning from a total of 184 participants. Only 160 participants access the course until the final test. Of the 160 participants, the average learning completeness is above 80%. The percentage of participants who pass the course program is around 85%.



Picture. 3. 10. The percentage of learning completeness based on the results of the course evaluation

The rapid flow of information caused by the development of communication and information technology has now broken down the boundaries of space and time. The birth of this borderless information age is called the digital era (Khairunnisa, 2019). Therefore, technology has become a necessity and has been attached to every individual human being. The human need for technology is due to the many benefits obtained, but it does not rule out the possibility of negative things that can threaten life. The benefits of technology for humans are: (Herlambang, 2018):

- 1) With the development of technology, the information obtained will be easier to find, people can easily search and find information, both old and new, just by accessing website pages or finding out on existing social media.
- 2) The number of media or communication tools that make it easier for people to connect with each other even though they are hindered by distance and time, for example WhatsApp and Line applications that facilitate communication.
- 3) Changes in society in entrepreneurship are also one of the benefits of increasingly advanced industrial technology, where entrepreneurship can only be done in one place and only a few people closest to it can buy it, whereas in this digital era there are already many. e-commerce that provides online selling facilities with a wider scope.
- 4) Making it easier for people to complete their daily work, for example: now the "OK Google" technology has developed where people only need to talk then the google system that receives the information will automatically help our work such as turning on the lights, turning off the air conditioner, and so on.

In addition to the benefits obtained, there are also some negative impacts of technology, namely: (Herlambang, 2018):

- 1) Can erode cultural values. The development of technology globally makes people get carried away with the culture and lifestyle of outsiders, for example individualism, hedonism, capitalism, consumptive behavior and lifestyle, and so on.
- 2) People's mental problems are getting worse and want to go fast without considering the impact of these problems.

- 3) The number of criminals in cyberspace, for example cyber crime, spreading hoaxes, fraud, hacking personal data by hackers, and so on.
- 4) More and more people are over-expressing themselves on social media, most of them overstepping their bounds and not responding wisely.
- 5) As a result of this instant-paced technology, it can foster lazy people's attitudes and loss of social sense towards the surrounding environment. People now tend to prefer to be alone and find it difficult to open up to the realities of their lives.
- 6) Act as if only technology can solve a problem and excessive use of technological tools (technocentrism).

Reflecting on the impact of technological developments above, it becomes a reference in the perspective of education in order to give birth to a generation that is able to process and use technology wisely. The rapid development of industrial technology which is in line with the development of science and human thought makes these two things give a strong influence in the development of the field of education (Raja & Nagasubramani, 2018). With these developments, an educator is required to be more open in understanding the development of information technology in today's era. The development of digital technology must also be a motivation for teachers in transforming all information into knowledge and learning that is useful for students. Therefore, the way a teacher educates must always adapt to the times and pay attention to the abilities that students want to achieve. The ability that must be possessed by students in the 4.0 revolution era as it is today is digital literacy.

In an effort to achieve digital literacy skills in students, of course, it must be accompanied by the ability of educators to understand things that support digital era learning. The role of teachers in this digital era is no longer using a transmission model but a constructive model. Teachers are not only able to use information and communication technology in terms of digital tools but also must be able to integrate digital content as part of literacy.

A teacher should master the TPACK ability. This TPACK is a development of the Pedagogic Content Knowledge (PCK) approach undertaken by Shulman. The PCK approach illustrates how pedagogy and content cannot be separated. There are seven components of TPACK, namely Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge

(TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). These components will create competencies that not only master the content/material but also combine pedagogy with technology in creating learning (Sutarman dkk., 2019). Through these abilities, teachers not only have to understand the material that is transformed to students, but teachers must also be able to make students understand, appreciate and produce skills that support students in this era of the industrial revolution 4.0.

The rapid development of science and technology certainly makes it easier for students to get information and knowledge. However, what needs to be a concern is how the convenience of the technology must be in line with the maximization of the educational process such as optimizing the various intelligences of students. Of the many negative sides of technological developments that have been described, one of the most dangerous impacts is the formation of individualism among our young generation. Therefore, learning in this digital era must emphasize the ability to collaborate and regulate quality communication patterns. Through inspirational learning strategies these things will be prevented slowly. There are four things that teachers must pay attention to in designing inspirational learning, namely: 1) strengthening character cultivation, 2) realizing empowering classroom management, 3) optimizing the process of habituation and literacy development in the classroom and its integration in learning, and 4) implementing blended learning strategies in learning. Blended learning is a learning strategy that combines conventional learning with computer-based learning (Sutisna, 2016).

The development of digital technology has more or less changed the priorities of what is important and needs to be learned. For example, nowadays several things become important such as the ability to make videos, animations, websites and so on. Learning using digital media is very influential on education, because this learning will lead to computerization and digitization of students. This will increasingly place the younger generation as digital learners.

4. CONCLUSION

Based on empirical studies, the pedagogic competence of educators in Indonesia is actually in the moderate category, but they still think that learning activities are full of student activities without serious guidance. Especially for educators, this has implications for learning content that is presented in class, if educators do not have good digital literacy, they will have the potential to distribute hoax information to their students and become a boring learning environment.

Responding to these conditions, one of the steps that can be taken to make education successful in Indonesia. So educators as centers of education need to develop their competence. Through this activity, efforts to improve the quality of educators can be carried out especially in the digital era which has many opportunities and challenges.

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