Motion Graphic-Based Digital Media Development for Stunting Education

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Abstract - This research is oriented to the development of motion graphic-based digital media as learning media for stunting education. There are various types of digital media that can be used in learning. However, one of the digital media needed is learning videos. By using a research-based design or Design Based Research (DBR), a digital media is designed, namely learning videos based on needs analysis, development design, trial and evaluation. The results of expert validation, media validation and limited trials, digital media based on motion graphics are categorized as good, so the media designed is suitable for use as digital-based learning media for stunting education.

Keywords: *Digital Media, Motion Graphic, Stunting*

I.   INTRODUCTION

One of the educational functions is the innovation function which is defined that the learning process is the extensive implementation of digital technologies (Kryukov & Gorin, 2017). In addition, when it is associated with 21st century learning, one of them is oriented towards computing and ICT literacy (Bishop, 2006) so that learning is also from a traditional learning approach to a digital-based learning approach (Prayogi & Aesthetics, 2020). This is also in line with the era of the industrial revolution 4.0 or the digital revolution towards the era of super smart society (society 5.0) which puts forward the concept of digital life, so that one of the impacts in education is the existence of mobile and responsive educational applications or media (Kasali, 2017). So based on this, it is appropriate to develop digital media in the educational process.

Research on digital media, especially in Early Childhood Education, includes a digital-based school environment to stimulate the development of social skills (Naughton et al, 2018). Research related to the quality of media used in early childhood education through measuring aspects of child development (Nobre et al, 2020). Research related to the use of digital media by parents in facilitating children's play at home (Ruest et al, 2018). The impact of digital media on children (Gerwin et al, 2018). Digital media based on animation as a character education innovation (Damayanti et al, 2018). Development of Augmented Reality-based learning media in early childhood learning (Rahmaniar, 2021). Educational games and digital-based games (PowerPoint) as a method of stimulating the development of early childhood discussion skills (Yasbiati et al, 2019). While this research focuses on the development of digital media based on motion graphics.

Motion graphics is an animation form of several sets of shapes choreographed together using various effects to produce interesting recordings in displaying and learning grammar so that they become expressive and interesting (Carra, et al, 2019). Reog Ponorogo's motion graphic is used as the right medium for information on Reog's art to the public, especially millennial youth. This motion graphic media is quite comprehensive, because it is equipped with supporting media such as posters, print ads, merchandise and Instagram (Ajiprabowo & Handriyotopo, 2020). Motion graphic animation video as an alternative media for learning Indonesian history has proven to be very suitable based on the media and material so that it is suitable for use in the learning process, students gave a positive response regarding the use of motion graphic animation media and active participation of students

during the Indonesian history learning process with a very good category. (Amali, Zees, & Suhada, 2020).

Motion graphics are feasible and effective to use in learning to write poetry during the COVID-19 pandemic (Solihatini et al, 2021). Motion graphics in learning to write persuasive texts in junior high school (Tartila, n.d.), Motion graphics as a medium in learning Indonesian history to improve high school student learning (Sa'adah; et al, 2021). The motion graphic research focuses on the use of motion graphics in elementary, middle and high school learning, grammar learning, and as a medium for art information, while this research focuses on stunting education.

The research on stunting using media includes the effect of using audio-visual media on increasing mother's knowledge about stunting (Rini, 2020). Audio-visual media affect the level of knowledge and attitudes of pregnant women about stunting prevention (Anggraini et al, 2020). There has been an increase in knowledge of posyandu cadres in preventing stunting through media-based nutrition education (Hartono et al., 2020). There are differences in knowledge and attitudes of pregnant women before and after using booklet media related to stunting (Zahra et al., 2021). There is an influence of nutrition education for pregnant women using booklet media on the behavior of preventing stunting under five (Listyarini, 2020). The effectiveness of the nutritional intelligence program on increasing maternal knowledge as an effort to prevent stunting (Irhamna, 2021). Research on stunting using media focuses on audio-visual media and booklets. Based on this, the novelty of this research is to develop digital media based on motion graphics as a medium for stunting education.

II.   RESEARCH METHODS

This study uses a research-based design or Design Based Research (DBR). DBR is a systematic but flexible research, aiming to improve educational practice through analysis, design and development (Wang & Hannafin, 2005).   This concept becomes a basis that becomes a reference in designing digital-based learning media using the Reeves model procedure as follows.
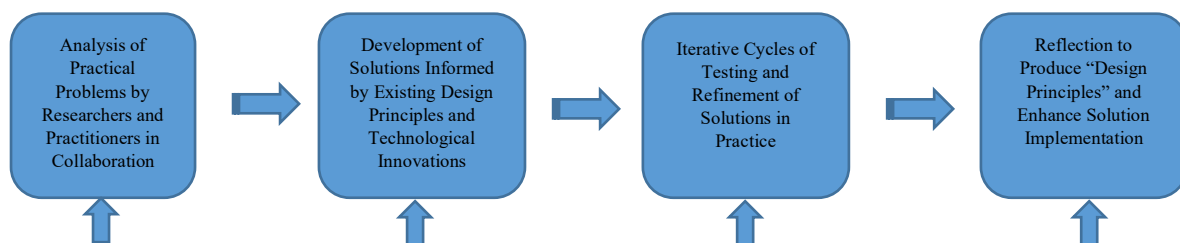

Figure 1. Reeves' 2006 Design-Based Research Model (Cotton et al, 2009)

II.1   Analysis of Practical Problems by Researchers and Practitioners in Collaboration.

This is the analysis stage related to digital media needs. The goal is to explore the necessary digital media.

II.2   Development of solutions informed by exiting design principles and technology innovation.

The design stage of digital media design is based on the results of needs analysis and theoretical studies, so as to produce development products that are in accordance with needs. The product is a digital learning media based on motion graphics.

II.3 Iterative cycle of testing and refinement of solution in practice

The validation test phase and product improvement are based on the results of expert validation, so that the feasibility of the designed product can be known. Furthermore, a limited trial was carried out for an assessment of the learning media that was made, also observed the response to the use of the media, after obtaining the data from the field trials, improvements were made according to the observed data.

II.4 Reflection to Produce "Design Principles" and Enhance Solution Implementation

The final evaluation stage of digital media is made based on the data and previous improvements with the intention that the ideal media can be produced, as an answer to the needs and problems found. The subject of this research is focused on educators and early childhood.

III. RESULTS AND DISCUSSION

III.1 Needs Analysis

It begins with a preliminary study related to the use and need of digital media at the earlychillhood level. The types of digital media owned by schools are presented as follows.

Table 1. Types of digital media owned by the school

No	Types of digital media	Amount	%
1.	Digibook (Digital Books with Picture Stories)	117	26,6%
2.	Coloring app	110	25%
3.	Interactive videos	234	53,2%
4.	Storytelling app	67	15,2%
5.	Interactive game application (mix of digibook, coloring, storytelling)	99	22,5%

Digital comes from the word digitus which means there are 10 fingers which are then processed in the form of symbols 1 (one) and zero (0). The two symbols are assembled into a form of coding so that a software system is realized which is reflected through the input and output hardware of a computer device (calculation machine/number processing machine) (Gandana, 2019). This context does not mean that educators have to pursue the concept of coding fundamentally, but tend to be more towards the development and use of coding in the development of digital-based media (Kryukov & Gorin, 2017). Mourlam et al, (2019) stated that the use of digital concepts as a vehicle for children's play makes it much more meaningful in the perspective of building insights related to life and is much more efficient in conveying information and facts that tend to be difficult to reach physically. This digital concept can also be more effective in showing objects (enlarging the small, reducing the large, bringing the distant and showing hidden objects).

III.2 Media Development

The type of digital media developed is based on motion graphics. Motion graphics are media that use video recordings and/or animation technology to create the illusion of motion and are usually combined with audio for use in a multimedia output (Betancourt, 2013). Motion Graphics is a contemporary term used to describe the broad field of design and production that includes type and imagery for film, video, and digital media including animation, visual effects, film titles, television graphics, advertising, multi-media presentations, current architecture, and more and more

digital/video games (Sandhaus, 2006). The stages of digital media production based on motion graphics, namely the pre-production stage, include a. determine the topic/material to be produced, the topic/material to be produced is about stunting with the aim of educating the public regarding stunting, b. looking for references related to topics/materials that will be produced using motion graphics, c. make storyboards, d. making narration for the narrator (voice over), e. material search for animation. While the production stages include: a. make a background, b. choose a character, c. add narration to the narrator, d. development of animation design using Adobe Illustrator, e. animation development using Adobe After Effects, f. Animation video fusion using Adobe Premier Pro.

Figure 2. Motion Graphic-based digital media products

III.3   Implementation of Media

The product is validated by material experts and media experts. The results of expert validation are presented as follows.

Table 2. Material Validation

No	Aspects/Indicators	Validator				Average	Category
		1	2	3	4		
1.	The breadth and depth of content	5	5	4	5	4,75	Very good
2.	Explanation of content	5	4	4	5	4,5	Good
3.	Explanation of included examples	4	3	4	5	4	Good
4.	Sufficiency of included examples	5	4	5	4	4,5	Good
5.	Explanation of the language used	4	5	5	5	4,75	Very good
6.	Suitability of the language with the target	4	4	5	5	4,5	Good
7.	Explanation of information on image illustrations	5	5	4	5	4,75	Very good
	Total					31,75	
	Average					4,5	
	Category					Good	

Based on the validation of the material, it can be seen that the results are good, as well as digital media based on motion graphics with good categories so that this digital media is feasible to use.

Tabel 3. Media Validation

No	Aspek/Indikator	Validator				Average	Category
		1	2	3	4		
1.	The suitability of the material with motion graphics	5	4	5	5	4,75	Very good
2.	Suitability of images, colors and visual illustrations	4	5	4	5	4,5	Good
3.	Suitability of text and visual illustrations	4	4	5	5	4,5	Good
4.	Use of font	5	4	5	4	4,5	Good
5.	Motiongraphic creativity and dynamism	4	5	5	4	4,5	Good
	Total					22,75	
	Average					4,5	
	Category					Good	

Meanwhile, the results of a limited trial related to motion graphic-based digital media for stunting education are presented as follows.

Table 4. Recapitulation of Limited Trial Results

No	School Name	Aspect/Indicator							Average	Categoriy
		1	2	3	4	5	6	7		
1.	SA	5	4	5	5	5	5	4	4,71	Very good
2.	SB	4	5	4	5	4	4	5	4,42	Good
3.	SC	4	4	5	5	4	5	4	4,42	Good
4.	SD	5	4	5	4	5	5	4	4,57	Very good
5.	SE	4	5	5	4	4	4	5	4,42	Good
	Total								22,54	
	Average								4,50	
	Category								Good	

Based on the results of the limited trial, it can be seen that the results are in good category, so that digital media based on motion graphics is suitable for use for stunting education.

III.4   Evaluation

After the media development steps are carried out starting from needs analysis, media design, media development, media improvement, media testing to overall evaluation. The results of validation and testing of motion graphic-based digital media for stunting education are categorized as good, so that this digital media can be used as an alternative digital-based learning media that is suitable for use by educators in stunting education. This is also supported by the results of previous studies related to the development of motion graphics, especially those used in the learning process

IV. CONCLUSION AND RECOMMENDATION

IV.1 Conclusion

The results of the needs analysis related to the use of digital media obtained data that educators sometimes use digital media in learning in PAUD. The types of digital media used are digibooks, coloring applications, interactive videos, storytelling applications and interactive game applications. However, the most widely used digital media is interactive video. Based on this, the need for digital media is very necessary for learning. The digital media produced in this study is also a type of interactive learning video. The development of the media used in this research is motion graphics as an innovation of digital learning media. The results of the validation of material experts and media experts were then carried out with limited trials related to the developed media products. Overall, the digital media as a result of the development in this research is feasible to use and as an alternative digital media that can be used in learning, especially related to stunting.

IV.2 Recommendation

Digital media, the product of this research, can be used as an alternative solution in choosing media, especially when learning online. In addition to limited trials, extensive trials can also be carried out by taking into account the time and learning conditions. In addition to interactive video types of digital media, other types of digital media can also be developed, a combination of video, applications and others.

V. ACKNOWLEDGMENT

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