The validity of D-MENBOLA: Digitalization of football learning media based on articulate storyline 3

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The validity of D-MENBOLA: Digitalization of football learning media based on articulate storyline 3

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ABSTRACT

The COVID-19 pandemic has an impact on the learning process in all educational units, including higher educational units. This situation requires educators to be more creative and innovative in using learning media to transform knowledge and skills to their students. This study aims to describe the validity of interactive learning media based on articulate storyline 3 in the theory and practice of football coaching. This research included development research by adopting the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. The data collection instrument used a questionnaire that referred to the LORI (Learning Object Review Instrument) standard. The LORI standard consists of nine aspects of assessment, namely content quality, direction of learning objectives, feedback and adaptation, motivation, display design, interaction use, accessibility, development capabilities, and standard fulfillment. The data analysis technique used is descriptive quantitative and qualitative. The results showed that the level of feasibility/validity of the learning media named D-MENBOLA or digitalization of football learning media based on articulate storyline 3 iss declared very feasible/very valid. Based on these result, D-MENBOLA can then be used in the theory and practice of football coaching as one of the innovative learning media.

Keywords: Validity; D-MENBOLA; learning media; articulate storyline 3; football

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INTRODUCTION

In the current era, the application of technology in digital-based learning media is a major demand (Dewi et al., 2019). Moreover, the COVID-19 pandemic has had a negative effect on the world of education, including disruption of the learning process, and decreases access to educational facilities (Onyema, 2020). All educational units from basic education to higher education feel the impact. Universities around the world have moved towards online learning (Ali, 2020). The current distance learning process is utilizing and using computer-based interactive multimedia (Rianto, 2020). So that educators and students rely on technology to ensure learning can take place online (Onyema, 2020).

In terms of education, this pandemic actually opens up opportunities for all countries to improve the way of conveying and transferring knowledge by turning their attention to developing technologies (Toquero, 2020). The use of digital technology in the learning process must be integrated with the learning model to

achieve the learning objectives themselves (Sousa & Rocha, 2019). In the learning process in higher education, the use of digital technology as a learning medium can expand student learning experiences, especially in terms of independence and critical thinking (Wang et al., 2018). This is called a meaningful learning process. Lecturers must have competence in learning development, especially developing skills using innovative media (Mourlam et al., 2019).

The theory and practice of football coaching is one of the mandatory courses taken by students of the Sports Coaching Education study program, Ganesha Education University which aims to equip students with the knowledge and skills needed to play football which also refers to the Indonesian/Filanesian Football Philosophy. Many interactive learning media have been developed for soccer learning, including learning media that discuss basic soccer techniques and strategies using QR Code-based applications and KAHOOT (Bima et al., 2021), application-based learning media for junior high school students named TDSB (Akhmad et al., 2021), and learning media that present the basic techniques of playing application-based football (Al Munawar & Hendrawan, 2020). However, interactive learning media based on articulate storyline 3 with learning materials referring to Filanesia are not yet available. The material contained in Filanesia consists of (1) introduction to skills for first touching, passing, dribbling, shooting, heading; and (2) skill components for first touching, passing, dribbling, shooting, and heading (Danurwindo et al., 2017). Using digital-based learning media allows students to learn online more effectively and the atmosphere is more interesting (Moore et al., 2011). The material presented in the form of videos is more entertaining and fun so that it has an impact on better memory (Hsu, 2015). An increase in student performance and independence as well as intrinsic motivation (Yin et al., 2021), specifically on increasing motivation that appears in the learning process, terms of attention, self-confidence, and studens' satisfaction (Kaur et al., 2020). In addition to self-confidence and motivation, skills that lead to pedagogical practice have also increased due to the delivery of enhanced material instructions in the form of videos (Chen et al., 2021).

Currently, there are many digital-based learning media available to support online learning, one of which is articulate storyline 3. Articulate storyline 3 is an application supported by simple smart brainware with interactive tutorial procedures to help users format CDs, personal web, and word processors, through templates published both of offline and online (Darmawan, 2016). This software can also function as a medium for presentation or communication (Pratama, 2019). When compared to Microsoft Power Point, Articulate Storyline 3 can produce comprehensive and creative presentations and offers a lot of convenience in making learning objects in the form of simulations, quizzes, screen recordings to many other e-learning objects that allow interaction between lecturers, objects, and students to allow for multi-device interactive e-learning (Baker, 2016; Wilson et al., 2018; Sindu et al., 2020). This convenience helps users to produce effective learning media (Harnett, 2013). Users no longer need to use additional tools to create elements such as interactive video, simulation software, or high-quality audio (Chiasson, 2016). So that the articulate storyline is said to be able to compete with Adobe Flash media (Armi & Dewi, 2020), and effective in the distance learning process in the new normal era (Salsabila et al., 2020).

Based on the above, the purpose of this study is to describe the validity of D-MENBOLA, which is an interactive learning media based on articulate storyline 3 in football coaching courses. So that the findings of this study can show the level of accuracy of an interactive learning media which is then used in the learning/lecture process. The quality of the learning media developed must comply with applicable standards, one of which must meet a good level of validity (Hadza et al., 2020).

METHOD

This research was conducted using a Research and Development approach that adopted the ADDIE model which consists of five stages, including: Analysis, Design, Development, Implementation, Evaluation (Branch, 2009; Cheung, 2016). The ADDIE model has previously been used for curriculum development in several areas such as library instruction design and nursing further education development in Taiwan (Reinbold, 2013; Hsu et al., 2014). The ADDIE stage in this study is described as follows. First, analysis means analyzing the character of students, analyzing courses, analyzing learning resources in this case the software that will be used is the articulate storyline software 3. Second, design means designing the

development of learning media based on articulate storyline 3 or compiling flowcharts based on user needs and material characteristics learning. At this stage an evaluation questionnaire was also designed as an instrument in assessing learning media. Third, development is the development or continuation stage of the design of product designs that are developed to become a learning media based on articulate storyline 3 in football coaching theory and practice courses. The steps of this development stage consist of: (a) validation of learning media by media experts and soccer learning material experts, and (b) revision of learning media that refers to the assessment and input of media experts and soccer learning material experts. Fourth, implementation is a product trial or learning media to potential media users. The purpose of this trial is to determine the feasibility or practicality of the developed learning media. Media trials are conducted and the quality is assessed based on tests from material experts, media experts, small group trials, and field trials. Fifth, evaluation is the evaluation stage of the quality of the media after field trials. The purpose of this evaluation stage is to find out the product developed meets the valid, practical, and effective aspects.

Table 1. Learning Media Validation Criteria

Score Interval	Category
$3,5 \leq Sr \leq 4,0$	Very Valid (Very Eligible)
$2,5 \leq Sr < 3,5$	Valid (Eligible)
$1,5 \leq Sr < 2,5$	Invalid (Not Eligible)
$1,0 \leq Sr < 1,5$	Strongly Invalid (Highly Inappropriate)

(Sadra, 2007)

The evaluation instrument of media experts and material experts used in this study used the LORI assessment (Leacock & Nesbit, 2007). The LORI standard consists of nine aspects of assessment, namely aspects of content quality, aspects of direction of learning objectives, aspects of feedback and adaptation, aspects of motivation, aspects of display design, aspects of interaction use, aspects of accessibility, aspects of development capabilities, and aspects of meeting standards (Leacock & Nesbit, 2007). The category of choice for media validation and material validation uses Scale 1, if the media is rated very poor; Scale 2, if the media is rated less; Scale 3 means good; Scale of 4 means very good. Analysis of the data used to test the feasibility of the media through a validation sheet that has been assessed by the validator. Then, the next step is to compile all the data results obtained for each component of each aspect of the assessment. The final step is to calculate the total average score. The score is converted into interval data using a Likert scale with a scale of four to determine the quality of the developed media, both from the material and media aspects. Therefore, the conversion of four scales is presented based on Table 1 above (Sadra, 2007). The learning media in this study must at least reach the valid/feasible category to be used in the next stage.

RESULTS AND DISCUSSION

The results obtained are part of the stages of the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) and will be explained in more detail as follows. In the analysis stage, the characteristics of students, courses, and learning resources have been analyzed. The students in question are students of the Sports Coaching Education Study Program, Ganesha University of Education. Lack of interactive and interesting learning media for students in football coaching theory and practice courses. So that it is difficult for students to achieve the learning outcomes that have been set. So that the selected learning resource, namely the articulate storyline 3-based learning media, is designed to be able to continue learning in an interesting, interactive, practical, and able to achieve learning outcomes. Moreover, the effectiveness of using this media was once revealed by Robertson and East who stated that only 32% of students got good grades, but after the Articulate Storyline 3 learning media was implemented, there were 95% who met the grades according to the predetermined curriculum (Moore et al., 2011). The use of IT-based learning media, namely audio-visual, is better than the use of print media (Adam, 2014).

The design stage of this learning media begins with making the design of the developed learning media. The first step in designing this learning media is making a navigation flowchart for the use of learning media. This flowchart serves to facilitate the use of learning media by students. After making this flowchart,

proceed with making a prototype of the developed learning media. The learning media prototype that is developed is structured in a simple, clear, and contains several parts such as: (1) indicators of learning achievement, (2) material in the form of learning texts and videos, and (3) learning evaluation.

The development stage produces a product that is still in the form of prototype I. The making of this learning media uses the articulate storyline 3 application as a layout and quiz maker application, and Adobe Premiere pro is used as a learning video editing application and case studies on the quiz menu. The learning media developed has several aspects in it, namely textual and audio-visual learning materials, as well as evaluations to test students' understanding of the material provided. The results of this prototype I named D-MENBOLA can be seen from Figure 1 - Figure 4 below.

Figure 1. Initial Display and Menu Page

Figure 2. Learning Outcome Indicator Pages

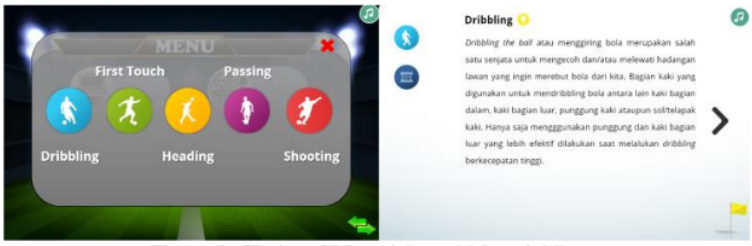

Figure 3. Choice of Materials and Material Pages

Figure 4. Multiple Choice and True False Evaluation Pages

In the implementation phase, a media trial was conducted and saw the quality of the media based on the media expert test and the material expert test using a questionnaire. Media experts consist of two lecturers

from the Education Technology Study Program, Ganesha University of Education. Experts in soccer learning materials come from the Physical Education, Health, and Recreation study program, as well as from the Sports Science study program, Ganesha University of Education. Experts/validators assess the feasibility of this media quantitatively and qualitatively.

In this evaluation stage, input and review results from media experts are shown in table 2. Input and assessment from validators become a reference for improving this learning media. So that the next stage, namely trials in small groups and field trials/trials in large groups, can be carried out to see the practicality and effectiveness of the developed learning media.

Table 2. Media Expert Review Results

No	Enter Validator	Appearance Before Revision	Display After Revision
1	Validator 1: The opening screen adds courses, topics, and program objectives.		
2	Validator 1: Changing the appearance of navigation buttons out, home, settings.		
3	Validator 1: Added a hint page.	-	
4	Validator 1: Added developer page.	-	
5	Validator 1 & 2: Adding an image to each material.		
6	Validator 2: The video is better filled with the voice of the narrator so that the content is easier to understand while at the same time accommodating students who have an auditory learning style.	-	

The validity of D-MENBOLA is based on the assessments of two media experts and two material experts. The following is a summary of the results of the validity of the media and the validity of the material that has been obtained, which can be seen in table 3. Based on the data in table 3, it can be

concluded that the D-MENBOLA media meets the validity criteria with very valid/very feasible criteria as one of the multimedia football coaching lectures. Media design that is effective, easy to use, easily accessible to effectively used by all learning styles of students. Meanwhile, the quality of the material presented is orderly and detailed, leading to critical thinking based on problem solving. So that the D-MENBOLA media can be implemented into the learning process and is able to improve student learning outcomes. Improving the ability of students from understanding to being skilled must be trained using 21st century learning concepts that are loaded with the values of independence, creativity, and access to technology that support the improvement of students' reasoning power. Critical and creative thinking skills can be measured through learning models based on problem solving, analyzing and evaluating problems, and finding solutions (Priyatni & Martutik, 2020). While the use of technology media can improve students' learning achievement, but technological media cannot replace the role of educators as a whole (Sefriani et al., 2020). Improving students' cognitive abilities can occur thanks to the use of technology by educators and creating an active learning atmosphere (Shi et al., 2020). It is known that the lecturer is one of the important elements in the learning process who has a role as a connector for information, motivator, and guide for students (Juniantari & Santyadiputra, 2021). The role of lecturers in creating a comfortable environment and intense attention can provide academic success to their students (Soares & Lopes, 2020). The integration of technology into distance learning processes also has an impact on flexible teaching in higher education (Khan et al., 2016).

As one of the multimedia in learning, D-MENBOLA is designed and made so that students can learn independently and effectively in this distance learning situation. Learning that is supported by the use of multimedia technology makes the messages/materials conveyed easier to remember and understand (Rahimi & Allahyari, 2019). This is in line with previous research which states that the integration of technology with the learning environment will have a positive effect on the learning process (Khezrlou & Ellis, 2017; Aldera & Mohsen, 2013; Sato, 2016). D-MENBOLA is made by having several features such as teaching materials according to the curriculum, material delivered in textual and audio visual form, quizzes/practice questions along with a question review menu that aims to measure the extent to which students understand all the available materials. So that this media is related to the characteristics of students who come from generation Z whose learning type is active, auto-didactive, free/has a strong desire to choose in what way and how to learn (Iftode, 2020).

Table 3. Validation Results by Media Experts and Material Experts

Aspect of Validation	Validator	Total Score	Number of Indicators	Maximum Score	Average Score		Score Interval	Category
Media Validation	1	26	7	28	3,71	3,78	3,5 ≤ Sr ≤ 4,0	Very Valid (Very Worthy)
	2	26	7	28	3,71			
Material Validation	1	38	10	40	3,8			
	2	39	10	40	3,9			

Even though it has fulfilled the validity aspect, the D-MENBOLA media continues to go through the refinement/revision stage according to the validators input. One of the important inputs is the inclusion of a narrator's voice in each video material to accommodate users with auditory learning styles. The provision of multimedia content, specifically in learning, must be appropriate and adopt students' learning styles based on visual, auditory, and kinesthetic (Çakiroğlu et al., 2020). If you want to increase students' learning achievement, the development of learning media must pay attention to students' learning styles, previous students' knowledge and working memory capacity (Siddique et al., 2019). This is in line with previous findings which state that individuals have different preferences in processing certain information so that learning achievement can be a product of the interaction of teaching and learning styles (Willingham et al., 2015).

Thus, the development of learning media must pay attention to the development of science and technology so that it can be conveyed optimally (Agustiningsih, 2015). So that the validated learning media

is suitable for use in the learning process (Sefriani et al., 2020; Utari et al., 2020). The development of a research product that has been validated becomes more convincing to use for its users (Hoenig et al., 2018). Seeing the validity of the D-MENBOLA media which is in very valid criteria, the next step for the media can be tested on small groups to see its practicality.

CONCLUSION

The conclusion of this study is the learning media based on articulate storyline 3 in the theory and practice course of football coaching named D-MENBOLA is the result of a revision of the development process that follows the stages of the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The product development process underwent several revisions from media expert validators. This research has very good validity based on the assessment of material experts and media experts. Evaluations from media experts obtained an average score of 3.7 and those from material experts obtained an average score of 3.85. So that the total average result is 3.78 which includes very valid/very feasible criteria. However, this study has not yet reached trials in small groups and trials in large groups to see the practicality and effectiveness of D-MENBOLA. So that it is hoped that further research can reveal the practicality and effectiveness of D-MENBOLA on learning achievement and students' motivation.

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CONFLICT OF INTEREST

The Author declared that there are no conflict of interest in writing this article.

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