# Development of Digital Literacy Educational Game for Elementary School Students to Be Wise in Using the Internet

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**Abstrak**

Kemudahan dalam mengakses informasi mengharuskan literasi digital sebagai poin penting untuk dikuasai siswa karena kurangnya penguasaan literasi digital berpotensi fatal bagi siswa. Penggunaan media berbasis game edukasi literasi digital diharapkan dapat mengatasi permasalahan potensi kurangnya pengetahuan literasi digital siswa dalam menggunakan internet. Metode penelitian yang digunakan mixed method dengan jenis penelitian R&D model ADDIE serta One Group Pretest-Posttest Design. Teknik pengambilan data yang digunakan yaitu kuesioner, wawancara dan tes pemahaman sebanyak 20 soal pilihan ganda. Peneliti melakukan uji normalitas dan dilanjutkan dengan uji wwilcoxo. Kemudian, peneliti melakukan uji N-gain yang hasilnya menunjukkan peningkatan nilai pretest-posttest setelah perlakuan game edukasi sebesar 0,41 (41%) dengan kriteria sedang. Penelitian ini membuktikan adanya peningkatan ke arah yang lebih baik terkait pemahaman siswa akan literasi digital menggunakan game edukasi.

**Kata Kunci:** game edukasi, literasi digital, internet, sekolah dasar

**Abstract**

The ease of accessing information requires digital literacy as important points for students to learn because the lack of digital literacy mastery is potentially dangerous for students. The use of digital literacy educational game-based media is expected to overcome the potential problem of students' lack of digital literacy knowledge in using the internet. The research method used was mixed method with the ADDIE model R&D research type and One Group Pretest-Posttest Design. The data collection techniques used were questionnaires, interviews and comprehension tests totaling 20 multiple choice questions. Researchers conducted a normality test and continued with the wwilcoxo test. Then, researchers conducted the N-gain test, the results of which showed an increase in the pretest-posttest value after the educational game treatment of 0.41 (41%) with moderate criteria. This research proves that there is an improvement in a better direction regarding students' understanding of digital literacy using educational games.

**Keyword:** *education games*, *digital literacy*, *internet*, *elementary school*

## INTRODUCTION

In the era of growing technology, there is an Alpha generation, which is a term for children born after 2010 so that these children are familiar from an early age with technology such as social media and the internet. Association of Internet Service Providers in Indonesia (APJII) stated that the number of internet users in Indonesia based on the results of its survey reached 215.63 million people in the period 2022-2023. This is equivalent to a 2.67% increase compared to the previous period of 210.03 million people (APJII, 2023). Meanwhile, based on data from the Central Statistics Agency (BPS) in 2021 through susenas survey data, 62.10% of citizens in Indonesia use internet

access (Statistics, 2022). This high number shows that Indonesian people are relatively open to information and accept changes in technological development.

The advancement of advanced technology shown by the large use of gadgets or smart cellular phones (cellphones) in Indonesia is one example of the progress of society in the digital era. The use of gadgets is currently driven by demands in education, social, economic, political, cultural, and other aspects. However, the development of this technology has resulted in a shift from old habits to new habits such as easy access to information and a series of good and bad impacts that arise in society (Aeni, Erlina, et al., 2022).

The ease of accessing information requires a person to have digital literacy skills because someone who is interested in technology must avoid the adverse effects of the internet and the information on it (Ahsani et al., 2021). So to avoid various negative impacts of the internet, it is necessary to instill digital literacy in children as early as possible. Even parents are encouraged to provide support in the development of children's digital literacy so that children are not exposed to the negative effects of using the wrong internet (Munawar et al., 2019). The term literacy is not always limited to reading and writing printed texts but with the times, the term literacy also has a special meaning, including the term digital literacy.

Digital literacy learning needs to be done from an early age with continuous strengthening of digital literacy (Fauzi, 2020). The earliest place to introduce digital literacy is in the family and school environment (Kementerian Pendidikan dan Kebudayaan, 2017). The family is the most important and influential place to shape children's culture and attitudes in social life because the family is the first place for children to develop and shape behavior with a good personality (Aeni, Nofriani, et al., 2022).

In some family environments, children mistakenly use gadgets only as a medium for entertainment. Some of these children use gadgets to play games or watch online videos in the form of songs, dances, cartoon movies or animations. These activities have the potential to have a negative impact on children's emotional well-being in the future (Day & Qodariah, 2018). Some parents do not limit their children from playing gadgets because they want them to stay at home. Some wise parents tend to set time limits for children to use gadgets.

In the school environment, there is an integration of technology into the learning process in the classroom, requiring teachers to create innovative learning to adapt to these conditions. Teachers play an important role in providing learning by using appropriate learning media in delivering learning materials (Fahira & Iswara, 2023). It is not enough for teachers to master the knowledge of the material but also to have skills in implementing technology. Technology is one of the elements that teachers must master. The use of technology has a positive influence in the world of education (Aeni, Djuanda, et al., 2022).

In reality, the internet can pose a risk of various problems that are feared to arise. Various findings reveal the risks that children have to bear as a result of using the internet. There are potentially various risks that children will face when allowed to freely access the internet (Kusumawardhani et al., 2019). The first is the occurrence of harassment and bullying. Then the second, the display of content that is not suitable for children to see. Third, uploading content that other parties may feel harmed by their reputation or privacy. Then the fourth, children will lack activities that involve physical movement. And, fifth, the risk that comes from cyber security.

As such, schools as a second home for children must support the strengthening of digital literacy in children (Pentianasari et al., 2022). In addition, the use of entertainment or playing games encourages educators not only to prohibit with words but can encourage and interact with children to be smart in choosing more meaningful games (Rahayu et al., 2019). In fact, games can also be integrated by educators into learning activities in the classroom because games are able to attract student interest with designs that are displayed attractively, so that this digital literacy lesson can be overcome with one of them is the use of educational games (Erfan et al., 2020).

Educational games have the meaning of games whose design in learning aims to provide convenience such as mastering material and broader knowledge insights (Widya et al., 2021). Educational games are a form of game whose design contains elements of value related to education (Arisandy et al., 2021). Thus, the objectives of educational games include stimulating

mindsets, encouraging focusing, and making children able to easily think in solving problems with various strategies.

Educational games have learning content designed to make children feel happy in the learning process. The existence of educational games in the learning process is expected that children will show a higher level of activeness and interest in learning (Maulidiyah et al., 2023). A number of advantages are possessed by educational games so that they are used as interactive educational media (Putra et al., 2018). Educational games can attract children's enthusiasm when learning material, can be accessed using devices such as laptops, computers, and gadgets so that children can access them at any time and place (Pratama & Haryanto, 2018), and learning concepts or material to children feels more fun if taught through games.

Initial findings show that digital literacy learning in the form of using the internet to access social media will be effective if assisted by website-based educational game learning media. Research that supports this research includes that educational games make students get new experiences in learning because they can be used at any time and place, and show an increase in student learning outcomes (Windawati & Koeswanti, 2021). The next research is related to educational games for introducing and learning to count. The results showed that educational games are suitable for use in learning to count (Kurniawan Y I & Rivaldi M F, 2021). The next research is related to the development of educational game media for fauna marbles. The results showed that educational games were very effective to be implemented as evidenced by an increase in student learning outcomes (Nugroho & Ma'arif, 2022). Educational games have a positive effect on student learning motivation (Nisa and Susanto, 2022). Other research on the development of 3D educational games to foster love for the country shows the feasibility of using applications in supporting teachers when delivering lessons (Hariyani and Fitri, 2023). Based on the above studies, researchers are encouraged to conduct research to measure students' digital literacy by developing educational games to be wise in using the internet.

## METHOD

The method in this study uses a mixed method, which is a research method that combines qualitative methods and quantitative methods (Sugiyono, 2022). This study involved 36 grade VI students at an elementary school in Bogor Regency in addition to 1 teacher and 2 experts. In the qualitative method with the type of research and development (R&D) using the ADDIE development model consisting of Analysis, Design, Development, Implementation, Evaluation. The ADDIE model is applied in this study because the model is suitable for use in developing media products that will be used (Nasron et al., 2023). In the quantitative method, a quasi-experiment was conducted using a one group pretest-posttest design aimed at measuring the improvement of the implementation of educational games related to internet use for students without a control or comparison group (Sugiyono, 2022).

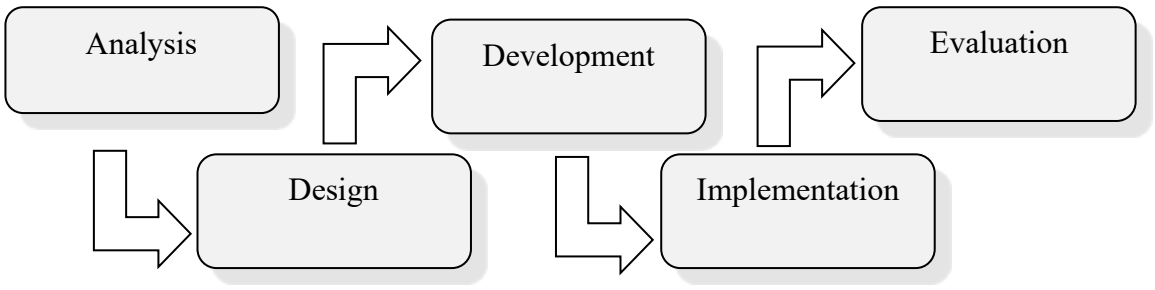


**Figure 1. Flow of ADDIE Development Model**

**Analysis,** used to identify problems found in the place where the research was sampled. This stage begins with observation, administration of questionnaires, and interviews to find out the understanding of digital literacy needed by students in accessing the internet which is then analyzed to meet the needs of material and product development.

Design, product design is the stage used for the process of making digital literacy educational

games to be developed. This stage starts from preparing educational games, making questions for pretests and posttests, designing material expert and media expert validation questionnaires, and teacher response questionnaires.

Development, after designing the product design developed in the study, the next stage is to realize the design of the educational game by preparing several steps from the process of developing the LIDI (Literasi Digital) educational game to become an actual display. In the development of this educational game utilizing Canva applications and Quizwhizzer websites.

Implementation, implementing digital literacy educational games using the Quizwhizzer website. However, previously the product will be validated by media experts and material experts to get comments or suggestions from validators and make improvements.

Evaluation, the last stage carried out by researchers is to evaluate educational games that are tested on grade VI students by analyzing based on the results of the pretest and posttest.

**Table 1. Questionnaire Instrument for Students**

| No. | Question |
|---|---|
| 1. | Do you like it when teachers use technology-based learning media? |
| 2. | Are you more interested in learning resources from books or technology-based resources? Why? |
| 3. | Do you personally own a gadget/phone? |
| 4. | In using your gadget/phone, what do you usually use it for? |
| 5. | Do you like playing games on your gadget/phone? Why? |
| 6. | Do you have social media (such as Instagram, Twitter, TikTok, etc.) Why? |
| 7. | Do you know or have you heard about digital literacy in accessing the internet? |
| 8. | Do you think there is any danger in using gadgets/phones to play games or access the internet? |
| 9. | How do you protect yourself from danger when playing games or on social media? |
| 10. | Do you talk to your parents or other adults if you encounter problems using gadgets/phones? Give an example of what you do! |

**Table 2. Interview Guide Instrument for Teacher**

| No. | Question |
|---|---|
| 1. | What curriculum do you use in classroom learning? |
| 2. | Do you use learning media when teaching in class to convey material? |
| 3. | What learning methods do you often apply when learning in class? |
| 4. | Have you integrated technological developments into learning? |
| 5. | What preparations do you make before using technology in learning? |
| 6. | What are your obstacles in utilizing technology in the learning process? |
| 7. | Are students taught in class about the proper use of technology? |
| 8. | In this school, are students allowed to bring their own laptops or gadgets? |
| 9. | Is there training for teachers and students on the use of technology, gadgets and the internet? |
| 10. | Do you supervise the use of technology by students? Or provide direction to parents regarding the use of gadgets or the internet? |
| 11. | In your opinion, do you agree with students today using gadgets to play games or access the internet? |
| 12. | Is there a need to educate students about gaming or internet usage? |
| 13. | Have you ever heard of digital literacy? |
| 14. | Digital literacy is needed so that the internet does not have a negative impact, do students know this from you? Or have teachers at school ever given this direction? |
| 15. | How do you think about introducing digital literacy to students so that they understand how to use gadgets/internet appropriately? |

**Table 3. Instrument Validation**

| Expert Category | Aspects | Number of Items |
|---|---|---|
| Media | View | 6 |
| | Media | 5 |
| | Benefits | 4 |
| Materials | Content | 11 |
| | Benefits | 4 |
| Teacher | Media | 4 |
| | Material | 3 |
| | Benefits | 4 |

**Table 4. Instrument Question**

| Objective | Indicator | Question Number |
|---|---|---|
| Maintain yourself and your reputation on the internet | Determine how to maintain a positive reputation, both online and in the real world. | 1 |
| | Getting into the habit of respecting others' privacy boundaries, which may differ from our own. | 2 |
| | Understanding the potential impact of an improperly managed digital footprint. | 3 |
| | Explaining the importance of asking adults for help when dealing with complicated situations. | 4 |
| Avoid scammers, fraudsters, useless information, find useful content | Understand that what people say online is not necessarily true. | 5 |
| | Analyze how scams work, why they can be a threat, and how to avoid them. | 6 |
| | Detect the truth of information and messages circulating on the internet, and be aware of manipulation, false claims, fake offers or gifts, and other online scams. | 7, 8 |
| Address privacy and security concerns | Outline why privacy and security are important and how they are interrelated. | 9 |
| | Practice creating strong passwords (for yourself and the adults who look after you). | 10 |
| | Review tools and settings that provide protection against hackers and other threats. | 11, 12 |
| Learn and practice doing good on the internet | Define what it means to be positive and what it looks like, both online and in the real world. | 13, 14 |
| | Exercise discretion in communicating on the internet. | 15 |
| | Identify situations when to consult a trusted adult. | 16 |
| Define and encourage internet brave behavior. | Discovers what types of situations she needs help with or needs to ask an adult she trusts. | 17, 18 |
| | Analyzing the options available for being brave and the importance of discussing issues with adults. | 19, 20 |

## RESULTS AND DISCUSSION

Research findings from a questionnaire conducted among 36 students with 10 questionnaire questions related to digital literacy showed that students liked the use of technology-based learning media by teachers in class. Nevertheless, some students are still interested in information obtained from books because teachers use these sources more often. Most students have personal smart mobile phones that are used for various activities, including playing games, watching videos, finding references and using social media. However, they still lack information about digital literacy, with an understanding of literacy limited to reading only. Although some students are aware of the potential dangers of using technology, they are not yet fully able to process information and communicate less with their parents about smartphone use.

In addition to the questionnaire for students, an interview was also conducted with one grade VI teacher with 15 questions. The interview results show that teachers are still implementing the 2013 curriculum, but have integrated technology in learning through the use of media such as videos, pictures and songs. Although teachers have faced the obstacle of laptop and internet readiness, they have not fully taught the wise use of technology to students due to limited ability and other reasons. Technology-related training is conducted, but has not been introduced specifically to grade VI. Teachers are aware of students' interest in smartphones and feel the need to provide education related to internet use, especially in terms of digital literacy safety. Currently, the introduction of digital literacy in schools is still at the reading literacy stage, not yet covering students' ability to process information through technology.

Based on the results of the analysis in the questionnaire from the students and the interview with the grade VI teacher, it was found that the students were proficient in using selpin, even some of them already had selpin personally. However, the students' proficiency in using selpin is underutilized by the teacher because the teacher feels that students are more proficient in using the device so that the teacher only utilizes learning media involving technology that is relatively easy.

Some students are accustomed to using selpin but they still lack digital literacy skills, especially in using the internet. Even teachers and schools have not taken much action to develop students' digital literacy skills. Therefore, one of the efforts to encourage students to be wise in using the internet and minimize fatal mistakes from accessing social media at the school is the development of products such as learning media that combines the concept of technology with games that are accompanied by the needs of grade VI students to help in striving for digital literacy skills in using the internet (Chalim & Anwas, 2018).


**Figure 2. Digital Literacy Educational Game**

In the development of LIDI (Literasi Digital) educational game products, it is not necessarily developed and then distributed to students. However, before the research is carried out, of course, the researcher conducts several subsequent stages that must be prepared by the researcher for the product being developed and so that it can finally be in accordance with the research subject. The stage is a process of designing the design of educational game products to be developed. In this design process, it is carried out by utilizing the Quizwhizzer website as a platform that provides various features, and can even upload game templates that can be designed by yourself. This made researchers design game board templates by utilizing the Canva application. Through this application, the design is made in such a way as to have an attractive, fun appearance, without eliminating the meaning of playing for students (Setianawati, 2023).

After conducting the analysis stage to meet the needs in the process of developing educational game products and determining the process related to design design, the researcher develops the product by realizing the design design process that has been made to become an educational game that is ready to be implemented. The game template board design that has been designed in the Canva application is then printed in .jpg format which will later be uploaded on the

Quizwhizzer website to be used as a game board. Then, in the development process on the website, utilize the features provided and start entering challenges in the form of several questions to be answered by students starting from the start section to the finish section (Wafara & Meet, 2023). The questions created contain important aspects that are the purpose of this research, namely digital literacy skills so that students are wise in using the internet.

The next stage that is also important to do before the educational game is tested, the educational game is validated first to find out whether it is valid for use or needs to be improved if it is deemed lacking by the validator. In this study, validation was carried out by media experts for the validity of the media, appearance, and usefulness of the educational games developed and validation was also carried out by material experts for the validity of the content of educational games and also the benefits of these educational games. The following are the results of the validation carried out by media experts and material experts.

**Table 5. Results of Media Expert Validation**

| Aspects | | Assessment Results |
|---|---|---|
| View | | 27 |
| Media | | 25 |
| Benefits | | 18 |
| | Total Score | 70 |
| | Maximum Score | 75 |
| | Percentage (%) | 93,30 |
| | Category | **Very Feasible** |

Based on the table above, there are 3 aspects that are assessed by media expert validators, namely appearance, media, and benefits. The media validator gave a total score of 70 which showed a percentage of 93.33% and was in the very feasible category and received comments or suggestions that "the media is appropriate and valid and can be used for the next stage of research".

**Table 6. Results of Material Expert Validation**

| Aspects | | Assessment Results |
|---|---|---|
| Content | | 43 |
| Benefits | | 17 |
| | Total Score | 60 |
| | Maximum Score | 75 |
| | Percentage (%) | 80 |
| | Category | **Feasible** |

Based on the table above, there are 2 aspects that are assessed by material expert validators, namely content and benefits. Media validators provide a total score of 60 which shows a percentage of 80.00% and is in the feasible category and get comments or suggestions that "it would be nice if there should be a difference in time for long and short questions and are often fooled by questions, it would be nice if the question is the opposite then it should be in bold only."

Through the validation process by experts by getting comments or suggestions that the educational game is suitable for use, the next step is to implement it to grade VI students. The trial in this study was carried out by involving all students in the class, but previously a pretest question of 20 questions was given to determine students' understanding of digital literacy in using the internet. After the trial is carried out by playing the LIDI (Literasi Digital) educational game, students will fill in the posttest questions to find out the understanding of the implementation of the product trial. Product trials were also validated by grade VI teachers as a response to media development.

**Table 7. Results of Classroom Teacher Validation**

| Aspects | | Assessment Results |
|---|---|---|
| Media | | 16 |
| Material | | 15 |
| Benefits | | 14 |
| | Total Score | 45 |
| | Maximum Score | 50 |
| | Percentage (%) | 90 |
| | Category | **Very Feasible** |

Based on the table above, there are 3 aspects that are assessed by grade VI teachers, namely media, material, and benefits. The grade VI teacher gave a total score of 45 which showed a percentage of 90% and was in the very feasible category and received comments or suggestions that "learning activities were carried out well and smoothly".

In the last stage, an evaluation is carried out to review the results of product trials that have been carried out on students based on the pretest posttest results using the Normality Test to determine the next test to be used in determining the difference in student understanding before and after using the LIDI (Literasi Digital) educational game. The following pretest and posttest results are obtained.

**Table 8. Results of Pretest-Posttest (N=36, Scale Score 100)**

| | ***Pretest*** | ***Posttest*** |
|---|---|---|
| Total Score | 2.480 | *2.935* |
| Average | 68,89 | 81,53 |
| Standard Deviation | 19.02 | 16.25 |

The normality test on this data uses Shapiro-Wilk because the number of samples used is small. The decision-making criteria for the Shapiro-Wilk Normality Test are if the significance value > 0.05 then the data is normally distributed and if the significance value < 0.05 then the data is not normally distributed. The following are the test results with the Shapiro-Wilk Normality Test.

**Table 9. Results of Shapiro-Wilk Normality Test**

| | *Shapiro-Wilk* | |
|---|---|---|
| | Students | Sig. |
| *Pretest* | 36 | 0,102 |
| *Posttest* | 36 | 0,002 |

Based on the table of Shapiro-Wilk Normality Test results, it shows that the significance value in the pretest data is 0.102, so the data is normally distributed, but the posttest data has a significance value of 0.002, which means that the data is not normally distributed so that if one of the data is declared abnormal, the next hypothesis test uses the Nonparametric Test, namely the W (Wilcoxon) Test. The following are the results of the W-Test ( Wilcoxon).

**Table 10. Results of W-Test (Wilcoxon)**

| | *Posttest - Pretest* |
|---|---|
| Asymp . Sig. (2-tailed). | 0,000 |

Researchers made a previous hypothesis, namely H0 = there is no difference in pretest and posttest scores and H1 = there is a difference in pretest and posttest scores with a significance value <0.05. Based on the results of the W-Test (Wilcoxon) analysis, it has a significance value of 0.000 (0.000 <0.05), which means that H1 is accepted, it can be concluded that there is a significant

difference between the pretest and posttest in students after being given using educational games related to digital literacy.

The Mean (average) value for the pretest is 68.89 and for the posttest is 81.53. Then, to find out the increase that occurred in the pretest and posttest scores by conducting the N-Gain Test. It is categorized if the average> 0.7 is a high increase, if the average is between 0.3 - 0.7 is in the medium category, if the average <0.3 is in the low category, and if it is negative, it means a decrease (Guntara, 2021). The following are the results of the N-Gain calculation.

$$g = \frac{posttest - pretest}{skormax - pretest}$$
$$g = \frac{81{,}53 - 68{,}89}{100 - 68{,}89}$$
$$g = \frac{12{,}64}{31.11}$$
$$g = 0{,}41$$

Based on these results, it shows an average increase of 0.41 (41%), so the increase is in the medium category with an average difference of 12.64. This shows that the posttest score is higher than the pretest score. So, it can be stated that there is an increase in students' understanding of digital literacy in using the internet after getting treatment using the LIDI (Digital Literacy) educational game. This educational game-based media motivates students in participating in learning, can be used at any time and place, and as an innovation to solve problems in learning (Rohayati et al., 2019). When learning using educational games, students also look active and enthusiastic. This shows that the use of educational games encourages students to be active in learning so that it can support learning (Selvi & Çoşan, 2018).

In this era of technological development, students must be introduced to various kinds of technology so that they are not stuttering in operating technology. Learning using educational games can be done both face-to-face and online (Asmadi, 2022). It is important for the literacy movement in schools to be effective, which is to reinterpret the importance of literacy to assist students by productively collaborating with colleagues by maximizing the use of media, especially technology integration (Galih Azi et al., 2022).

The development of interactive learning media based on educational games is suitable for use in learning because it makes learning more interesting, fun, and students can be actively involved so that it can motivate them to learn the material (Azizatunnisa et al., 2022). Educational games can help students' knowledge for the learning process and solve all problems and gain experience (Mahardika et al., 2023). Educational games train to solve problems according to the instructions given and strengthen the understanding of digital literacy (Jayanti et al., 2021). In addition, educational games are easy and practical to make and play, making students happy to play them and becoming a solution to utilizing HP more effectively in learning (Nurkhasanah, 2022).

Through the use of educational games, teachers can process material in the form of games in the form of games. The preparation of creative questions, namely by adjusting the learning needs of students and adjusting to the learning objectives and scenarios. The question model can be set directly or used as homework for student homework in online classes (Susanto & Ismaya, 2022). The LIDI (Digital Literacy) educational game created through the Quizwhizzer website can also be played during Distance Learning (PJJ) or directly in the classroom (Faijah et al., 2021). In this educational game, users can ask questions to students in the form of competitions by following a certain flow that has been prepared. Users can also set and customize question types, scores for each question, player movement rules and their position on the game board, and with attractive templates can increase student attention which has an impact on understanding the game material (Audina et al., 2022).

Educational games can be used as a means to deliver digital literacy literacy material and can be very well received by potential users (Oktarika et al., 2022). In addition, it can be used as an alternative learning media (Widyastuti & Puspita, 2020). Implementing how games can be used as an interesting and useful learning tool, in addition to digital literacy readiness (Huda et al., 2024).

Not only that, digital literacy at the elementary school level provides students with an understanding of how to access the internet properly, safely and healthily (Seppewali & Damma, 2023).

## CONCLUSIONS

Educational game development is one of the games that can be implemented to encourage students to learn digital literacy, especially in using the internet to access social media. In the process of developing educational games, there are several stages carried out by researchers, namely by applying the ADDIE development model, consisting of 5 stages starting from Analyze, Design, Development, Implementation, Evaluation. Then, the results of the pretest-posttest trial which was preceded by a normality test showed that the data was not normally distributed, the researcher chose a nonparametric test with the W-Test (Wilcoxon), the sig value was obtained. 0.000 < 0.05, which means that there is a difference between the pretest and posttest scores with an increase in understanding of digital literacy by students after the educational game trial is carried out, which is indicated by the N-Gain result of 0.41 (medium category).

## REFERENCES


Aeni, A. N., Djuanda, D., Maulana, M., Nursaadah, R., & Sopian, S. B. P. (2022). Pengembangan aplikasi games edukatif wordwall sebagai media pembelajaran untuk memahami materi pendidikan agama islam bagi siswa sd. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 11(6), 1835-1852. http://dx.doi.org/10.33578/jpfkip.v11i6.9313

Aeni, A. N., Erlina, T., Dewi, D. P., Hadi, F. L., & Ramadhani, S. (2022). Aplikasi beta (belajar dari peta): media edukasi doa-doa harian siswa sd kelas rendah. *Jurnal Inovasi Teknologi Pendidikan*, 9(1), 101-113. https://doi.org/10.21831/jitp.v9i1.49203

Aeni, A. N., Nofriani, A. N., Fauziah, I. A., & Fauzi, I. A. (2022). Pemanfaatan media animasi berbasis aplikasi renderforest dalam membentuk kepribadian islami bagi siswa sekolah dasar kelas 4. *Jurnal Pendidikan Dan Teknologi Indonesia*, 2(6), hal. 279-287. https://doi.org/10.52436/1.jpti.183

Ahsani, E. L. F., Romadhoni, N. W.., Layyiatussyifa, E. L., Ningsih, W. N. A., Lusiana, P., & Roichanah, N. N. (2021). Penguatan literasi digital dalam pembelajaran di sekolah dasar Indonesia den haag. *Elementary School: Jurnal Pendidikan dan Pembelajaran Ke-SD-an*, 8(2), 228-236. https://doi.org/10.31316/esjurnal.v8i2.1115

APJII. (2023). *Survei internet apjii 2023*. Asosiasi Penyelenggara Jasa Internet Indonesia (apjii.or.id)

Arisandy, D., Marzal, J., & Maison, M. (2021). pengembangan game edukasi menggunakan Software Construct 2 berbantuan Phet Simulation berorientasi pada kemampuan berpikir kreatif siswa. Jurnal Cendekia: *Jurnal Pendidikan Matematika*, 5(3), 3038-3052. https://doi.org/10.31004/cendekia.v5i3.993

Asmadi, A. (2022). Pemanfaatan Game Edukasi Wordwall untuk Meningkatkan Proses Belajar Online. *Jurnal Didaktika Pendidikan Dasar*, *6*(3), 945–962. https://doi.org/10.26811/didaktika.v6i3.1048

Audina, L., Rostikawati, T., & Gani, R. A. (2022). Pengembangan media game interaktif elektronik berbasis quizwhizzer pada subtema usaha pelestarian lingkungan. Primary: Jurnal Pendidikan Guru Sekolah Dasar, 11(6), 1996-2006. http://dx.doi.org/10.33578/jpfkip.v11i6.9212

Azizatunnisa, F., Sekaringtyas, T., & ... (2022). Pengembangan Media Pembelajaran Interaktif Game Edukatif Pada Pembelajaran Ipa Kelas Iv Sekolah Dasar. *OPTIKA: Jurnal ...*, *6*(1), 14–23. as IV Sekolah Dasar. Optika: Jurnal Pendidikan Fisika, 6(1), 14-23. https://doi.org/10.37478/optika.v6i1.1071

Badan Pusat Statistik. (2022). *Statistik telekomunikasi Indonesia 2022*. Publikasi Statistik Indonesia. Badan Pusat Statistik (bps.go.id)

Chalim, S., & Anwas, E. O. M. (2018). Peran orangtua dan guru dalam membangun internet sebagai sumber pembelajaran. *Jurnal Penyuluhan*, *14*(1), 33-42. https://doi.org/10.25015/penyuluhan.v14i1.19558

Day, V. M., & Qodariah, S. (2018). Menumbuhkan literasi digital pada anak usia sekolah 6-12 tahun. *Prosiding Nasional Psikologi*, 2, 1-9. Vol 2 (2018). (unisba.ac.id)

Erfan, M., Widodo, A., Umar, U., Radiusman, R., & Ratu, T. (2020). Pengembangan game edukasi "kata fisika" berbasis android untuk anak sekolah dasar pada materi konsep gaya. *Lectura: Jurnal Pendidikan*, 11(1), 31-46. https://doi.org/10.31849/lectura.v11i1.3642

Fahira, W., & Iswara, P. D. (2023). The effect of using monopoly game media on the early writing skills of elementary school students. *In Proceeding International Conference on Child Education* (Vol. 1, No. 2, pp. 211-220). Universitas Muhammadiyah AR Fachruddin. https://proceeding.unimar.ac.id/index.php/icce/article/view/83

Fajjah, N., Nuryadi, N., & Marhaeni, N. H. (2021). Quizwhizzer-Assisted Educational Game Design to Improve Students' Conceptual Understanding Skills. In Multidiscipline International Conference (Vol. 1, No. 1, pp. 455-461). https://ejournal.unwaha.ac.id/index.php/ICMT/issue/view/132

Fauzi, H. (2020). Pemanfaatan teknologi gadget terhadap pengaruh sosial emosi aud dalam konsep pembelajaran literasi digital. *Pedagogi: Jurnal Ilmu Pendidikan*, 20(1), 50-53. https://doi.org/10.24036/pedagogi.v20i1.819

Galih Azi, A. P., Na Ulfiana, S., Dwi Stiyanto, J., Astuti, P., & Berliana Restuninda, A. (2022). Pola Pendampingan Peningkatan Kemampuan Literasi Digital Di SD Tegalombo di Era New Normal. *SOROT (Jurnal Pengabdian Kepada Masyarakat)*, *1*(2), 7–12. https://ojs.unsiq.ac.id/index.php/sorot

Guntara, Y. (2021). Normalized gain ukuran keefektifan treatment. *Universitas Sultan Ageng Tirtayasa*, 1–3. https://doi.org/10.13140/RG.2.2.27603.40482

Hariyani, I. T., & Fitri, N. D. (2023). Pengembangan game edukasi 3D untuk menumbuhkan cinta tanah air sejak dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(2), 1354-1367. https://doi.org/10.31004/obsesi.v7i2.3378

Huda, M. M., Tricahyo, V. A., & Darma, R. (2024). Analisis Tingkat Literasi Digital Siswa Berbasis Web Game Edukasi Sebagai Bagian Kesiapan Pembelajaran Digital. *SITIK: Jurnal Sistem Informasi Dan Teknologi Informasi Komputer*, *2*(2), 85–97.

Jayanti, D., Septiani, J. I., Sayekti, I. C., Prasojo, I., & Yuliana, I. (2021). Pengenalan game edukasi sebagai digital learning culture pada pembelajaran sekolah dasar [Introduction of educational games as digital learning culture in elementary school learning]. *Buletin KKN Pendidikan*, *3*(2), 184–193. https://doi.org/10.23917/bkkndik.v3i2.15735

Nasron, Apriani, Y., Sintya, D. A., Novita, N., & Mumtadza, A. R. (2023). Model-model desain intruksional: dick & carey, assure, dan addie, dalam pengembangan alat peraga edukatif. *Al Fitrah: Journal Of Early Childhood Islamic Education*, 7(1), 51-69. http://dx.doi.org/10.29300/alfitrah.v7i1.10579

Kementerian Pendidikan dan Kebudayaan. (2017). *Materi Pendukung Literasi Digital*. Kementerian Pendidikan dan Kebudayaan. http://repositori.kemdikbud.go.id/id/eprint/11635

Kurniawan, Y. I., & Rivaldi, M. F. (2021). Game edukasi pengenalan dan pembelajaran berhitung untuk siswa kelas 1 sekolah dasar. *Jurnal Manajemen Informatika (JAMIKA)*, 11(1), 47-59. https://doi.org/10.34010/jamika.v11i1.4354

Kusumawardhani, A., Segara, A. A., & Supriadi, W. (2019). Peran orang tua dalam pengawasan penggunaan internet pada anak. *Jurnal Abdikarya: Jurnal Karya Pengabdian Dosen Dan Mahasiswa*, 3(3). https://jurnal.untag-sby.ac.id/index.php/abdikarya/article/view/3731

Mahardika, E. K., Nurmanita, T. S., Anam, K., & Prasetyo, M. A. (2023). Strategi Literasi Budaya Anak Usia Dini melalui Pengembangan Game Edukatif. *Murhum : Jurnal Pendidikan Anak Usia Dini*, *4*(2), 80–93. https://doi.org/10.37985/murhum.v4i2.287

Maulidiyah, Y. A., Aeni, A. N., & Iswara, P. D. (2023). Development of genially-based edutainment game media to improve student learning motivation. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 12(3). https://garuda.kemdikbud.go.id/documents/detail/3506882

Munawar, M., Fakhruddin, F., Rifai, A., Prihatin, T. (2019). Keterlibatan orang tua dalam pendidikan literasi digital anak usia dini. *Prosiding Seminar Nasional Pascasarjana (Prosnampas)*, 2(1), 193-197. (unnes.ac.id)

Nisa, M. A., & Susanto, R. (2022). Pengaruh penggunaan game edukasi berbasis wordwall dalam pembelajaran matematika terhadap motivasi belajar. *JPGI: Jurnal Pendidikan Guru Indonesia*, 7(1), 140-147. http://dx.doi.org/10.29210/022035jpgi0005

Nugroho, A. W., & Ma'arif, S. (2022). Pengembangan media game edukasi marbel fauna pada siswa sekolah dasar. *Jurnal Basicedu*, *6*(4), 6686-6694. https://doi.org/10.31004/basicedu.v6i4.3326

Nurkhasanah, S. (2022). Penggunaan Media Game Online Melalui ProProfs untuk Meningkatkan Literasi Digital Siswa di SMP Negeri 1 Gangga. *Jurnal Paedagogy*, *9*(2), 248. https://doi.org/10.33394/jp.v9i2.4964

Oktarika, D., Sabirin, F., & Sulistiyarini, D. (2022). LITERA: Game edukasi literasi teknologi informasi dan komunikasi bermuatan pendidikan karakter. *Jurnal Pendidikan Informatika Dan Sains*, *11*(2), 165–179. https://doi.org/10.31571/saintek.v11i2.3585

Pentianasari, S., Fadhilah Dwi, A., Nisa'aqidatul, F., & Badruli, M. (2022). Penguatan pendidikan karakter pada siswa sekolah dasar melalui pemanfaatan literasi digital. *Jurnal PGSD*, 8(1), 58-72. http://repository.um-surabaya.ac.id/id/eprint/6398

Pratama, U. N., & Haryanto, H. (2017). Pengembangan game edukasi berbasis android tentang domain teknologi pendidikan. *Jurnal Inovasi Teknologi Pendidikan*, 4(2), 167-184. https://doi.org/10.21831/jitp.v4i2.12827

Putra, A. P., Soepriyanto, Y., & Husna, A. (2018). Pengembangan multimedia game edukasi tentang keragaman masakan khas daerah-daerah di indonesia untuk kelas v sd. *JKTP: Jurnal Kajian Teknologi Pendidikan*, 1(4), 299-306. http://journal2.um.ac.id/index.php/jktp/article/view/6911

Rahayu, S. L., & Dewi, R. (2018). Educational games as a learning media of character education by using multimedia development life cycle (MDLC). *In 2018 6th International Conference on Cyber and IT Service Management (CITSM*, (pp. 1-4). IEEE. https://doi.org/10.1109/CITSM.2018.8674288

Rohayati, Y., Astra, I. B., & Suwiwa, I. G. (2018). Pengembangan multimedia interaktif berbasis game edukasi materi kesehatan pada mata pelajaran pendidikan jasmani olahraga dan rekreasi. Jurnal IKA, 16(1), 33-43. https://doi.org/10.23887/ika.v16i1.19824

Selvi, M., & Çosan, A. Ö. (2018). The effect of using educational games in teaching kingdoms of living things. Universal Journal of Educational Research, 6(9), 2019-2028. https://doi.org/10.13189/ujer.2018.060921

Seppewali, A., & Damma, D. (2023). Literasi Digital Melalui Pemanfaatan Media Pembelajaran Interaktif Untuk Siswa Sd Inpres Cambaya 3 Kota Makassar. *Swadimas: Jurnal Pengabdian Kepada Masyarakat*, *1*(01), 61–68. https://doi.org/10.56486/swadimas.vol1no01.300

Setianawati, L. (2023). Efektifitas media edukasi quizwhizzer untuk meningkatkan penguasaan kosakata dalam keterampilan menulis bahasa jerman kelas xi ibb sman 1 waru sidoarjo. *LATERNE*, *12*(02), 11-18. https://ejournal.unesa.ac.id/index.php/laterne/article/view/54015

Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Susanto, D. A., & Ismaya, E. A. (2022). Pemanfaatan aplikasi quizwhizzer pada ptm terbatas muatan pelajaran ips bagi siswa kelas VI SDN 2 Tuko. Cokroaminoto Journal of Primary Education, 5(1), 104-110. https://doi.org/10.30605/cjpe.512022.1583

Wafara, P. C. (2023). Pemanfaatan quizwhizzer Sebagai Media Pembelajaran Berbasis Web dalam Kegiatan Belajar Online. *Madani: Jurnal Ilmiah Multidisiplin*, *1*(10), 243-252. https://doi.org/10.5281/zenodo.10103865

Widianto, E. (2021). Pemanfaatan media pembelajaran berbasis teknologi informasi. *Journal of Education and Teaching*, *2*(2), 213-224. http://dx.doi.org/10.24014/jete.v2i2.11707

Widya, M. A. A., Airlangga, P., Husna, N. L., & Widianingsih, D. (2021). Peningkatan motivasi belajar melalui game edukatif di era new normal. *Jumat Pendidikan: Jurnal Pengabdian Masyarakat*, 2(1), 17-22. https://ejournal.unwaha.ac.id/index.php/abdimaspen/article/view/1158

Widyastuti, R., & Puspita, L. S. (2020). Pengembangan Media Pembelajaran Berbasis Game Edukasi Pada MatPel IPA Tematik Kebersihan Lingkungan. *Paradigma - Jurnal Komputer Dan Informatika*, *22*(1), 95–100. https://doi.org/10.31294/p.v22i1.7084

Windawati, R., & Koeswanti, H. D. (2021). Pengembangan game edukasi berbasis android untuk meningkatkan hasil belajar siswa di sekolah dasar. *Jurnal Basicedu*, 5(2), 1027-1038. https://doi.org/10.31004/basicedu.v5i2.835