The 3rd International Conference on Education Innovation and Social Science, August 2024
ISSN (Online): 2961-9602

DEVELOPMENT OF POWTOON ANIMATION WEB-BASED LEARNING MEDIA FOR ADAPTIVE EARLY CHILDHOOD LEARNERS DIGITAL LITERACY IN THE FACE OF A DESTRUCTIVE ERA

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Keyword

Powtoon, Preschool Learners, Adaptive, Destructive

Abstract

The research aims to explain the effectiveness of PAUD teachers in using powtoon animation web-based video media by promoting adaptive children in facing the destructive era . The method in this study uses development that produces products in the form of powtoon animation web-based learning video media. Before using the media, a validation test was carried out by media expert validators and material expert validators. Based on the results that have been obtained, powtoon web-based learning video media is a medium that can and should be used by teachers in teaching at Aisyiyah PAUD throughout Surakarta City. This is indicated by the results of media feasibility which reached an average score of 96.30. Suggestions for PAUD teachers are that this media is expected to be able to facilitate students to learn independently accompanied by parents at home because the ease of technological developments that are right on target will be able to combat destructive content.

INTRODUCTION

Early childhood education is a fundamental construct for a child's growth. A child must be able to choose a proper education and certainly in accordance with current developments. In fact, with current developments, teachers and parents have not been able to fully control the disclosure of information that is increasingly unavoidable. Therefore, an educator, whether teacher or parent, must be able to master technology in the current era. So that educational institutions must be adaptive to current technological developments [1]. The development of information and communication technology has penetrated all lines, including the world of education. In an effort to improve the quality of education, one that can be achieved by utilizing technological sophistication, especially in the learning process and delivery of material. Especially in the current digital era, children have struggled in the online world, so it is necessary to develop learning media. Aisyiyah PAUD teachers throughout Surakarta City are currently familiar with digital literacy but need to teach students with more creative, innovative and adaptive media. A teacher is required to be able to follow the development of a child, because in today's open era children can access everything. So there needs to be collaboration between teachers, parents and stakeholders to be able to develop learning that can foster children's interest in learning seriously. Researchers have explored learning programs supported by new technologies to improve learners' abilities in productive and collaborative knowledge. [2].

In the teaching and learning process, learning media can also arouse the enthusiasm for learning and high interest of students, besides that it can also arouse students' learning motivation, and even have a psychological influence on students. [3]. The use or use of media can also increase students' understanding of lessons at school. Media is used to have the position of

ISSN (Online): 2961-9602
teacher aids in the teaching process, for example slides, photos, graphs, films, and learning using computers that are useful for capturing, processing, and reassembling visual and verbal information [4]. [4].

As an aid in teaching, the media is also expected to provide concrete experiences, motivation to learn, increase the absorption and retention of students' learning. According to [5] the development of learning media requires that teachers/instructors are able to use the tools provided by the school, and it does not rule out the possibility that these tools are in accordance with the development and demands of the times. The learning system is implemented through a personal computer (PC) or laptop device connected to an internet network connection. Educators can conduct joint learning at the same time using groups on social media such as WhatsApp (WA), telegram, instagram, zoom application, google meet or other media as learning media. In addition, there are also several other media that can be used to support the implementation of online learning, for example, in virtual classes using Google Classroom, Edmodo, and Schoology services (Enriquez, 2014). [6]. Thus, PAUD educators can ensure that students can follow the learning at the same time, although in different places but also need assistance from parents.

However, many cases occur when implementing the use of online learning, including the uneven distribution of students and parents of students who are good at operating online media, then not all parents of students can afford to buy internet kouta, internet signals in students' homes are not affordable, most parents of students whose economic conditions are mediocre, and also do not have smart phones or smartphones as a means of learning online for their children. In addition, the cause of low learning outcomes is the selection of learning methods and media used by teachers in the learning process is very inappropriate and the management of learning activities that are still unable to generate optimal student motivation. [7].

Learning through online media is now widely used, especially many who use social media. Another social media utilization is also applied at the University of Romania. In an article entitled *"social media literacy in Romanian universities-are we ready yet?"* in 2014 showed that the importance of social media literacy for Romanian students. Satisfaction was found regarding the Social Media utilization of their professors. Many media documents posted by professors such as authors, distributors, sources, advisors and architects were considered relevant and useful by the students. Among other social media utilization are as (1). Means of learning, listening, and conveying; (2). Means of documentation, administration and integration; (3). Means of planning, strategy and management; and as (4). Means of control, evaluation and measurement. In utilizing the media, if it is used properly, it will have a positive impact on both knowledge and individual skills. [8].

Learning media is a tool or intermediary that is useful to facilitate the teaching and learning process, in order to streamline communication between teachers and students. This is very helpful for teachers in teaching and makes it easier for students to receive and understand lessons. This process requires teachers who are able to harmonize between learning media and learning methods. The use of learning media in the teaching and learning process can also arouse new desires and interests for students, arouse learning motivation, and even have a psychological influence on students in particular. In addition to increasing students' learning motivation, the use or utilization of media can also increase students' understanding of lessons. The media utilized has a position as a teacher's aid in teaching. For example, graphics, movies, slides, photos, and learning using computers. The point is to capture, process, and reorganize visual and verbal information. As an auxiliary tool in teaching, the media is expected to provide concrete experiences, motivation to learn, increase the absorption and retention of students' learning.

Based on the results of observations conducted by researchers at Aisyiyah PAUD institutions throughout Surakarta City, it is considered that there is still a lack of digital literacy in the learning carried out and the lack of learning media used because the learning media used only use Power Point in the form of images and videos, or text, and also lectures only, so that the learning conditions in the classroom are boring for students who are still children.

Media is a source of learning and broadly speaking, learning media can be interpreted as people, objects or events that allow students to acquire knowledge and skills. Media itself is a

ISSN (Online): 2961-9602
communication tool to further streamline the teaching and learning process. [9]. Media is a tool that can be in the form of anything to serve as a channel for messages to achieve learning objectives. According to Hamalik as referenced by [10] the presence of learning media is one of the components in the learning process that is indispensable, given that the position of the media is not just a teaching aid, but rather an integral part of the learning process. In addition to being able to replace some of the duties of educators as presenters of material, the media also has unique potentials that can help students learn. [11].

The use of audio-visual media can increase children's attention with an attractive display, this makes students interested in the course of the video learning and remain in a state of concentration and attention. Audio-visual media that displays the reality of the material can provide real experience to students when learning it so as to encourage self-activity. Learning Media Function According to Oemar Hamalik in [12]"The use of learning media in the teaching and learning process can arouse new desires and interests, arouse motivation and stimulation of learning activities, and even have psychological effects on students." The learning message conveyed by the teacher without using the media will feel bland and will not make an impression if it does not use the media. Likewise, the enthusiasm of students to learn is very low and can even be said to be absent. When learning has reached a saturation point and there is no enthusiasm for students to continue learning activities, then the presence of a media will feel very helpful and indispensable. This explains that learning media that use elements of images, writing and sound can increase attention, bring learners to understand ideas and get information that is very complex and requires its own explanation, and can overcome the limitations of time, size and place [13]. [13]. Thus, the right and appropriate media is needed so that it can be understood and understood easily by students.

The selection of appropriate learning media will make students not bored and motivated to learn. Learning media is very good for the benefits of students because it adds knowledge and can foster a spirit of learning for students. [14]. The use of well-designed learning media can arouse motivation and stimulation of learning for students and improve understanding of learning materials so that it will have an impact on improving the quality of education [14]. [5]. The average learning in every school that does not use learning media makes students less motivated to learn and makes students bored. This will have an impact on the low learning outcomes of students.

In reality, in developing the potential of PAUD students, they still cannot develop properly, they are still dependent on the teacher in discovering their potential. Where the text power point media used by PAUD teachers tend to be saturating for students, thus making students less creative in capturing the material that has been delivered by the teacher through the power point, and less effective in learning. Therefore, it is necessary to develop creative learning media that can increase the attractiveness of students to learn.

Thus, learning media is important in realizing an effective and efficient learning process so that learning objectives can be achieved. This is similar to Kemp and Dayton who state that the positive impact of using media includes learning to be more effective, interactive, and the quality of learning outcomes can be improved. [15]. Thus, learning media is important in realizing an effective and efficient learning process so that learning objectives can be achieved.

One of the interesting web animations to use as a presentation or learning media is Powtoon. This application is a web app to create presentations or cartoon animation videos in an easy way. Powtoon has interesting animation features, including handwriting animation, cartoon animation, and livelier transition effects and easier timeline settings. Powtoon media can clarify the presentation of messages or material that will be used in learning.

Technology can present new opportunities for modeling, simulation, and/or recreating complex environments in which learners are likely to find themselves. [16]. In this digital era, there are many multimedia applications that can be utilized as learning media, for example the use of Camtasia, Edmodo, Moddle and many more. These various multimedia applications provide a large selection of images and are able to include videos and animations in them, so that the resulting media can have more variety. PowToon as one of the multimedia applications that

ISSN (Online): 2961-9602
can be used as learning media has various advantages such as having very interesting animation features including handwriting animation, cartoon animation and livelier transition effects and very easy timeline settings. PowToon is very suitable to be developed as a learning media, although it is made online, but the results can be used offline both in the form of presentations and in pdf form.

METHOD

This research aims to develop animated web-based video media using the powtoon platform. The research aims to explain the effectiveness of PAUD teachers in using powtoon animated web-based video media by promoting adaptive children in the face of a destructive era, where this research procedure uses the ADDIE development model which consists of five stages, which include analysis *(analysis)*, design (*design), development (development)*, implementation (*implementation),* and evaluation (*evaluation*). [17].

The reason for choosing the ADDIE model is because the ADDIE development model is considered very effective, dynamic and simple and can support the performance of the program itself (Warsita, 2011). The ADDIE model consists of five components that are interrelated and systematically structured. These five stages are very simple when compared to other design models. Its simple nature and systematic structure make this design model easy to understand and apply. There are 5 stages or development steps in using this ADDIE model, including according to the words that form it, namely *Analysis,* Design, *Develop, Implement*, and *Evaluate [18].* [18].

Development is the process of creating or developing learning resources and validating them. This stage is a real stage in working on learning resources. At this stage the researcher carried out five research steps, as follows:

a. Conceptualize Learning

Creating learning concepts in the form of opening, core and closing in video delivery. Learning concepts are made so that teachers understand how to deliver material using animated web video media.

b. Making the developed Video Media

This step is the creation of animated web-based video media. This process starts from the stages of 1) needs analysis, 2) media design, 3) media manufacturing, 4) testing process. The needs analysis stage is the creation of a list of needs that are used as media content. The design stage is the creation of the scheme, layout and flow of the media. The manufacturing stage is the stage of realizing the media that has been designed. And the testing stage is carried out to test that the media made is in accordance with the plan or not.

c. Animation and face-camera video development

At this stage researchers use Powtoon animation media and added with facecame, so that when learning is carried out, the results of the animated media can be explained by the teacher using an explanation using the face-camera app. The procedure for developing Web Animation Media is as follows:

1) Analysis

The analysis carried out is a needs analysis that emphasizes the powtoon.com web to be created. In order for the development to understand the nature of the program to be created, the developer must understand the necessary commands, performance actions, and the interface of the program applying the contents of the web. Input from the powtoon web is in the form of template selection, customize mode, character selection and character motion effects.

2) Design

At the design stage there are several steps to design powtoon animation media. Among them; a) Template design, b) Character design, c) Material design, d) Face-camera placement design.

3) Making a Teacher's Manual

The teacher's manual is more directed at tutorials for making web video media with teaching materials used in learning. This book also explains in detail how to use learning media.

4) Conduct Formative Revision

ISSN (Online): 2961-9602

Formative revision is an initial revision to collect information and data before the implementation process. This revision is an initial trial process to find errors in the learning resources that have been developed. In this step, the finished learning resources are tested by media experts and material experts then the trial results will be processed to make revisions to the previous learning resources and are ready for the implementation stage. However, before the data collection process, the research data collection tool must first be validated for reliability. This aims to ensure that the aspects to be measured in the media can be measured.

5) Implementation

After the learning media is well controlled and then finished and declared feasible by media experts and material experts, then the application is carried out in the learning process. implementation is carried out by Aisyiyah PAUD teachers in Serakarta City to their students. Implementation is carried out to test the feasibility level of animated web video media. In this stage there are two steps that are carried out before the implementation process is carried out, the first is preparing PAUD teachers and the second is preparing students. Preparing PAUD teachers includes providing understanding material about animated web videos. Preparing learners includes providing information to learners to bring equipment that supports the implementation process. This preparation will affect the implementation process so that there are no obstacles outside the research.

6) Evaluation

The evaluation conducted in this research and development is a formative evaluation. The formative evaluation is related to the evaluation conducted by model experts using a media validation questionnaire, and design experts using a design validation questionnaire, teachers also participate in evaluating using a response questionnaire to identify responses to the learning media used. According to [18] there are three criteria in evaluating, namely 1) perception evaluation, 2) learning evaluation, and 3) ability evaluation. While evaluation tools include surveys, questionnaires, interviews, Likert scales, open-ended questions, exams, role plays, observations, simulation exercises, authentic tasks performance checklists, supervisor assessments, peer observations, and others. The evaluation criteria chosen by the researcher is the perception evaluation. Perception evaluation is an evaluation to find out how much students change about the existence of learning media using animated videos.

The second step is to determine the evaluation tool. The evaluation tool chosen by the researcher is a questionnaire or questionnaire with a four-choice Likert scale. And the third step is the evaluation process by giving a questionnaire to PAUD teachers after using learning media using powtoon animation videos. After making improvements at the evaluation stage, the powtoon animation web-based video media that has been tested for validity and is said to be feasible as a learning medium.

RESULTS

Frequency Analysis of Expert Validator Answers

Frequency Distribution Table of Expert Validator Answers

Item	STS		TS		S		SS		Rata-rata
	f	%	f	%	f	%	f	%	
X1	0	0	0	0	1	25	3	75	3,75
X2	0	0	0	0	3	75	1	25	3,25
X3	0	0	0	0	1	25	3	75	3,75
X4	0	0	0	0	0	0	4	100	4,00
X5	0	0	0	0	0	0	4	100	4,00
X6	0	0	0	0	2	50	2	50	3,50
X7	0	0	0	0	1	25	3	75	3,75
X8	0	0	0	0	0	0	4	100	4,00
X9	0	0	0	0	1	25	3	75	3,75
X10	0	0	0	0	1	25	3	75	3,75
X11	0	0	2	50	2	50	0	0	2,50
X12	0	0	2	50	2	50	0	0	2,50
X13	0	0	2	50	0	0	2	50	3,00
X14	0	0	3	75	0	0	1	25	2,50
X15	0	0	2	50	1	25	1	25	2,75

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Item	STS		TS		S		SS		Rata-rata
	f	%	f	%	f	%	f	%	
X16	0	0	2	50	1	25	1	25	2,75
X17	0	0	1	25	2	50	1	25	3,00
X18	0	0	2	50	2	50	0	0	2,50
X19	0	0	1	25	2	50	1	25	3,00
X20	0	0	1	25	0	0	3	75	3,50
X21	0	0	2	50	0	0	2	50	3,00
X22	1	25	2	50	0	0	1	25	2,25
X23	0	0	1	25	2	50	1	25	3,00
X24	1	25	1	25	0	0	2	50	2,75
X25	0	0	0	0	0	0	4	100	4,00
X26	0	0	0	0	0	0	4	100	4,00
X27	0	0	0	0	0	0	4	100	4,00
X28	0	0	0	0	0	0	4	100	4,00
X29	0	0	0	0	1	25	3	75	3,75
X30	0	0	0	0	0	0	4	100	4,00
X31	0	0	0	0	1	25	3	75	3,75
X32	0	0	0	0	1	25	3	75	3,75

Source: Primary research data processed in 2024

Based on the table above, it can be seen that the results of the answers to the questionnaire statements given in item X.1 The media design has a neatness that is easy to understand, obtained as many as 3 expert validators (75%) who answered strongly agree, then those who answered agreed as many as 1 expert validator (25%), Item X1.1 has an average of 3.75.

In item X.2 Media using easy-to-read fonts, the results were obtained as many as 1 expert validator (25%) who answered strongly agree, then those who answered agreed as many as 59 respondents (62.8%), then those who answered disagreed as many as respondents (6.4%), and then those who answered disagreed as many as 1 respondent (1.1%). This X.2 item has an average of 3.25. In item X.3 The distance between images and writing has the right size, the results were obtained as many as 3 expert validators (75%) who answered strongly agree, then those who answered agreed as many as 63 respondents (67%), and then those who answered disagreed were 1 respondent (1.1%). This X.3 item has an average of 3.75. In item X.4 Evidence explaining that the media used is correct, the results were obtained as many as 4 expert validators (100%) who answered strongly agree, then those who answered agreed as many as 55 respondents (58.5%), and then those who answered disagreed were 1 respondent (1.1%). This X.4 item has an average of 4.00.

In item X.5 Having an explanatory statement on each media item used, the results were obtained as many as 4 expert validators (100%) who answered strongly agree, then those who answered agreed as many as 45 respondents (47.9%), then those who answered disagreed were 1 respondent (1.1%). This X.5 item has an average of 4.00. In item X.6 The use of components in the media has the right message, the results were obtained as many as 2 expert validators (50%) who answered strongly agree, then those who answered agreed as many as 61 respondents (64.9%), then those who answered disagreed were 1 respondent (1.1%). This X.6 item has an average of 3.50. In item X.7 The component in each media item has a meaning obtained as many as 3 expert validators (75%) who answered strongly agree, then those who answered agreed as many as 57 respondents (60.6%), and then those who answered disagreed were 1 respondent (1.1%). This X.7 item has an average of 3.75.

In item X.8 Coloring in the media does not mess with you in understanding the entire material, the results were obtained as many as 4 expert validators (100%) who answered strongly agree, then those who answered agreed as many as 55 respondents (58.5%), and then those who answered disagreed were 2 respondents (2.1%), and those who answered disagreed as many as 2 respondents (2.1%). This X.8 item has an average of 4.00. In item X.9, the coloring of the writing makes it easier for users to remember the learning material, the results were obtained by 3 expert validators (75%) who answered strongly agree, then those who answered agreed as many as 43 respondents (45.7%). This X.9 item has an average of 3.75.

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In the X.10 Graphic item according to the theme presented, the results were obtained as many as 3 expert validators (75%) who answered strongly agree, then those who answered agreed as many as 62 respondents (66%), and then those who answered less were 2 respondents (2.1%). This X.10 item has an average of 3.75. In item X.11 The size of the media presented is easy to read by users, the results were obtained as many as 0 expert validators (0%) who answered strongly agree, then those who answered agreed as many as 61 respondents (64.9%), then those who answered disagreed were 3 respondents (3.2%), and then those who answered disagreed as many as 1 respondent (1.1%). This X.11 item has an average of 2.50.

In item X.12 Images and writings have a proportional size, as many as 0 expert validators (0%) answered strongly agree, then those who answered agreed as many as 65 respondents (69.1%), then those who answered disagreed were 10 respondents (10.6%), then those who answered strongly disagree as many as 1 respondent (1.1%). This X.12 item has an average of 2.50. In item X.13 The function in the image in the media is in accordance with what is expected to be obtained, as many as 2 expert validators (50%) who answered strongly agree, then those who answered agreed as many as 59 respondents (62.8%), and then those who answered disagreed were 8 respondents (8.5%), and then those who answered disagreed as many as 1 respondent (1.1%), and those who answered strongly disagree with 1 respondent (1.1%). This X.13 item has an average of 3.00.

In item X.14 Media design can be presented easily without having to ask the media creator obtained results as many as 1 expert validator (25%), Item X.14 has an average of 2.50. In item X.15 Easy-to-access media operations obtained as many as 1 expert validator (25%), Item X.15 has an average of 2.75. In item X.16 The use of media is easy to run obtained as many as 1 expert validator (25%), Item X.16 has an average of 2.75. In the X.17 Media item, it is not easy to error when used, the results are obtained by 1 expert validator (25%), this X.17 item has an average of 3.00. In the X.18 item User's guide that is easy to understand, the results are obtained as many as 0 expert validators (0%), this X.18 item has an average of 2.50. In item X.19 program guide using good and correct Indonesian, the results were obtained by 1 expert validator (25%), Item X.19 has an average of 3.00. In the X.20 Media item, this media can increase the enthusiasm of students, the results of 3 expert validators (75%), this X.20 item has an average of 3.50. In the X.21 Media item, this media can increase the students' enthusiasm for learning, the results are obtained by 2 expert validators (50%), this X.21 item has an average of 3.00. In item X.22 has uniqueness so that students have an interest in this media, the results were obtained by 1 expert validator (25%), this item X.22 has an average of 2.25. In item X.23 This media is able to overcome students' problems about learning boredom obtained results as many as 1 expert validator (25%), this item X.23 has an average of 3.00.

In item X.24 Media has image and sound effects that can foster students' enthusiasm for learning, the results were obtained by 2 expert validators (50%), this X.24 item has an average of 2.75. In item X.25 Students are able to get useful material from this media obtained results as many as 4 expert validators (100%), this X.25 item has an average of 4.00. In item X.26 this media is easy to learn by students for the understanding of the material, the results are obtained by 4 expert validators (100%), this item X.26 has an average of 4.00. In item X.27 Students' competence will be better when using this media obtained results of 4 expert validators (100%), Item X.27 has an average of 4.00. In item X.28 The material in the media has a different variation from other media, the results were obtained by 4 expert validators (100%), this X.28 item has an average of 4.00. In item X.29 has an element of entertainment in media that is not only about material obtained results from 3 expert validators (75%), Item X.29 has an average of 3.75. In the X.30 item Variations in the media have a curiosity to continue to learn about it, the results of 4 expert validators (100%), this X.30 item has an average of 4.00. In item X.31 Teachers are easier in compiling material, the results of 3 expert validators (75%), Item X.31 has an average of 3.75. In item X.32 The delivery of material to learning participants can provide an easier understanding to obtain results as many as 3 expert validators (75%), Item X.32 has an average of 3.75.

ISSN (Online): 2961-9602

The summary of the results of the validation of the student's parents is more detailed as follows:

Summary Table of Student Parent Validation

Aspects	Question Number	Indicator	X	Xi	(%) Percentage
Effectiveness	1-15	Clarity of the Solidification model Clarity of material Clarity of learning methods	74	80	92,5
Efficiency	16-20	Ease of learning	40	40	100
Attraction	21-25	The appeal of communication in the learning model	38	40	95
Total Score			**152**	**160**	
Average					**95,83**

Information:
X : Number of scores assessed by the validator
Xi : The maximum number of scores assessed by the validator
% : Percentage of validator evaluation results

The conclusion from the answers obtained from the 75 students in the sample was that learning can be done anywhere with an average of 3.28. so that it is easier for students to carry out learning without being limited by a particular room.

Some aspects that have been validated by media expert validators, material expert validators, and PAUD teacher validators themselves are summarized below:

Table Media Feasibility Results

No.	Assessed Aspect	Average (%)	Criteria	Description
1.	Media Design	90,29	Very Valid	Usable
2.	Operation	100	Very Valid	Usable
3.	Media Usability	96,66	Very Valid	Usable
4.	Material Quality	99,18	Very Valid	Usable
5.	Expediency	97,78	Very Valid	Usable
6.	Effectiveness	97	Very Valid	Usable
7.	Efficiency	96	Very Valid	Usable
8.	Attractiveness	93,5	Very Valid	Usable
TOTAL AVERAGE		**96,30**	**Very Valid**	**Usable**

(Source: Created by researcher)

DISCUSSION

The development of powtoon animation web-based video media is considered to have been effective for learning in PAUD Aisyiyah Surakarta City, because with this powtoon animation learning video media it can be easier to do learning, besides that this media can also make an innovation to motivate teachers to be more creative in the learning process. The current digitalization period is indeed needed in terms of creativity in the digital field, especially on the website. Learning with websites in the current era, especially for students who are still at an early age, is very relevant to use because the results of research from [19] stated that the application of digital literacy has an influence on improving learning. Based on the research results obtained, R is 0.669, which shows that the relationship between the application of digital

ISSN (Online): 2961-9602

literacy (variable X) and learning improvement (variable Y) is relatively strong. The results of the F test prove that F count 69.688> Ftable 4.39, then the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. Thus, it can be stated that the application of digital literacy has an influence on improving learning.

The development of animated web-based video media produces a product, namely media that can be used by PAUD teachers using video animation that can be accessed online. Accompanied by a guidebook for the use of the media. The web-based animated video media is implemented online by utilizing internet technology assisted by hardware in the form of devices (smartphones and/or computers), as well as software in the form of web browser applications such as Google Chrome, Internet Explore, Operamini and so on. The web browser is used in the delivery of material and is used by PAUD students in opening material that has been delivered by the teacher.

The material used in the development of this animated web-based video media is learning to count using objects around. From this, the teacher will find it easier to visualize what has been conveyed. This is relevant to the opinion of [20] that there are 5 functions of learning media that must be fulfilled when teachers choose a teaching medium. The five functions are: 1) as a means of helping to realize a more effective learning situation. 2) as one of the components that are interconnected with other components in order to create the expected learning situation. 3) accelerate the learning process. 4) improve the quality of the teaching-learning process. 5) concretize the abstract so as to reduce the occurrence of verbalism disease.

Based on the research and development of animated web-based video media, in addition to producing a learning media model, it is also equipped with a guidebook for implementing the learning model. The guidebook for the implementation of the developed learning model is printed with A5 size, using AP250 art paper type which consists of approximately 20 pages. The learning model implementation guidebook contains a description of Web-based video learning media, how to use, and materials related to powtoon-based animated videos.

The media expert validation instrument that researchers use to determine the validity level of the learning video media trials in this study is a questionnaire. The number of items used is 32 items with the lowest alternative answer is 1 and the highest alternative answer is 4. The highest average score is 4 while the lowest average score is 2.25.

The results of the media expert validator's answers can be concluded that the size of the media presented still needs to be improved so that it is easier for users to read because the question item has an average of 2.25. As well as images and writings lack proportional size, therefore it needs improvement by enlarging images and fonts to be more proportional.

The material expert validation instrument that researchers use to determine the level of validity of the learning video media trials in this study is a questionnaire. The number of items used is 30 items with the lowest alternative answer is 1 and the highest alternative answer is 4. The highest average score is 3.80 while the lowest average score is 2.60.

The conclusion from what has been found in the material expert validator is that it is still difficult to prepare material when using this web-based video media, because the lowest average is 2.6. So it needs to be even easier in making videos or made as simple as possible in making material in this web-based video.

ISSN (Online): 2961-9602

The conclusion of what has been found in PAUD teachers related to the application of powtoon web-based learning media is about the level of understanding of digital literacy, the measurement indicators of which are obtained from theory [21]. The understanding of digital literacy, especially in the use of this media owned by PAUD Aisyiyah Surakarta City teachers, has generally achieved sufficient understanding, because the average obtained has reached an average of above 80%. The highest answer that has been obtained is in the indicator of easy to follow the latest developments with a percentage of 96.4%, this illustrates that PAUD Aisyiyah Surakarta City teachers know what should be done with digital media.

The conclusion on the answers obtained from 75 PAUD Aisyiyah Surakarta City teachers conducted by random sampling, that learning can be done anywhere with an average of 3.28. so that students are easier to do learning which is certainly with the cooperation of parental supervision.

CONCLUSION

Web-based learning video media is a medium that can be used by PAUD Aisyiyah Surakarta City teachers in the learning process at PAUD institutions. Based on the results of research and development of powtoon web-based learning video media, the following conclusions can be drawn.

1. Development Process

The process of developing web-based learning video media refers to the ADDIE development model, namely (1) analysis; (2) design; (3) development; (4) implementation; (5) evaluation. The first step is analysis. Step 1 Analysis Analysis of the needs of PAUD Aisyiyah Surakarta City teachers whether they can use new media and can be accepted by all levels of teachers and students themselves by paying attention to the comfort of learning students and not getting out of the essence of existing material. The second stage is design, this design stage is a step of making a design, in this case the design of a web-based learning video is formed starting from the idea process which is then realized by practicing directly but only experiments. In the case of this design, the researcher analyzes the existing learning media and then realizes it by means of development. The third stage is the development stage, the development stage is a process of realizing the design that has been made at the design stage into reality. At this stage everything needed or that will support the learning process must all be prepared. Researchers have carried out direct development related to web-based learning videos by making usage guidelines as well so that users do not feel difficulties when using them. The fourth step is Implementation. The implementation stage is a real step to implement the learning system created. At this stage all the things that have been developed are arranged in such a way.

In accordance with their respective roles and functions to be implemented. When the product is ready, the next step is to test it. Trials were conducted on media expert validators, namely lecturers, then material validators, namely seniaor teachers in PAUD itself then to all PAUD Aisyiyah teachers in Surakarta City. Then after the experiment, the next step is revision or improvement. The fifth step is Evaluation *(Evaluate)*, the evaluation stage is a process of this development that aims to find out whether the web-based learning video media that is being

ISSN (Online): 2961-9602

developed is successful in accordance with initial expectations or not. So that it can make improvements if there are still shortcomings in making this web-based learning media.

2. Validity

The valid criteria in the research and development of this web-based learning video media learning model are met because the assessment of expert validators and curriculum validators has met the requirements because the average answer has met 50% and above of the questionnaire that has been filled in but there are still some improvements that must be met.

3. Effectiveness

The effectiveness of web-based learning videos has been obtained from the data collected. The learning outcomes themselves are related to the report cards of paudud students in the form of motor and sensory development. Based on the learning outcomes of students with previously not using web-based learning video media and after the use of web-based learning media, the following data is obtained: Learners who used to only be able to understand numbers from a text or image from visuals are now able to analyze virtually as well.

4. Applicability

The criteria for feasibility and applicability in research and development of web-based learning video media are met because the applicability assessment using questionnaires and secondary data from report card recapitulation scores. Based on this, it can be seen that the learning model developed is feasible and applicable.

ACKNOWLEDGEMENT

Based on the research and development of powtoon web-based learning videos, teachers should be able to implement the learning model by utilizing various learning media, in order to increase the attractiveness of students in participating in the learning process. PAUD teachers must also be able to facilitate students to learn independently with the accompaniment of parents at home because the ease of targeted technological developments will be able to combat destructive content.

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