



THE DEVELOPMENT OF SOCIAL SCIENCE LEARNING MEDIA BASED ON THE WORDWALL DIGITAL GAME IN ELEMENTARY SCHOOLS

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ABSTRACT

This Research and Development (R&D) study addresses the need for establishing social science learning media based on the WordWall digital game in elementary schools. The objective of this study is to examine the design, validity, practicability, and effectiveness of learning media. This 4-D model defines, designs, develops, and disseminates.

The study involved grade IV students and teachers at SDN Minasa Upa. Data were collected through tests, observations, and questionnaires. Quantitative analysis was performed at each stage of research and development. According to the findings; The WordWall digital game is fundamentally needed to align with the digital age and provide enjoyable and challenging interactions for elementary school students. A variety of stages were involved in the creation of social science learning media, including the selection of game types, the compilation of quizzes, the choice of format, and the initial design. In all



aspects of the social science learning media, adequate validity was demonstrated. The WordWall digital media display, stages, and tests received the highest validation scores. Students and teachers responded positively to social science learning media. Students actively engaged with the media during the learning process as it was aligned with the learning materials and stages. The social science learning media based on the WordWall digital game effectively improved learning outcomes. This was evidenced by increased quiz scores, as well as improved pretest and posttest results.

This study emphasizes the importance of developing based on the WordWall digital game in elementary schools. It fulfills the requirements of the digital era, enhances student engagement, and improves learning outcomes in social studies.

KEYWORDS

Media, Wordwall Digital Game, Learning Outcomes, Social Science, 4D Model.

INTRODUCTION

The Indonesian nation is currently entering the era of the industrial revolution 4.0, which is where changes are happening so fast. The use of increasingly sophisticated and modern technology is due to the very rapid development of Science, Technology, and Information which influences the world of education, especially in the learning process. Education is the main factor that determines the nation's progress towards a better, advanced, and quality. The new demands for aspects of life in the world of education concern the development of electronic-based learning models commonly known as e-learning. The era of revolution 4.0 requires every educational institution to be able to take advantage of advances in information technology in providing educational services to students, as a provision to face changes and developments in information technology, especially at the basic education level to a higher level of education (Nando, 2020). Realizing the urgency of using technology At this time, the school always makes efforts to carry out learning under the demands of the current era, although it is still limited. Technology and information that are developing rapidly are expected to be able to bring the world of education to move in a more advanced direction and communication is more accessible. Learning innovation needs to be done to develop and facilitate the learning process. Educators are required to be creative by utilizing technology as a medium that will support the success of learning objectives (Burton, 2019).



Teaching and learning activities in the new normal era like today are a big challenge for teachers in teaching. For example, because

- a) the teaching and learning process the teacher does not use interesting learning media in learning and teaching sometimes the teacher pays less attention to the comprehension and abilities of students;
- b) students are less focused when receiving lessons, for example, often talking with their peers or doing other work;
- c) limited infrastructure;
- d) there is no visible learning innovation, for example in the application of innovative learning models/strategies so the quality of the learning process has not been fully implemented optimally.

This fact must force teachers to develop their teaching methods through creative and innovative processes to teach especially social studies subjects in class so that social studies learning is not boring for students, especially in class IV SD. Based on the results of interviews and initial observations in January 2022 conducted at SDN Minasa Upa, the researchers found that media use was still limited. High technological developments have not been used optimally by teachers in the use of learning media. Supportive media will make students more active and easy to remember learning well. However, the use of media which is still limited and seems monotonous makes students less developed. The use of media in the IT field is still limited and underdeveloped, the use of media is around pictures, videos, music, and power points. Utilization of the media by using the LCD.

Seeing the current game habits of children using Android makes researchers interested in using game media as something that children like to include in the learning process. Games that are played later can be used mainly for entertainment or fun, but can also function as a means of learning and training. This game is expected to hone intelligence and brain skills. Therefore, it is necessary to make educational games that direct students to be active and enthusiastic in learning activities (Adam & Muhammad, 2015). Therefore, researchers are interested in developing digital game word wall-based learning media. The media is useful in learning, mainly increasing student enthusiasm in participating in learning. Attractive appearance/features with more varied games that are easy for students to use in understanding learning. The use of digital games in learning also provides new, interesting, and not boring experiences for students, especially in social studies learning.

Wordwall media is a type of learning media that can improve students' ability to master the material (Sartika, 2017). One of the efforts to improve the quality



of the learning process, especially for social studies learning subjects in elementary schools is the teacher's ability to create pleasant conditions for students when learning by using interesting learning resources/learning media in learning. Involving students in learning, mainly by bringing elements of learning while playing to elementary school-level children, can make learning fun for students. Based on this phenomenon, the researcher is interested in conducting research and development, so the researcher chooses the title: "Development of social science learning media based on digital word wall games in elementary schools".

METHODS

This research is categorized as research and development. The main consideration is that this development research is carried out because development research in the field of education focuses on studies on products in the form of social studies learning tools through digital game word wall-based learning media in improving social studies learning outcomes. Elementary School Students in Makassar City. As part of the 4D development model, there are four main stages: Define, Design, Develop, and Disseminate. This method and model were chosen because it aims to produce a word wall digital media game. The products developed are then tested for their feasibility and product trials. This is to find out how far students' social studies learning outcomes have increased after learning using digital media games like word walls.

The research was conducted at SD Negeri Minasa Upa in the city of Makassar which has complete infrastructure facilities that facilitate the implementation of learning to take place. The research subjects were teachers and students of grade IV who were randomly selected. Data collection techniques were carried out using test techniques, observation techniques, and questionnaires. For the research instruments with media validation sheets, learning achievement tests, observation sheets, and questionnaire sheets.

Data analysis techniques utilizing

- a) needs analysis to be carried out to find out the responses of teacher and student users regarding the needs of digital game media in learning;
- b) analysis of the level of validity where the items need to be validated to measure whether or not they are used in the field. In this study the items validated were
 1. digital game word wall media,
 2. media use manuals,



3. Learning Implementation Plans (RPP),
 4. LKM,
 5. teaching materials and
 6. evaluation
- c) analysis of the practicability level related to praxis development data analysis (user trials) is carried out to determine the practicality of the product so that the resulting product is truly practical to use in the learning process through an analysis of teacher and student response questionnaires.
- d) effectiveness analysis where at this stage analysis of effectiveness data is carried out based on the results of the pretest and posttest conducted by students.

RESULT OF THE RESEARCH

The initial phase was carried out to analyze the needs of IPS learning media, especially at the elementary school education unit level. This is done to obtain accurate information on objective conditions in the field regarding the current needs of IPS learning media. To achieve this goal, development research was first carried out using a 4-D development model namely Define, Design, Development, and Dissemination Thiagarajan (Sugiyono, 2017: 37). Some of the activities carried out in carrying out an analysis to find the need for the development of social science learning media based on digital game word walls. The mechanisms carried out are initial and final analysis, student analysis, concept analysis, task analysis, and analysis of the formulation of learning objectives. The next phase is related to the design of digital game-based learning media in social studies learning. For the design results at this design stage, in addition to focusing on digital game word wall-based learning media. The following is the presentation of the results at the design stage which are described as follows:

Results of the Selection of Wordwall Game Digital-Based Learning Media

The media used in this study is a word wall digital game-based learning media. Based on the results of research on the development of instructional media that has been carried out, it can be concluded that in the learning process, students are very interested in games that are varied and fun for students. The current trend of online games is making students more enthusiastic about learning. Ifenthaler (2012) suggests Assessment in game-based learning. Assessment using a game application makes it easy to assess the results of student work



because the results of each group's quiz can be seen directly by the teacher.

Format Selection Results

The selection of formats that support the application of digital media word wall games is also supported by the selection of learning tools. (Rossi and Breidle, 2019) states that learning with e-learning or web-based media requires guidebooks, procedures, and practices in using a media. The learning tools that support the form of digital media word wall games are equipped with guidebooks for using media for both teachers and students so that it facilitates the learning process with this media. In choosing the format of this learning device, the researchers focused on social studies learning for class IV in the early semester.

Description of Expert Assessment of Learning Media

Media Games Wordwall

Table 1.

Expert Assessment of Word Wall Game Digital Media

No	Assessment Indicator	Validators		Average	Information
		V1	V2		
Display Quality					
1	Wordwall media is interesting for students in learning	4.0	4.0	4.0	SV
2	Wordwall media can support the achievement of learning objectives	4.0	3.0	3,5	SV
3	Learning media supports the delivery of material	3.0	4.0	3,5	SV
4	various types of learning games	4.0	4.0	4.0	SV
Attractiveness					
1	Combine two or more audio, audiovisual, and	3.0	3.0	3.0	SV



	animated images and videos				
2	An interactive learning tool	4.0	4.0	4.0	SV
3	Attractive animation and colors	4.0	4.0	4.0	SV
4	Pictures, illustrations, and various types of games/games that attract students' attention	4.0	4.0	4.0	SV
5	Presenting quizzes becomes more fun	4.0	4.0	4.0	SV
6	word wall game media can make students actively involved in learning	4.0	4.0	4.0	SV

The next stage, namely the development stage (develop), aims to produce learning tools that have been revised and are suitable for testing. Activities carried out at this stage are the validation of experts and practitioners, simulations, and limited trials. The results of each activity at this development stage are described as follows:

The results of validating the use of media in Table 4.1 show that the use of word wall game media is declared "very valid" because it is in category 3 $.6 \leq p \leq 4$, so it is considered feasible to be tested. Based on these data, the use of digital media word wall games is declared valid.

Validation of the User Guide for Wordwall Game Media for Teachers and Students

Based on the results of the validation carried out by the expert validator on the manual for using the media, can be seen in the following table:

Table 2.

Results of evaluating the validity of media guidebooks for teachers & students

No	Assessment Indicator	Validators		Average	Ket
		V1	V2		



Display Quality					
1	Interesting presentation	4.0	4.0	4.0	SV
2	Text or writing is easy to read	4.0	4.0	4.0	SV
3	Handbooks for both teachers and students which are accompanied by illustrations and pictures related to the steps for using the word wall application	4.0	4.0	4.0	SV
4	Make it easy for students to understand the concept of learning material	4.0	3,5	3,5	SV
Manual Format					
1	Clarity of instructions for using the media both for teachers and for students	4.0	4.0	4.0	SV
2	The balance between text and illustrations	3,5	4.0	3,5	SV
3	Interesting presentation	4.0	4.0	4.0	SV
4	Compatibility with the steps in using the media for both teachers and students	4.0	4.0	4.0	SV
5	Presenting quizzes becomes more fun	4.0	4.0	4.0	SV
6	Easy-to-understand language	4.0	4.0	4.0	SV

The results of the validation of the guidebook for using the media in Table 4.2 show that the guidebook for using the word wall game media both for teachers and students stated "very valid" because the average indicator above is in category 3 $.6 \leq p \leq 4$, so it is considered feasible to be tested. Based on these data, the guidebook for the use of Wordwall digital media games for both



teachers and students is declared valid.

The fourth stage is dissemination. Before conducting field trials on the use of digital learning media based on word wall games, it has been validated by experts or expert validators. After that, limited field trials and simulations were carried out using word wall game media, then carried out randomly by 10 students in class IV B. At this limited field trial stage, this was carried out to observe student activities, student responses, student learning outcomes, and the abilities of teachers in using the word wall game media. From the results of the deployment, several suggestions were obtained and used to revise the initial draft into the final draft as the final development in the development of word wall game media in class, for example adding time to work on each problem in games. The tools produced at the final stage of development were then socialized or distributed in a limited way to teachers and grade IV students at SDN Minasa Upa.

Social science learning media based on digital word wall games also fulfilled the practicability requirements obtained from the positive responses of teachers and students regarding the use of word wall digital media games in the social studies learning process. This can be seen from the results of observations of teacher activities during the social studies learning process in class. Observation of the implementation of learning, in this case, is through the observation sheet of teacher activity in Social Studies learning in Figure 1 below:

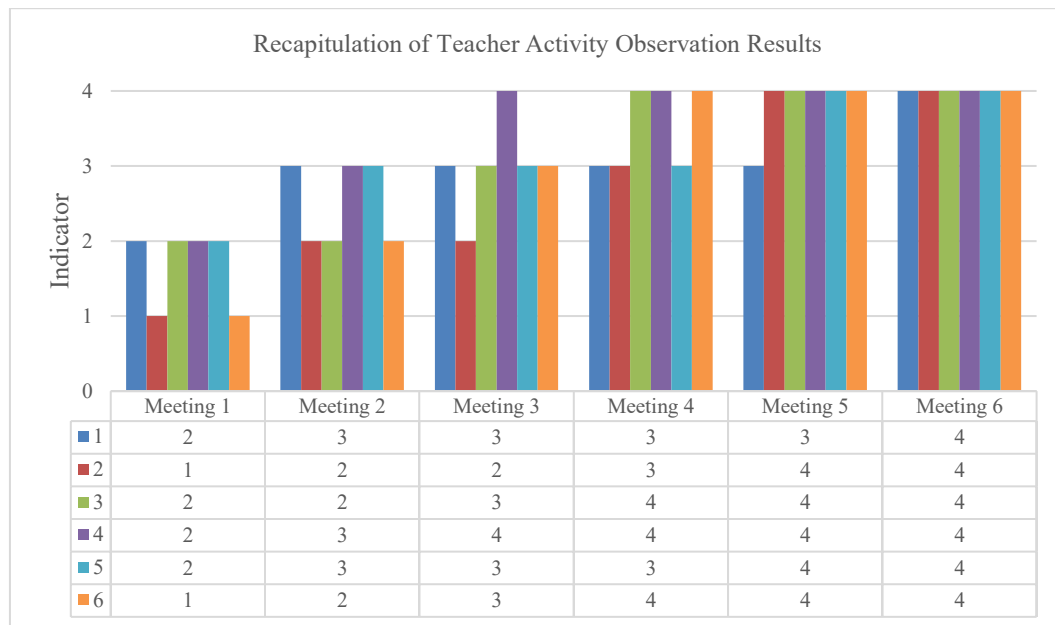


Figure 1. Teachers activity in Social Studies learning

Based on the picture above, it can be concluded that the teacher's ability to manage learning by using digital word wall games in the learning process increases for each class meeting.

In addition, to see the level of practicality of learning devices using digital learning media word wall games in social studies learning. Teacher response data to the use of digital media word wall games can be seen in the following table:

Table 3.

Results of the Teacher's Response Questionnaire to Digital Wordwall Games

No	Assessment Indicator	Average	Information
1	Quality of Content/relevance	3.80	SS
2	Knowledge Construction	3.75	SS
3	Ease of Access	3,33	S

Based on table 3 above, shows that the average value of the teacher's response to the use of Wordwall game media for the quality of the content/relevance of the material displayed in the game is very suitable for use in the learning

process. For the construction of knowledge using digital game word walls, it is also very suitable for the cognitive development of students. Meanwhile, in terms of ease of access, it is included in the appropriate category because learning using digital game word walls, is also hampered by sometimes obstacles from quotas. The instruments used to obtain data related to student responses in class using digital media word wall games can be seen from the results of the student response questionnaire in class, which can be seen in Table 4 below:

Based on the student response table above, towards the use of a digital word wall game from nine indicators, the average student gets a positive response. For more details, it can be seen in the graph of the results of the student response questionnaire recapitulation in Figure 2 below:

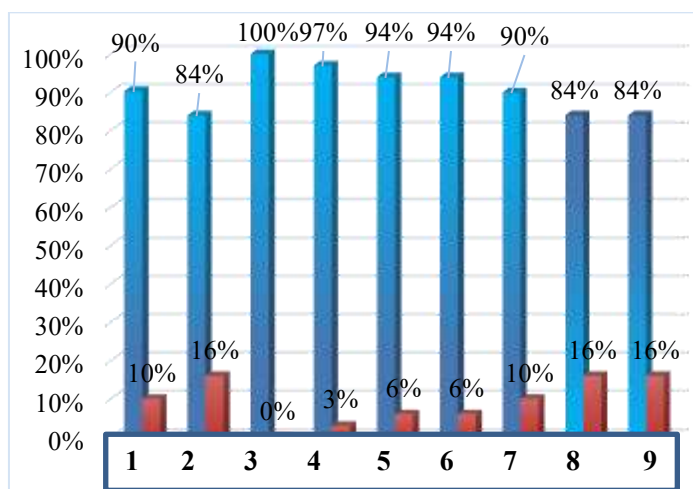


Figure 2. Results of the Student Response Questionnaire Recapitulation

Based on the data in Figure 2, shows that most of the students gave positive and effective responses for them to use in the learning process related to the use of digital game word wall-based learning media in social studies learning. During social studies learning activities using digital media word wall games, the results of data analysis of observations of student activities show that the teacher always helps students in operating word wall games, pleasant classroom situations in teaching and learning activities by using a digital word wall game, students are getting more compact in finding answers in the game, students are



also active in expressing opinions and asking questions between students and other students or between students and their teacher, learning material is presented interestingly, and finally, the curiosity of students is getting higher, this is in line with the opinion of Anastasiadis, Theofylaktos, Georgios Lampropoulos, and Kerstin Siakas (2018) who argue that digital game-based learning presents games that can make students focus and concentrate in learning.

The stages in using word wall game digital media that need to be considered are as follows:

Stages of using digital word wall games for students:

The first step is to search for word wall by logging into Google, Then select 'log in to Wordwall'

Then please register or join, you can join directly using a Google account.

Or if you choose to use an application, you can download it first in the Playstore, after downloading you can follow the third step, namely logging in via a Google account. After logging in, it will look like this, you can access the Word wall. Furthermore, to access games related to learning, you can select 'community' and then search in the column 'public activity'. But this time you can access it via a link that will be shared by the teacher. And it looks like this To change the theme and font, please scroll down.

Stages of using digital word wall games for teachers:

Open the Word wall application via Google, or

Download the word wall application via the play store,

Register an account in the application or via the web <https://wordwall.net/>.

You can join using your Google account by selecting a Google account and entering your account password.

Select Create Activity or create an activity then choose one of the provided activity templates,

To make a game, you can choose a template available on the web,

After selecting a template, enter the content or questions you want to create.

Don't forget to fill in the title column with the name of the question or subject.

After entering content or questions, click 'finished' and the questions can be played.

After the game is finished, you can share it with students via the link that you can get by clicking '**share**' and then copy the link provided,



You can also share this game with the public.

Social science learning media based on digital word wall games are effective for social studies learning which improves student learning outcomes as evidenced by increased pretest and posttest results which can be seen in the following table:

Table 4.

Description of completeness of learning outcomes

Score	Category	Frequency		Percentage	
		Pretest	Posttest	Pretest	Posttest
< 70	Not finished	9	0	29	0
≥ 70	complete	22	31	71	100

Learning is said to be successful classically if at least 70% of students achieve a complete score. This shows that social science learning media based on the word wall digital games developed has been effective this is reinforced by the data from Table 4 above, which shows that in the pretest classical student passing reaches 71%, and after the posttest achieves 100% student passing in social studies learning.

DISCUSSION

Based on the results of research and development, it contains an explanation of theoretical and empirical studies on research findings and the development of social science learning media based on digital game word walls. Sequentially the research findings are presented as follows:

1. It is necessary to develop social science learning media based on digital word walls,
2. The design of a digital game wall-based learning media for social science,
3. Validity of digital game-based social science learning media,
4. The level of practicality of word wall digital game-based social science learning media,
5. The effectiveness of the development of word wall-based digital game social science learning media in improving learning outcomes at SD Negeri Minasa Upa.



The purpose of the needs analysis carried out is to determine the learning that becomes the limit of media development. The initial stage in this research is Define (define) the needs in the learning process and collect various information related to the product to be developed. In the first stage, conducting an analysis related to the needs of social science learning media based on digital game word walls so that several learning objectives can be analyzed through theoretical studies, empirical studies, and analysis related to media development needs.

Based on the results of the analysis of the Learning Implementation Plan (RPP), these results provide clues that generally apply direct learning media. Based on these findings, social science learning media based on digital word wall games adopt the development of learning media as one of the basics in developing media. The results of interviews with several students and teachers of Minasa Upa Elementary School found information, namely

1. Students in social studies learning usually use media in the form of pictures, videos, PPTs, and direct learning media.
2. Still limited in terms of facilities and infrastructure, for example, the number of LCDs or computers that are still limited,
3. Teachers are not maximal in using information technology because of their limited ability to use technology.

Information about social science learning media based on digital game word walls at SD Negeri Minasa Upa was obtained through interviews and observations, some information was found, namely: Students have a great interest in the learning process that utilizes social science learning media based on digital game word walls. Based on these data, the integration of digital game word wall-based social science learning media is urgently needed. What distinguishes between previous research and current research is that the games presented are more varied, and there are more game templates (game backgrounds according to the themes discussed according to the lesson plan. Furthermore, the presentation of this game previously was on average carried out individually or for each student which was carried out in schools that have adequate facilities and infrastructure while in this study, the researchers carried out this game not individually but in groups to increase student cooperation in groups and respect each other. In addition, in learning after the implementation of digital word wall games the teacher then holds quizzes in the form of questions and answers orally in groups and gives group awards so that students are more enthusiastic about learning This is in **Krathwohl's opinion, 2018** that an interesting learning process can improve learning outcomes, skills and



attitudes of students in the study.

Based on this information, the development of digital-based social science learning media that introduces word wall games in a pedagogic context is a potential alternative and becomes a fundamental requirement when learning enters the digital era and requires challenging interactions for teachers to create fun situations in the form of games. word wall for elementary school students. This is per the opinion of (Jung Lee, 2018) who put forward related to the development of web-based e-learning media with concepts that can improve teachers' professional abilities in teaching in class.

The initial design stage begins with preparing a word wall game digital media application by preparing a quiz in the form of questions related to the learning objectives achieved on the theme "Various Jobs". The questions designed and game settings used in learning are also different for each meeting. Digital game Wordwall is a digital game application in the form of a web base that provides a wide selection of game features. The selection of media formats has its charm with the characteristics of each game. The Wordwall game digital media has been designed under the types of games that have been designed in the Wordwall application through the PlayStore or via a Google account. After the teacher enters questions related to the material, there is a new feature in the Wordwall application, which is related to templates. Teachers can change templates according to the game's theme/background, then can share templates with students more easily, especially if using a paid application so that this game is easier to play/access using Android phones, laptops that can be accessed by the general public. Digital word wall games have interesting media variations supported by animation and colors so that students are happy with the games that are displayed. The game uses a digital game word wall, and the processing time for each question can be set so that the questions given can be solved properly by students. In addition, what is new in the application of this digital game word wall is that the presentation is not carried out individually but in groups. Carrying out quizzes in groups using one device in the form of an Android cellphone is a challenge in itself in implementing games because it requires student cooperation in the learning process so that the implementation of quizzes can run optimally.

The components of social science learning media based on digital word wall games refer to (Joyce, 2011). There are five important components in a description of the development of learning media, namely;

1. Syntax, a sequence of activities in learning called a phase,



2. The social system, namely the role of teachers and students and the types of rules needed,
3. Principles: the principle of reaction, which gives the teacher an idea of how to view or respond to student questions.
4. Support systems, namely the tools and conditions required by the media development,
5. Instructional impact and accompanying impact, namely student achievement after learning.

The results of the validity of social science learning media based on digital word wall games fulfill the requirements as valid learning media because all the constituent components were declared "valid" by the validator team. The validation test is intended to see whether a media is feasible or not to be used. This media validation test was carried out by media experts. Based on the results of the media expert validation test, it was obtained in the very good category with a few suggestions for improvement. Things that were corrected based on suggestions from the validator related to improving the animated background color on the image so that the writing is easy to read, the sound in the game is less audible, and there must be an explanation regarding the stages in using a digital word wall games and the working time given in working on the questions is also too fast. Based on these suggestions, then make improvements at an early stage to correct these deficiencies. The results of these suggestions for improvement then become a reference in idealizing digital game word wall products at the final stage.

The level of the practicability of social science learning media based on digital game word walls can be seen through the implementation of media in learning. The implementation of the development of social science learning media based on a digital word wall game was stated to be well implemented based on teacher responses and student responses to the development of digital game word wall based social science learning media, this is per the opinion of Oktariyanti, Ditania, Aren Frima, and Riduan Febriandi (2021). The implementation of the development of social science learning media based on digital game word walls and the management of learning was stated to be carried out "very well" and were practical. These results were obtained through a series of improvements/revisions which were carried out in stages. Based on the first trial, there were some technical problem improvements from observers/observers that needed to be considered for improvements in the implementation of learning, namely

1. The teacher should pay close attention to each learning phase according



- to the syntax/stages and time used in class,
2. Optimizing the use of learning media, especially during face-to-face activities in class,
 3. Providing the right stimulus during the reconstruction of knowledge to students.

All components of the media and management of learning were stated to be implemented very well. The average value of the teacher's response to the digital game word wall-based social science learning media was 90.63% in the Practical category. The results of data analysis on teacher responses to the implementation of digital game word wall-based social science learning media indicate that the media is practical to apply in learning, where the assessment criteria are $\geq 70\%$ of teachers giving a positive response to the development of digital word wall-based social science learning media. As for student responses, it shows that the average value of digital game word wall-based social science learning media is 92.16% in the Practical category. The results of data analysis on student responses to the implementation of word wall-based digital game social science learning media show that the media is practical for students, where the assessment criteria are $\geq 70\%$ of students giving a positive response to word wall-based digital game social science learning media implemented in terms of aspects of syntax, social systems, reaction principles, and support systems. Based on the test results, all components were carried out well and very well.

The effectiveness of social science learning media based on digital game word walls can be seen based on the instructional impact and the impact of accompaniment on digital media word wall games (Kasa, 2021). Based on the results of the games obtained by students during the six meetings with different types of games such as for the first meeting in the form of Air Plane, for the second meeting by opening the box (Open The Box), the type of game for the third meeting is Quiz, For the fourth meeting, the type of game is Unscramble, the fifth meeting, the type of game played is Find the match and finally the type of game played is Maze Chase (Labyrinth). From the six types of games, it has been shown that there is an increase in student learning outcomes through the implementation of quizzes given by the teacher through digital word wall games in class. In addition, students are more compact in group learning. The results of learning by using the media experienced good development. This is evidenced by an increase in learning outcomes. The pretest results showed that the average student scored 71.22 in the fair category with a percentage of 71% of students meeting the KKM score while in the posttest the average student



scored 88.26 in the very good category with a percentage of 100% of students meeting the KKM score standard. Students are said to be successful (complete) if they get a KKM score of 70. Learning is said to be successful classically if at least 80% of students achieve a complete score. This shows that the development of digital game word wall-based social science learning media has been effective. Where the above is in line with the previous opinion that digital word wall games can:

1. Increase awareness and increase motivation;
2. Training skills in making decisions;
3. Developing knowledge;
4. Communication and collaboration; and
5. Integrating learning experiences (Muatet & et.al., 2019).

CONCLUSION

The study results indicate that:

1. The development of social science learning media based on Wordwall digital games is a fundamental requirement when entering the digital era of learning. This demands fun, challenging interactions in the form of Wordwall games for elementary school students;
2. As part of the social science learning media based on the Wordwall digital game, a selection of the type of game, the compilation of a quiz, the choice of a format, the initial design, and limited trials will be undertaken;
3. All components of the social science learning media based on the Wordwall digital game have adequate validity. The Wordwall game digital media display, stages, and tests obtained maximum value from validators;
4. Based on teachers' and students' positive responses regarding the Wordwall digital media game. This is in conjunction with the material and phases of Wordwall media. This was supported by students' participation in the learning process. The social science learning media based on the Wordwall digital game met practicability requirements.
5. Wordwall digital game provides adequate social science learning media that improves learning outcomes as demonstrated by the quiz scores and improved pretest and posttest results.



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