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The Effect of Using Digital Learning Applications on Student Achievement in Elementary Schools

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ABSTRACT

Background. Every digital technology will be able to influence its users. The response to incoming digital technology has pros and cons. The use of technology in education can no longer be avoided. The use of learning media in the form of applications will have a new impact on the world of education. Learning sometimes has to be done online due to some natural conditions that cannot be denied. Therefore, it is important to be able to use learning applications for education today.

Purpose This study aims to determine the benefits of using learning applications. It is also useful to measure how influential the use of digital learning applications is on student achievement in elementary schools. The use of digital learning applications at the education level will have a significant impact on the success of education.

Method. The method used in this research is a qualitative method. Qualitative method is a data that will be presented in the form of numbers. Data collection is in the form of distributing questionnaires to teachers and also parents whose children are at the elementary school level. In this case the statement is presented in google from. The statement contains matters relating to the influence of the use of digital learning applications on student achievement in education. This research is more focused on the elementary school level.

Results. The results of this study explain that positive effects are obtained in the use of digital learning applications. However, there are also obstacles in using digital applications for learning at the elementary school level. Students who are still classified as underage must be extra supervised so as not to make mistakes in the use of technology. In addition, the use of technology that is influenced by the internet will also affect. This is due to some areas that are constrained by internet networks. In fact, there are still students in whose homes there is no digital technology.

Conclusion This research can be concluded that the use of digital technology will have a significant and effective effect on student achievement at the elementary school level if done with the right method. Other supports are the internet and also tools as a medium to facilitate the use of learning applications. Every influence will certainly also experience challenges and obstacles as well as negative influences in its use.

KEYWORDS

Achievement, Application, Influence

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INTRODUCTION

Every digital technology will be able to influence its users. The response to incoming digital technology has pros and cons. There are still many people who reject the existence of technology due to negative impact of the technology. The positive response to the emergence of technology is certainly no less than those who reject it (Bao, 2021). This happens in terms of the way digital technology is perceived. When a rejection of digital technology occurs in the world of education, there will be a significant lag. In this case, increasing understanding of the community needs to be improved (Nurmalisa, 2023). This is important because the community's response will affect the quality of education. The more people accept the emergence of technology well, then technology will be able to bring progress in civilization (Cheng, 2023). Good use of technology in education will produce quality individuals. This will lead to the golden age of a country.

Education is the totality of an individual to develop the whole person. Education is also a periodic and evolving process (Chen, 2021). In education, it is not only about knowledge but also able to change attitudes and the way a person views things (Baker, 2019). The education process will be able to mature a person to respond to every matter in life (Figueiredo, 2021). So that the educational process is able to bring out the potential in a person. The form of realization of the development of this potential is currently assisted by various digital sophistication (Fujikawa, 2020; Ho, 2023). One of them is the use of digital learning applications. The era of digital technology is increasingly bringing innovations to support education (Firmansyah, 2021; Pyrini, 2021). The use of digital learning applications is an innovation that can be applied. The existing learning methods at school will increase with the existence of digital learning applications.

Digital learning application is a software designed to provide learning experience through electronic platform (Alakrash, 2022). Digital learning apps offer various features that will hone the potential in individuals (Apriani, 2019). This application can be used for mobile phones, tablets, or computers that provide learning materials, exercises, and learning interactions digitally (Chapa-Pazos, 2022; Torrington, 2023). EE-books, educational games, or online learning platforms are digital learning type applications. The application will increase interaction in activities between one individual and another (Chao, 2023). The participation of teachers and students in the application of learning applications will improve the quality of education. When students and teachers are able to establish good cooperation, there will be effectiveness in the teaching and learning process.

Research on the influence of the use of digital learning applications on student achievement in elementary schools has deep reasons (Tsai, 2019). The reason is a review of the improvement of student achievement at school when using digital learning applications (Arafik, 2021). This statement is also supported by an increase in the quality of student learning in elementary schools. The use of digital learning applications will encourage student motor skills (Andreani, 2019; Wang, 2021). This will trigger an increase in the activeness and creativity of students in the learning process learning. On the other hand, the use of applications in learning will encourage the process of achieving the targets achieved by the curriculum (Becerra-García, 2023). The use of the application will make it easier to present learning materials. The presentation of teaching materials will increase learning satisfaction which will have a positive impact on students and educators (Isti'anah, 2023). This will provide an overview for teachers as professional teaching staff who have a spirit of creativity and innovation in learning.

The effect of using digital learning applications on student achievement in elementary schools plays an important role in the world of education (Liu, 2023). The use of digital technology that cannot be eliminated in education has a significant impact. Digital learning applications in the form

of E-books, educational games, and even platforms will be closely related to education in the future (Nieto-Márquez, 2020). This discussion becomes important with the supporting factors of the influence of the use of digital learning applications in the world of education. If education in the future will be influenced by digital applications or other digital technologies. Of course this will be a benchmark for comparison of improving the quality of education. Analysis of the influence of digital learning applications will be a reference for future curriculum and educational targets (Vidergor, 2023). Therefore, the influence of digital learning applications on student achievement, especially in elementary schools, is very important by satisfying aspects in improving the quality of education from time to time.

This research will make a significant contribution to the use of digital learning applications in elementary schools to support education. The effect of using digital learning applications will result in new findings and new ways of learning for students (Nakamura, 2023). This can be a guide or overview for educators to adjust the way of teaching in the use of digital learning applications (Nafiah, 2022). In this study, researchers will help identify barriers that often occur in the use of digital learning applications. Researchers will also identify how much influence the use of digital learning applications has on improving the achievement of elementary school students (Jones, 2022). This will help educators in designing strategies to overcome the obstacles that have emerged (Macanas, 2019). It can also overcome differences of opinion on the use of digital learning applications. This research will also provide a foundation for the development of educational resources that support the contribution of technology in education (Lin, 2023). Some things in this research will fill the gaps that occur in the teaching and learning process to achieve educational targets. This research will provide a scientific basis and practical guidance for teachers and educators to develop potential towards brilliant achievements.

This research provides new innovations from previous research. In research (Han, 2019) The effect of digital game-based language learning mobile application on the development of complexity, accuracy, and fluency in foreign language monologic oral production among Chinese learners of English as a foreign language explains the effect of using learning applications in terms of language. In the current research, there are differences in terms of the application of the use of digital learning applications. The difference in this study is more on the use of learning applications in general for elementary school level. So that the resulting effect contains conclusions about the use of learning applications that have an impact on student achievement in elementary schools.

Considering the reasons, the researcher aims to answer several questions that arise. First, do digital learning applications have a positive impact on students? Second, is the use of digital learning applications able to increase students' interest in learning? Third, how is the effect of using digital learning applications at the elementary school level? With this study, researchers hope that teachers and parents are able to accept the presence of technology in supporting education. In addition, the presence of new features in learning applications will help students understand what is conveyed. By continuing to hone skills in using technology balanced with constant control from parents and teachers, of course this will be a positive influence on the world of education (Lu, 2022). In addition, researchers hope that this research can be taken into consideration for further research to further explore the current research.

RESEARCH METHODOLOGY

Research Design

This study uses a quantitative research design. This research was chosen to measure and analyze students' ability to use technology in the form of digital learning applications. The use of quantitative methods will allow researchers to measure the number of responses obtained (Badalpur, 2021; Bavaresco, 2020). The data will present evidence or information that can be analyzed for the effect of using digital learning apps on student achievement in primary schools. The information will contain a comparison between the responses of teachers and parents of elementary school students. The results of the comparison will be processed to match the circumstances that occur in the field. Quantitative research explains in detail the part of the variables used in the research until they influence each other (Dufour, 2019). Researchers collect data obtained from the results of filling out google from which has been designed for nearby educational institutions (Doudin, 2021). Carry out classroom observations to measure the extent of the influence of using learning apps for students in elementary schools. Google from contains questions about the significant influence on the use of learning applications. Furthermore, the data was processed through SPSS using the oneway anova test. This is done to gain an in-depth understanding of how much influence the application of digital learning applications has at the elementary school level.

Research Procedure

The steps taken in this study began with asking permission from the school and collaborating with parents of elementary school students. Then each questionnaire was filled in by teachers and parents until it reached the target filling which was considered to meet the expected results of the research. In this study, it is very important to pay attention to ethics in making questionnaires. The form of ethics is that the language used is good and also polite. So that teachers and parents can fill in the questionnaire easily and also in a fast time. This will be useful in assessing various problems that will be faced by teachers and parents when using learning applications. Teachers will also be able to think with cognitive abilities comparing things that happen during learning.

Research Subjects

This research contains a scope that includes educational institutions in elementary schools in several regions. The researcher will make SDN 12 Pagaruyung as the object of this research. Conducting this research will be crucial to ensure the efficiency of using digital learning applications. Participants in this study consisted of teachers and parents of students who were randomly selected. In addition, the researcher also involved students to obtain information related to the use of learning applications with the aim of improving student achievement at the elementary school level.

Research Ethics

Research ethics is a set of principles and norms to govern the behavior of researchers in conducting research. This aspect includes permission and approval from institutions or individuals. In this study, 10 teachers and 15 parents of students were randomly selected to participate. Data were collected from the nearest village to the elementary school area. The researcher will maintain the security of research data and consider efforts to protect the personal data of participating teachers and parents. The research is conducted fairly and impartially, and does not discriminate against the subjects (Abraham, 2021). Researchers do not impose their will on research subjects to maintain the comfort of the individual. All information and data from the research were avoided from

recognizing other people's property rights. Do not forget that researchers give appreciation from everyone involved in this research.

Data Collection Technique

Data collection in the study used a questionnaire loaded via google from distributed on January 17, 2024 to January 19, 2024. Distribution of google from to teachers and parents via WhatsApp. The data collected from the responded answers is then presented in the form of an excel file. Statements related to research and also the results of the responded are then processed into the SPSS application. The purpose is to show how much influence the use of digital learning applications has on the achievement of elementary school students. This will be presented using numbers and explained the difference in the high and low opinions of the respondents.

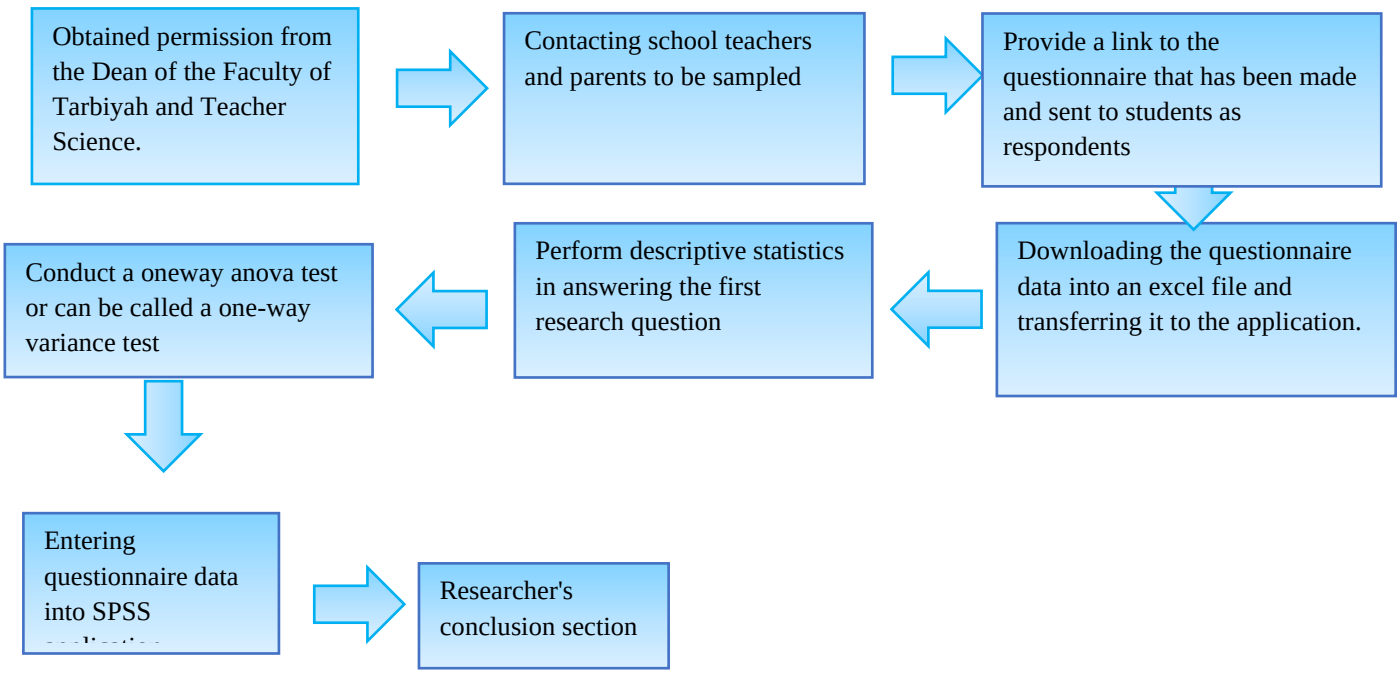
Table 1. Sample Population

NO	**Department of**	Number of Participants	Persentage
1.	School Teacher	**10**	**40%**
2.	Parents	**15**	**60%**

Tabel 2 . Rincian Sampel Penelitian

No	**Choice Category**	Tier Number
1	Strongly Agree (5)	**>90%**
2	Agree (4)	**70-80%**
3	Disagree (3)	**50-60%**
4	Strongly Disagree (2)	**0-40%**
Total		**100%**

Data Collection and Data Analysis Tools



RESULT AND DISCUSSION

Digital learning applications are not only used to improve student achievement. Rather, it is able to provide new innovations in the world of education to pursue various demands of the world in the future. One form of digital learning application is an e-book that presents various digital books. Accessing this e-book is also very easy, only requires the internet and also a smartphone or the like. The books presented will certainly be easy to read and there is no need to carry books wherever you go. Apart from e-books there is also the name classroom. Classroom is also a learning application that can be accessed for free via the web. This application was developed by Google which aims to simplify distribution and can also assess assignments without having to meet face to face. The main purpose is to facilitate teachers and students in sharing assignment files or the like in an effort to facilitate the teaching and learning process.

These actions are an effort provided by the government for education in facilitating learning. In addition, it is also an effort to support the achievement of curriculum objectives in strengthening the abilities and understanding of students. The achievement of understanding is not only limited to knowledge in the world of education. But also a basic IT (Science Technology) knowledge that students will receive at the elementary school level. The use of digital learning applications is also the first step to introduce technology to students so that they are able to use it according to their needs and correct functions. When a technology is able to be used properly and correctly, especially in the world of education, of course, it will then lead to a new civilization that is able to compete fairly at the international level.

The table below shows the results of responses from teachers at the elementary school level. The number of respondents was 10 people who were randomly selected. For the presentation of the table using the percentage of the number of responded. A total of 10 teachers who contributed responded more positively than negatively to the use of digital learning applications at the elementary school level. Thus, technology is able to influence the enthusiasm, activeness, and participation of students and teachers in learning. So that learning does not become passive and becomes more active when using technology.

Table 3 Responded Effect of Digital Learning Application Use on Student Achievement at Elementary School from School Teachers

NO	Questions	SS (%)	S (%)	TS (%)	STS (%)
1	The use of digital learning apps can affect student achievement at the primary school level	40%	48%	12%	0%
2	There is a significant difference in student achievement since the implementation of digital learning apps in elementary schools	44%	40%	16%	0%
3	Teachers play an important role in ensuring the effectiveness of digital learning apps in improving student achievement	64%	36%	0%	0%
4	There is a difference in students' learning motivation after the adoption of digital learning apps	56%	32%	12%	0%
5	There are specific strategies implemented to maximize the benefits of digital learning apps in classroom learning	64%	36%	0%	0%

6	Evaluation and monitoring of the impact of digital learning apps on students' academic achievement are important	80%	16%	4%	0%
7	Feedback from students or parents that can provide additional insights into the impact of digital learning apps on student achievement	64%	24%	4%	8%
8	Schools can address potential risks or negative impacts that may arise from the use of digital learning apps at the primary school level	72%	28%	0%	0%
9	There are identifiable positive aspects of using digital learning apps on student progress	68%	32%	0%	0%
10	There are challenges or barriers faced in integrating digital learning apps in the primary school environment	68%	32%	0%	0%

The highest score from the responded data above reached 80% for the strongly agree response to the statement in item 6 that evaluation and monitoring are important for the use of digital learning apps on students' academic achievement. This response is strongly agreed because evaluation and monitoring are indeed very important. The purpose of monitoring is to find information about the development of the use of learning apps so that it can be evaluated. This evaluation is useful to increase the positive function of learning apps in education. If there is no monitoring and evaluation in the use of learning applications, how will teachers overcome various problems that occur in learning at school. So when there is no monitoring and evaluation, it will certainly be difficult to improve the academic achievement of students.

The second highest score is item 8 with 72% responding strongly agreeing to the statement that schools can overcome potential risks or negative impacts that may arise from the use of learning apps at the primary school level. This is certainly related to item 6 statement regarding evaluation and monitoring. About the usefulness of evaluation and monitoring is useful for schools to overcome the potential risk of misuse of digital technology. Of course digital technology can be a negative risk to students such as addiction, dependence, and also misuse. This will happen if schools and families are negligent in supervising students while learning. It is undeniable that technology that is able to access everything will be misused if it is not used with knowledge.

Table 4 Responded Acquisition of the Influence of the Use of Digital Learning Applications on Student Achievement in Elementary Schools from Parents

NO	Questions	SS (%)	S (%)	TS (%)	STS (%)
1	Students can gain a more thorough and holistic learning experience through the variety of media offered by digital learning apps.	60%	32%	8%	0%
2	Digital learning apps can help overcome limited resources and textbooks in primary schools.	76%	16%	44%	4%
3	Digital learning apps can provide an inclusive learning environment, supporting different levels of intelligence and learning styles.	60%	24%	12%	4%

4	Improved problem-solving skills can occur through exploration and interaction with digital learning apps.	60%	36%	4%	0%
5	Digital learning apps can provide instant feedback to students, helping them understand mistakes and improve performance.	52%	32%	12%	4%
6	Increased student engagement through digital learning apps can positively impact the understanding of course concepts.	56%	24%	20%	0%
7	Accessibility of digital learning materials can help students to learn anywhere and anytime.	68%	28%	0%	4%
8	The interactivity of digital learning apps can make learning more interesting and fun for students.	60%	32%	8%	0%
9	Students can learn independently through digital learning apps, increasing their sense of responsibility for their education.	68%	28%	4%	0%
10	The use of digital learning apps can increase students' interest in learning in elementary school.	64%	28%	4%	4%

The highest responded score from the data table of parents' responses to the statement falls on item 2 related to the statement that digital learning applications can help overcome the limitations of resources and textbooks in elementary schools. which has a response of 76%. This is supported by digital learning applications such as e-books. In the e-book application everyone can use and can also read the desired book. So that there are no more limitations in the use of books. However, there are 44% statements disagreeing with this because not all e-books can be accessed in full content but only a few pages. This will be a limitation of the information obtained. However, this can be balanced with various other reading materials such as ebooks with the same material but different titles or can use journals.

The next highest achievement is in item 7 and also 9 which are interrelated. In item 7 with responded strongly agree as much as 68% stated that the accessibility of digital learning materials can help students to learn anywhere and anytime. This statement is considered supportive and strong because the use of learning applications can be anywhere. For example, when at home you can still access learning applications. Other things like traveling, everyone can still access digital learning applications which are fairly practical. Connected to the statement of item 9, namely students can learn independently through digital learning applications, increasing their sense of responsibility for their education. This is reinforced by the discussion of item 7 where digital learning applications can be accessed anywhere. So that it supports independent learning by students. So that there is a sense of responsibility towards oneself to achieve a brilliant education.

Table 5 Effect of Digital Learning Application Use on Student Achievement in Elementary Schools from School Teachers tested using oneway anova test

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
X.01	School Teacher	4.000	5	.800	6.400	.048
	School Teacher	.500	4	.125		
	Total	4.500	9			

X.02	School Teacher	4.400	5	.880	.	.
	School Teacher	.000	4	.000		
	Total	4.400	9			
X.03	School Teacher	1.600	5	.320	2.560	.192
	School Teacher	.500	4	.125		
	Total	2.100	9			
X.04	School Teacher	5.900	5	1.180	9.440	.025
	School Teacher	.500	4	.125		
	Total	6.400	9			
X.05	School Teacher	2.400	5	.480	.	.
	School Teacher	.000	4	.000		
	Total	2.400	9			
X.06	School Teacher	1.100	5	.220	1.760	.302
	School Teacher	.500	4	.125		
	Total	1.600	9			
X.07	School Teacher	3.900	5	.780	6.240	.050
	School Teacher	.500	4	.125		
	Total	4.400	9			
X.08	School Teacher	1.600	5	.320	2.560	.192
	School Teacher	.500	4	.125		
	Total	2.100	9			
X.09	School Teacher	2.400	5	.480	.	.
	School Teacher	.000	4	.000		
	Total	2.400	9			
X.10	School Teacher	2.100	5	.420	.	.
	School Teacher	.000	4	.000		
	Total	2.100	9			

The table above is a sample of responded answers from teachers at elementary level schools which obtained a total sum of squares of 4,500, df of 9, then the average squares of 800. The acquisition of F is 6,400 with a significance of 048. These results state that the use of digital learning applications can affect student achievement at the elementary school level. This is because learning applications will support the progress of the world of education in accessing all information related to knowledge that exists in various places. The main purpose of using learning applications is to improve student achievement, especially at the elementary school level which is the starting place for formal education. Learning applications will facilitate all needs in the world of education if used carefully. So that it will allow ease in the method of achieving the intended educational targets.

Table 6 The Effect of Digital Learning Application Use on Student Achievement in Elementary Schools from Parents tested using oneway anova test

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
X.01	Parents	2.100	5	.420	.	.
	Parents	.000	4	.000		

	Total	2.100	9			
X.02	Parents	2.100	5	.420	.840	.583
	Parents	2.000	4	.500		
	Total	4.100	9			
X.03	Parents	3.900	5	.780	6.240	.050
	Parents	.500	4	.125		
	Total	4.400	9			
X.04	Parents	2.400	5	.480	.	.
	Parents	.000	4	.000		
	Total	2.400	9			
X.05	Parents	4.000	5	.800	6.400	.048
	Parents	.500	4	.125		
	Total	4.500	9			
X.06	Parents	4.000	5	.800	6.400	.048
	Parents	.500	4	.125		
	Total	4.500	9			
X.07	Parents	1.600	5	.320	.	.
	Parents	.000	4	.000		
	Total	1.600	9			
X.08	Parents	1.600	5	.320	2.560	.192
	Parents	.500	4	.125		
	Total	2.100	9			
X.09	Parents	1.400	5	.280	1.120	.469
	Parents	1.000	4	.250		
	Total	2.400	9			
X.10	Parents	7.600	5	1.520	3.040	.152
	Parents	2.000	4	.500		
	Total	9.600	9			

The table above is a sample of parents' responses to the statements asked which obtained a total sum of squares of 2,100, df 9 and an average square of 420 with no F and also Sig. From this data there is a significant difference between the two tables obtained through answers from teachers and parents. This proves that there are differences seen from school and home activities. The biggest factor is the misuse of the application or ineffectiveness in using it. In addition, it depends on the supervision carried out by teachers and parents. Another thing that can affect the differences in the way students learn.

The Effect of Using Digital Learning Apps on Student Achievement in Elementary Schools from School Teachers

The use of diverse learning media will allow the needs in education to be fulfilled. Students' unique way of learning will require different learning media and methods. Today's rapid technology is able to fulfill these needs. This is the case with the use of digital learning applications that present a variety of different features to complement the world of education. The use of this learning application has a positive impact on students' learning achievement. The features presented in an interesting application make a special attraction for students in using it. So that this becomes a new innovation to improve student understanding. If increased understanding can be done. When

compared before and after the use of learning applications there is a significant difference in student achievement. There is a lot of improvement in student achievement due to increased understanding and sources of knowledge obtained.

Teachers as educators at school are certainly no less important in supervising students when using learning applications. Teachers will monitor the effectiveness of using learning applications as learning media. The effectiveness of using learning applications will have an effect on improving the quality of education in schools. Every student who learns certainly has different motivations. Such as for the highest score, pursuing scholarships, or just because of parental orders. When using learning applications, it will be illustrated how students are able to take responsibility for what they do. This is supported by the ease of access when using a smartphone as a medium for delivering to the use of learning applications.

The use of digital learning applications must certainly be utilized in accordance with educational objectives. This will require strategies or steps in taking special actions when using learning applications. If there is a special strategy and run optimally, then the use of this application will be right on target and find efficiency in use. The benefits of this application certainly vary from easy access to books or even teaching materials. In addition, it also presents new innovations that attract students' interest in reading. Improved achievement will occur if student interest in reading and understanding increases. Furthermore, in an effort to increase the use of appropriate learning applications, evaluation and monitoring are needed. Evaluation aims to find shortcomings and inaccuracies in the use of applications. So that when there are obstacles or gaps in the world of education when using applications can be overcome swiftly. The usefulness of monitoring is to keep students under control so that they are not carried away by technology. When students are not monitored, it can lead to addiction and dependence on technology. This addiction and dependence results in a lack of creative thinking from students in solving problems. Therefore, regular monitoring of students and the media used is needed.

The new insights provided to students and teachers will facilitate the process of knowledge sharing and assessment. Feedback from students and teachers is positive with the ease of accessing, sharing, and also assessing assignments from students. In reality, there are still teachers who are unfamiliar with the use of technology. So when entering a technology there is a stutter that makes learning inefficient. However, a learning application provides usage guidelines for all users. This provides a positive response to the provision of additional insights related to digital learning applications. When a positive response is received, there is an opportunity for technology to support education in schools. In fact, many teachers and students are helped when using learning applications. Students will easily see the teaching materials provided by the teacher and teachers will easily assess the results of assignments from students without having to meet face to face.

Schools as a place of formal education certainly continue to carry out their duties as a field of knowledge. When technology enters the school, it must be digested first to think about what the future effects will be. This is because schools as educational institutions will overcome all the risks that arise when using technology. Technology, which is classified as a broad and unlimited access media, will certainly have a negative impact on its users if it is not controlled. The use of technology that is properly supervised will have a positive impact. Meanwhile, a technology that is given without any guidance in its use will have a negative impact. Some examples of the misuse of learning media are plagiarism, the emergence of false or hoax information and various forms of cheating in making assignments. So that schools as a place of formal education where there are teachers must be able to

overcome all these problems by evaluating and monitoring. When monitoring and evaluation are completed, handling must be carried out as a follow-up to efforts to overcome potential risks.

The Effect of Using Digital Learning Apps on Student Achievement in Elementary School from Parents

Parents are non-formal educators at home. Students who come home from school will be held accountable again by parents. The responsibility of education is not only placed on teachers. The role of parents in paying attention to children's education at home is also very important. With the existence of learning applications and sometimes constrained in the offline learning process, students will be asked online. In this online learning process, of course, direction is needed from parents to children in the use of learning media. Students will get a good and more comprehensive learning experience if guided and supervised intensively. A comprehensive and holistic understanding of student learning can be achieved by varying the use of learning media offered by digital learning applications.

Digital learning applications that can fill the limitations of student learning resources will encourage new enthusiasm in the world of education. The usual concern of middle to lower economic parents to fulfill learning resources will be helped. An inclusive learning environment will provide significant support to the intelligence level and learning style of each student. Students who are required to be able to learn independently without meeting face-to-face will improve their skills in solving problems that occur while learning. For example, when unable to answer the questions given, students will indirectly be moved to try to solve the problems that occur. In addition, if students are unable to use the learning application, there will be an initiative to try to explore and learn each item in the application. This will increase the creative thinking and skills of students independently.

Digital learning applications also provide feedback or responses to users. For example, if there is an error in use, there is a reminder feature. In addition, there is also a usage technique feature and help to access the learning application. This will help students as users in understanding errors and improving performance in using the application. Increased use of applications as learning media will have a positive impact on understanding learning concepts. When learning concepts are well understood, teachers will find it easier to provide directions or tasks in supporting the learning process. Students will also better understand the tasks or learning that takes place. And this will support students to seek deeper knowledge of the lessons being applied. This improvement will also have an effect on the reciprocal relationship between students and teachers. So that the achievement of the curriculum will be easy to achieve and fulfill to the maximum. The obstacles that usually occur in the learning process can be overcome efficiently with the learning application.

Learning applications that can be accessed anywhere will make students free to repeat learning anytime and anywhere. This is a convenience provided by learning applications to students and teachers. When the use of learning applications can be used anywhere and anytime, it will make it easier for students to achieve brilliant achievements without limited knowledge sources. The presentation of interactive learning applications brings a change in the world of education. interactive learning will bring an interesting and alluring thing for students to want to carry out lessons and repeat them. Things that are presented interestingly will certainly captivate the hearts of those who see them. That is the description of the learning application that will be able to increase the interest and motivation of students to learn. Increased student learning will affect student achievement. Increased student creativity will also increase student achievement not only in the academic field but also in their own knowledge or skills.

CONCLUSION

The effect of using digital learning apps on student achievement at the primary school level is the subject of this study. This study explores various views on the use of learning apps to improve student achievement at the primary school level. This study also analyzes the barriers or risks faced when using digital learning apps. There are barriers and obstacles if there is misuse of learning apps. The form of misuse is cheating, plagiarism and hoax news from some people on the use of learning applications. Through the contribution of teachers and cooperation with parents, this will be resolved quickly and accurately. In addition, regular monitoring of students in the use of learning applications will be a follow-up to the evaluation of use. This research provides an overview of the influence students have on the use of digital learning apps. Support from parents and teachers is very important to maximize the benefits of using learning apps.

Furthermore, learning apps will increase student engagement in the learning process. The interactive features as well as the educational games provided will keep students interested. This is because students at elementary school level prefer fun things. In addition, educational games will also stimulate students' brains to think. Learning applications will also provide opportunities for students to develop according to their individual potential. This statement is supported by a more individualized approach to students. With the emergence of learning applications, it provides easy access to various learning resources. This will provide opportunities for students to learn outside of class hours and provide a deeper understanding of the topics discussed.

Evaluations provided by schools, teachers and parents are supported by learning apps. Learning apps also provide quick and instant feedback on student performance. This will help the school and parents to provide corrective actions. In addition, it will also provide opportunities to identify obstacles and weaknesses experienced by students when using learning apps. However, it is important to remember that the use of digital learning apps must be managed wisely. It is important to ensure accuracy in the use of learning apps. The purpose of learning apps is to help support learning methods in achieving the curriculum. In addition, equality in access to technology must also be considered so that all students can benefit.

AUTHORS' CONTRIBUTION

Author 1: Review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.
Author 3: Data curation; Investigation.
Author 4: Validation; Writing.
Author 5: Conceptualization; Project administration.

REFERENCES

Abraham, T. H. (2021). A Method for Developing Trustworthiness and Preserving Richness of Qualitative Data During Team-Based Analysis of Large Data Sets. *American Journal of Evaluation*, *42*(1), 139–156. https://doi.org/10.1177/1098214019893784

Alakrash, H. M. (2022). The Application of Digital Platforms in Learning English Language. *International Journal of Information and Education Technology*, *12*(9), 899–904. https://doi.org/10.18178/ijiet.2022.12.9.1699

Andreani, W. (2019). «PowPow» interactive game in supporting English vocabulary learning for elementary students. *Procedia Computer Science*, *157*(Query date: 2024-01-20 04:16:49), 473–478. https://doi.org/10.1016/j.procs.2019.09.005

Apriani, L. (2019). Digital application in teaching musical traditional instrument for children. *Journal of Physics: Conference Series*, *1318*(1). https://doi.org/10.1088/1742-6596/1318/1/012030

Arafik, M. (2021). Development of digital comic technology applications design to increase children's literature reading interest in elementary school. *Proceedings - 2021 7th International Conference on Education and Technology, ICET 2021, Query date: 2024-01-20 04:16:49*, 277–281. https://doi.org/10.1109/ICET53279.2021.9575105

Badalpur, M. (2021). An application of WASPAS method in risk qualitative analysis: A case study of a road construction project in Iran. *International Journal of Construction Management*, *21*(9), 910–918. https://doi.org/10.1080/15623599.2019.1595354

Baker, S. F. (2019). The writing performance of elementary students using a digital writing application: Results of a teacher–librarian collaboration. *Interactive Technology and Smart Education*, *16*(4), 343–362. https://doi.org/10.1108/ITSE-08-2018-0057

Bao, Z. (2021). Survey on deep learning applications in digital image security. *Optical Engineering*, *60*(12). https://doi.org/10.1117/1.OE.60.12.120901

Bavaresco, M. V. (2020). Methods used in social sciences that suit energy research: A literature review on qualitative methods to assess the human dimension of energy use in buildings. *Energy and Buildings*, *209*(Query date: 2024-01-20 04:52:58). https://doi.org/10.1016/j.enbuild.2019.109702

Becerra-García, E. (2023). Active Methodologies: An Approach to Virtual Teaching in Natural Sciences. *Smart Innovation, Systems and Technologies*, *366*(Query date: 2024-01-20 04:16:49), 245–256. https://doi.org/10.1007/978-981-99-5414-8_24

Chao, J. Y. (2023). Science, Technology, Engineering, and Mathematics Curriculum Design for Teaching Mathematical Concept of Perspective at Indigenous Elementary School Using Robots. *Sensors and Materials*, *35*(5), 1547–1556. https://doi.org/10.18494/SAM4051

Chapa-Pazos, G. (2022). Can Primary School Children Be Digital Learners? A Peruvian Case Study on Teaching with Digital Tool. *Lecture Notes in Networks and Systems*, *407*(Query date: 2024-01-20 04:16:49), 119–127. https://doi.org/10.1007/978-3-030-96147-3_10

Chen, N. (2021). Usability of Digital Numeration Training for Students at Primary School. *Communications in Computer and Information Science*, *1499*(Query date: 2024-01-20 04:16:49), 258–265. https://doi.org/10.1007/978-3-030-90179-0_33

Cheng, S. (2023). Design and Application of Computer Basic Education Network Platform Based on GABP Algorithm. *2023 World Conference on Communication and Computing, WCONF 2023*, *Query date: 2024-01-20 04:16:49*. https://doi.org/10.1109/WCONF58270.2023.10235208

Doudin, K. I. (2021). Quantitative and qualitative analysis of biodiesel by NMR spectroscopic methods. *Fuel*, *284*(Query date: 2024-01-20 04:52:58). https://doi.org/10.1016/j.fuel.2020.119114

Dufour, I. F. (2019). Theorizing from secondary qualitative data: A comparison of two data analysis methods. *Cogent Education*, *6*(1). https://doi.org/10.1080/2331186X.2019.1690265

Figueiredo, M. (2021). Virtual reality as an educational tool for elementary school. *Smart Innovation, Systems and Technologies*, *198*(Query date: 2024-01-20 04:16:49), 261–267. https://doi.org/10.1007/978-3-030-55374-6_26

Firmansyah, F. H. (2021). Development of interactive learning multimedia for mathematics subjects for grade 5 elementary schools. *Journal of Physics: Conference Series*, *1987*(1). https://doi.org/10.1088/1742-6596/1987/1/012017

Fujikawa, M. (2020). SNS Education Game for Upper-Grade Elementary School Students: Evaluation of Prototype. *ACM International Conference Proceeding Series*, *Query date: 2024-01-20 04:16:49*, 137–141. https://doi.org/10.1145/3395245.3395248

Han, F. (2019). The effect of digital game-based language learning mobile application on the development of complexity, accuracy, and fluency in foreign language monologic oral production among Chinese learners of English as a foreign language. *ASCILITE 2017 - Conference Proceedings - 34th International Conference of Innovation, Practice and*

Research in the Use of Educational Technologies in Tertiary Education, *Query date: 2024-01-18 02:14:25*, 95–99.

Ho, C. L. (2023). Interactive multi-sensory and volumetric content integration for music education applications. *Multimedia Tools and Applications*, *82*(4), 4847–4862. https://doi.org/10.1007/s11042-022-12314-3

Isti'anah, I. (2023). Developing Construct 2 Application-Based Online Puzzle in Teaching Pancasila Symbols during Covid-19 Outbreak for First Graders of Elementary School. *AIP Conference Proceedings*, *2679*(Query date: 2024-01-20 04:16:49). https://doi.org/10.1063/5.0112207

Jones, J. M. (2022). Art-based mindfulness at school: A culturally responsive approach to school mental health. *Psychology in the Schools*, *59*(10), 2085–2105. https://doi.org/10.1002/pits.22660

Lin, F. L. (2023). Programming E-Books: Culture, English, and Scratch for Schoolchildren of Rural Taiwan. *IEEE Transactions on Education*, *66*(1), 62–72. https://doi.org/10.1109/TE.2022.3185318

Liu, Y. B. (2023). The Impact of Digital Game-based Learning with a Mathematical Game Application on Calculation Abilities of Grade 4 Students. *31st International Conference on Computers in Education, ICCE 2023 - Proceedings*, *1*(Query date: 2024-01-20 04:04:06), 661–670.

Lu, S. J. (2022). The Role of Digital-Media-Based Pedagogical Aids in Elementary Entomology: An Innovative and Sustainable Approach. *Sustainability (Switzerland)*, *14*(16). https://doi.org/10.3390/su141610067

Macanas, G. A. (2019). Enhancing elementary pupils' conceptual understanding on matter through sci-vestigative pedagogical strategy (SPS). *Participatory Educational Research*, *6*(2), 206–220. https://doi.org/10.17275/per.19.22.6.2

Nafiah. (2022). An Online-Based Learning Management Analysis for Elementary School Teachers During Covid-19 Pandemic in Indonesia. *Pegem Egitim ve Ogretim Dergisi*, *12*(4), 137–147. https://doi.org/10.47750/pegegog.12.04.14

Nakamura, K. W. (2023). Development of a web application for flowering phenology observation and its applicability to climate-related learning in elementary schools. *Cogent Education*, *10*(2). https://doi.org/10.1080/2331186X.2023.2277045

Nieto-Márquez, N. L. (2020). Assessing impact of self-regulated learning using educational games on intelligent platform. *Proceedings of the 14th International Conference on Game Based Learning, ECGBL 2020, Query date: 2024-01-20 04:16:49*, 408–416. https://doi.org/10.34190/GBL.20.102

Nurmalisa, Y. (2023). An Integrative Review: Application of Digital Learning Media to Developing Learning Styles Preference. *International Journal of Information and Education Technology*, *13*(1), 187–194. https://doi.org/10.18178/ijiet.2023.13.1.1795

Pyrini, A. N. (2021). Teaching Environmental Education Using an Augmented Reality World Map. *Lecture Notes in Networks and Systems*, *240*(Query date: 2024-01-20 04:16:49), 125–130. https://doi.org/10.1007/978-3-030-77040-2_17

Torrington, J. (2023). Elementary students' self-regulation in computer-based learning environments: How do self-report measures, observations and teacher rating relate to task performance? *British Journal of Educational Technology*, *Query date: 2024-01-20 04:16:49*. https://doi.org/10.1111/bjet.13338

Tsai, C. W. (2019). A research of digital image-based cognitive learning systems in applications of preventive medicine-an example of redding elementary school, San Francisco. *2019 IEEE 4th International Conference on Signal and Image Processing, ICSIP 2019*, *Query date: 2024-01-20 04:04:06*, 846–849. https://doi.org/10.1109/SIPROCESS.2019.8868581

Vidergor, H. E. (2023). Teaching futures thinking literacy and futures studies in schools. *Futures*, *146*(Query date: 2024-01-20 04:16:49). https://doi.org/10.1016/j.futures.2022.103083

Wang, W. (2021). Using Artificial Intelligence-Based Collaborative Teaching in Media Learning. *Frontiers in Psychology*, *12*(Query date: 2024-01-20 04:16:49). https://doi.org/10.3389/fpsyg.2021.713943