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The Implementation of Educational Games as a Digital Learning Culture in Elementary School Learning

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Abstract
Learning with technology content, including computer science or informatics, is a very crucial topic at this time. Unfortunately, there are still many schools that have not adapted to this digitalization culture. There are many factors behind schools not starting a digitalization culture, such as facilities and infrastructure and human resources that are not ready yet. One school that has not implemented digitalization in learning is SDN Kedungdalem. This school still does not have digital-based learning media, most of the learning activities are carried out using books and worksheets. This situation makes students not excited about learning because it is not interesting for students. The aim of this research is to analyze the description of the results of students' academic responses to ICT learning and educational games that have been given. The research method used in this activity is a qualitative approach with rural operations. The subjects of this research were 5th grade students at SDN Kedungdalem. The research results showed that students really liked the educational games provided because the games were funny, exciting and fun.

Keywords: *digital learning culture; digital literacy; educational games; ict learning*

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Introduction
The Ministry of Communication and Information held a National Digital Literacy Movement Program that focuses on four priorities, namely digital security, digital ethics, digital society and digital culture. In the current context, this means that humans cannot be separated from the digital environment that is available through applications and increasingly wearable devices. Digital transformation is accelerated by expanding access and improving digital infrastructure. And one important thing is to prepare the need of digital talent on human resources. Human resources in the future must be able to adapt not only to technological advancements but also to their social implications. Learning with technology content including computer science or informatics is a very crucial topic, but is often constrained by infrastructure, even though it can actually be done unplugged.

Learning is most effective when it is an ongoing process. A digital learning culture refers to prioritizing collaboration and communication between teachers and staff to ensure successful integration of technology for student learning. As the world becomes more technologically literate and reliant on digital solutions to solve everyday problems, classrooms must provide students with the technological skills to adapt to the future challenge including

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the new types of jobs ahead. Thus, teachers, administrative staff and principals must work together to create innovative digital learning opportunities, demonstrate and promote effective technology use and monitor technology use in the classroom. In digital learning culture, the focus is to provide technology and resources for students to learn. The ideal educational environment in digital learning culture is classroom that is rich of technology that encourages exploration, collaboration and critical thinking skills in the real life context.

Unfortunately there are still many schools that have not adapted to this digitalization culture. There are many factors behind the school not starting a digitalization culture, such as facilities and infrastructure and human resources that are not ready. One school that has not implemented digitalization in learning is SDN Kedungdalem. This school still does not have digital-based learning media, all learning activities are predominantly carried out using book media and worksheets. This situation make student not excited in learning because it is not attractive to students. Even though at this time all sectors must be digitally literate including schools to support the digital literacy movement. Therefore needed to conduct a research on the implementation of game learning media in digital learning culture in learning at Kedungdalem I Elementary School. The urgency of this research is to solve the problem by implementing educational game media as a digital learning culture in learning digital literacy. In addition, it is able to make students, teachers, education staff and school principals have the ability to access, understand and use digital media, communication tools and networks. The implementation of educational games can provide solutions to these problems so that they can become a digital learning culture and increase student learning motivation.

ICT-based learning is learning that integrates ICT in its management. ICT learning is done to equip children with 21st century skills. Considering that 21st century skills are very important to use for the future. ICT-based learning utilizes sophisticated equipment or media in this day and age. ICT learning is needed to optimize the role of computers on the way students think, a stimulus related to computers is needed so that students feel comfortable and interested in interacting with computers as well as being able to train children's motoric and thinking skills.

Digital literacy does not stop at the ability to use tools and applications The introduction of programming knowledge for primary and secondary school students is needed to improve children's thinking and creativity. Grade V students at Kedungdalem Elementary School (SD) prefer to play games compared to learning. Therefore, the emergence of Educational Games using game play in teaching programming is productive and children get different teaching methods. Educational Game is one of the learning media that utilizes today's technology with the aim that users or children can learn special material in a fun way and attractive appearance. To train students in solving problems, material about algorithms can be given. With algorithms, children can understand more about the steps that must be designed and the strategies that must be taken.

Previous research mentions that digital literacy can maintain the form of life in an era of increasing uncertainty (Martin, 2009). Meanwhile the ICT learning management model in primary schools, based on research results, it is mentioned that the key factor for the success of the model is how teachers make RPP and collaborate with all people who related to the management of ICT-based learning (Syah et al., 2021). Another similar research also mentions that the use of the development of Information and Communication Technology (ICT) can make the learning process in primary schools quality (Huda, 2020). Based on some of the research above, it is confirmed that ICT-based learning has many benefits. So in this research tried to find data about how ICT learning (educational games) in developing a digital learning culture. Based on the state of the art of the research above, this research takes variables about Educational Games as Digital Learning Culture so that the results of this research have new value in the application of ICT media in elementary school.

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The purpose of this research is to analize the application of the use of educational games as a digital learning culture, through the strengthening of digital literacy by create a educational media games that using code.org. Educational games are expected to be able to bring a digital learning culture atmosphere in learning in Class V in primary schools. This research utilizes web-based computer technology, namely code.org. The research method used in this activity is a qualitative approach with a rulal opperaisel. The focus is to analyze the description of the results of academic responses from students to ICT learning and educational games that have been given during the third week of implementation.

Methodology

The research method used in this activity is a qualitative approach with a rulal opperaisel. The focus is on analyzing the description of the results of academic responses from students to ICT learning and educational games that have been given during the third week of implementation.

The subjects in this service included students at SD Negeri Kedungdalem II Class V. The subjects responded by filling out a questionnaire. Furthermore, the subjects responded by filling out a questionnaire online through google forms.

The data collection techniques used in this study are as following; a) Observation or direct observation, this observation is carried out by researchers by visiting all classes at SD Negeri Kedungdalem II to find out whether ICT learning has been applied at school or not, conducting research on the environmental conditions of the research object so that a clear picture of the condition of the research object is obtained. b) Interviews, after ICT learning activities and educational games are completed, researchers conduct interview sessions to explore in-depth information about the responses and responses of students about ICT learning and educational games that have been delivered. c) Questionnaires, questionnaires in the form of online google forms are used to collect students' responses regarding ICT learning and educational games. There are 2 aspects that underlie the focus of data collection through this questionnaire form, they are the response to ICT learning and the response to educational game on code.org.

Data validity is carried out to prove whether the research conducted is truly scientific research as well as to test the data obtained. Data validity tests in qualitative research include credibility, transferability, dependability, and confirmability. *Credibility,* Increase accuracy or persistence periodically with the aim of ensuring that the data that has been obtained and collected is correct or not. In increasing accuracy, the researcher read various references adapted to the conditions in elementary schools. *Transferability,* at this step the researcher asked questions to the school. The questions asked in this data collection are adjusted to the conditions of the school. *Dependability,* This was done by looking at the problems in the field, the researchers conducted in-depth interviews, observations, and documentation. then the data is analyzed first. *Confirmability,* The data is first confirmed to be the same between the data that has been obtained by researchers and the data that actually occurs in the field.

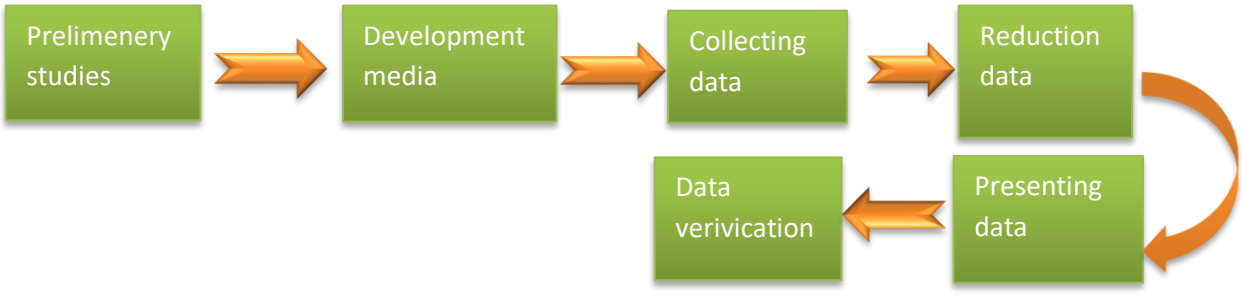

Figure 1. Research Flow

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Data Analysis Technique; 1) Reduction Data; Necessary and irrelevant as well as the addition of data that is still not in accordance with the actual conditions. 2) Presenting the Data; The data is presented to facilitate and understand what has happened during the research that took place at SDN Negeri Kedungdalem II. 3) Data Verification; Drawing conclusions obtained from the results of the study. In refining the data, researchers made reductions in data that were considered insufficient. In summary, the flow of this research can be seen in the chart as **figure 1.**

Result and Discussion

Through interviews with teachers, Information and Communication Technology is very beneficial for many fields, especially in educational system nowadays. This is because with ICT, education will produce extraordinary benefits and can help educators in implementing effective and efficient learning. Digital literacy is one of the skills that needs to be taught to students including primary school students. Digital literacy is highly dependent on basic reading and writing skills. With the existence of digital literacy, it is expected to provide students with the ability to develop in a dynamic digital environment towards Indonesia's golden generation in 2045 (Nafi'ah Setiani & Barokah, 2021). Based on the results of the research, it is stated that there is an influence of digital literacy on the reading interest of elementary school students in class V of the Ahmad Yani Group in Kuningan Regency. Therefore, digital literacy needs to be considered in increasing primary school students' interest in reading (Simbolon et al., 2022).

Digital literacy that is applied through a digital learning environment can improve the ability of students in dealing with digital media to access, understand content, disseminate, update or create digital media to make the right decisions in their lives. In another study, it is mentioned that in developing the character of students in the 21st century, digital literacy have a very important role because children tend to be more interested in things that related with technology, YouTube and other social media can be used by teachers or educators as a channel the development of character values (Dewi et al., 2021). in strengthening the character education of primary school students in the 21st century, digital literacy have an important part as supporting media because students tend to be more interested in technology, the internet, social media, and others, as well as being supported by thematic learning taught in primary schools that contains the integration of values character in every learning. The conclusion of this research is that the use of digital literacy is able to strengthen the value of student character by balancing the supervision of parents and teachers (Pentianasari et al., 2022). The conclusion of this study is that hoaxes can be resisted by developing massive digital literacy skills. Digital literacy skills include eight essential elements: cultural (understanding context), cognitive (expanding mind), constructive (creating positive things), communicative (capable of communicating and networking), confident (confident and responsible), creative (doing new things), critical (critically addressing content), civic (supporting the realization of civil society). The development and strengthening of digital literacy can be done especially in schools, campuses, and other educational institutions (Tsaniyah & Juliana, 2019). From the results of the research above, prove that digital literacy is a mandatory skill in the current era of digitization. Children need to be equipped with these skills. Other research results mention that by encouraging digital literacy, self-control over the use of social media can be done optimally. Improving digital literacy as a form of self-control is the solution to prevent cases of the circulation of false information (hoax) becoming more and more frequent. Digital literacy can be an effective way to deal with fake information (hoax) in the post-truth era, by introducing signs of fake news, information verification procedures, and following up on information that may fall into the hoax category (Sabrina, 2019).

There are two concepts that have different meanings, namely the concept of learning and the concept of teaching, both concepts can be distinguished from one another. Learning

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is an effort that has a purpose, carried out deliberately and under control so that students can learn and there is a change that can build themselves towards relatively better things. Meanwhile, teaching is an effort made to guide and direct students according to their learning experience and usually takes place formally.

Information and Communication Technology (ICT) contains technology that is identical to the handling of various information. The handling referred to is the collection, retrieval, storage, processing, presentation and dissemination of information. Technology is a way in which we use knowledge so that it can be used to solve various practical problems.

Learning in a digital environment is very beneficial for both students and teachers as it provides access to a wide range of resources. The introduction of computer devices and their devices is a fundamental material that can be given to students, besides the history of computer development is also very important to understand.

Based on the research that we have conducted on ICT learning through questionnaires in class V at SD Negeri Kedungdalem II, Dringu Subdistrict, we get the following results: 1) There were 18 learners who had previously had an in-depth understanding of ICT lessons, while 12 had never had ICT lessons. 2) Learners who feel that the ICT material that has been delivered by the teacher is very pleasant, while 5 people have not understood learning about ICT. 3) Learners who feel that in just one meeting they are satisfied and understand ICT learning are 16 people, while 14 people feel they are not satisfied and understand ICT learning. 3) Learners who strongly agree if ICT learning is implemented at school amounted to 30 people. 4) Learners who feel interested in studying the field of ICT or Informatics more broadly in the future amounted to 28 people, while 2 people felt they were not interested in studying the field of Informatics. 5) Learners who felt that ICT learning was one of their favorite lessons numbered 25 people, while 5 people felt that ICT lessons were not among their favorite lessons.

For further, from the results that have been obtained, there are still many students who have never received ICT learning, because indeed at the elementary school level there is no special material about informatics, ICT learning provided by teachers is their first experience. Delivering material that has not been obtained before is a challenging because we have to adjust to their way of thinking, but around 60% of students feel unsatisfied with the ICT learning that has been given, this can mean that most of them still want to get further ICT learning, even all students agree if ICT learning is implemented at school and becomes one of the favorite lessons. According to them, ICT learning is very fun because students can recognize technology both in ancient times and today. (Syah et al., 2021) stated that the ICT-based learning management model is considered complete enough to be developed with the aim that the effectiveness of learning management can be maximized. Observations made in the field show that educational games are one of the learning media that utilize today's technology with the aim that children can learn special material in a fun way and attractive appearance.

Computational thinking in children can be done by providing learning about educational games. Educational games contain a lot of knowledge, it depends on how the game is made. The introduction of educational games can also support the introduction of digital literacy by utilizing technology, without technology, it is certain that the level of learning innovation applied in various types of education is still minimal (Saputri et al., 2020).

The educational game used in this study is a web-based educational game using the site www.code.org. Learners are trained to solve problems according to the commands given. Students are given algorithm and programming material in a different and more interesting way, namely by using the code.org.

Based on the research we have conducted on strengthening digital literacy through educational games in the form of questionnaires in class V of Gondang Subdistrict, we get the following results: 1) There were 13 learners who had played educational games, while 17 had never played educational games. The educational game in question is general, meaning not

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only on the code.org website. 2) Learners who can understand educational games using code.org web media totaled 20 people, while 10 people did not understand educational games using code.org. 3) Learners who feel that playing educational games using code.org is very exciting, funny and interesting amounted to 15 people.

For further, from the results that have been obtained, students really like the educational games provided because the games are funny, exciting and fun. In previous research, the integration of entertaining content presented in the form of games can create a fun learning process without forgetting the material studied by students. This is in line with the results of research which states that 91.02% of respondents showed a positive opinion in the provision of educational games in a lesson. As for the overall response, they think that through media games that are facilitated through technology certainly make the material featured more interesting and accompanied by clear illustrations so that it is easier to imagine and understand the material (Pratama et al., 2019). Educational games are also very effective in helping children understand the material, this is as mentioned in the research results showing that there is a significant difference after and before children play educational games. Games in the form of children's educational games have a significant influence on children's ability to understand learning material. In addition, children are also better at using gadgets according to their intended use, not just for playing games and watching YouTube videos (Widoretno et al., 2021). Even other research found that educational games in general help students improve their learning outcomes, based on research results that there is an influence of the use of educational media games on the learning outcomes of class IV students of SDN Kajartenguli Prambon Sidoarjo. Educational media games can be used as a consideration for the use of alternative learning media to create an atmosphere of interesting and enjoyable learning activities (Wijayanto, E., & Istianah, 2017).

Learners can understand the purpose of the educational game, which is to learn about algorithms and programming. Learners are very enthusiastic when playing educational games, many of them want to study informatics in the future. Through various arguments from several respondents, it indicates that media that utilize technology can be one of the facilities that support the learning process.

Basically, children who are still in elementary school will get the most basic knowledge, the knowledge gained will become a reference for going to the next level of education. With the existence of ICT learning activities and educational games, students are expected to be able to recognize Information and Communication Technology at a young age, thus students are not stuttering technology. At this time almost all fields utilize technology, not least in the field of education.

Fun learning can be done in various ways, depending on how a teacher chooses a method for learning. Educational games are one of the alternative choices to build a more interesting way of learning than just delivering material using the lecture method. In this life, each individual has a problem, educational games using code.org are chosen to train children's thinking in solving problems with the right steps.

Based on classroom observations, the obstacles experienced by students in the ICT learning process are the lack of basic understanding because ICT learning has not been deeply understood, besides that students also feel less optimal in participating in ICT learning due to the lack of supporting media such as projectors. In ICT learning delivered in class, using only one laptop, while in one class there are 30 students, they have difficulty in seeing examples of images of the material presented. A study shows that students show enthusiasm in learning computer science through educational games in code.org. Almost all students are interested in learning about computer science or informatics. In accordance with the characteristics of the alpha generation, digital-learning culture with the theme of informatics gives students the opportunity to further empower the devices and applications they own as channel for learning (Game Edukasi sebagai et al., 2021).

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Regarding the obstacles of students in playing educational games, it can also be seen during classroom observations when the learning process is carried out. Playing educational games using code.org requires computational thinking, but in code.org the introduction of algorithms and programming is packaged with an attractive appearance and delivery. In problem solving, critical thinking skills must also be mastered, in line with that educational games based on a research that states that the educational game products produced have also been stated to be practical and effective in improving students' creative thinking skills (Arisandy et al., 2021). In addition to improving problem solving skills, educational games can also increase student learning motivation based on a study that states that there is a positive and significant influence between wordwall-based educational games on learning motivation in mathematics learning of class V C students at SDN Kapuk Muara 03 (Walidah et al., 2022).

Based on classroom observations, because students have never operated a computer or PC before, when playing educational games there are still some students who have difficulty in directing the mouse to run educational games. Code.org is a website containing learning about algorithms and programming that is packaged with an attractive appearance and provides coding learning games that are differentiated by age level. In this case, the learners still did not really master the game because it requires computational thinking. This is in line with research results that show that the absorption capacity of each student in learning is greatly influenced by their learning experience, mode, modality and learning style. There are differences regarding this matter, which can be accommodated by using educational games as learning media. The use of this educational game not opposite with behaviorime theory and cognitivism. On the other hand, the use of android-based educational games serves to make it easier for students to operate and use them. However, due to its convenience, the use of educational games must first be tested and qualified through good instruments by experts to be able to accordance circulation standards, test content and maximize utilization (Muhajarah & Rachmawati, 2019). All 30 students gave very good suggestions regarding the learning they expect for the future, this can be an evaluation material for students to be able to put themselves into competitive teachers.

Conclusion

Students are very enthusiastic in learning informatics to strengthen digital literacy through Digital Learning Culture presented in visual-block programming material (www.code.org). The www.code.org site provides a fun digital learning environment about algorithms and programming packaged through games that can be played with computers and smartphones. The obstacles experienced by students in learning are the limitations in facilities and infrastructure as well as the limitation in internet access.

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