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The Development of Podcast Based Learning Media on Social Studies to Improve Students' Digital Literacy

Abstract

Technological developments in the 4.0 revolution affect aspects of life, including the educational aspect. Currently, the learning components are technology-based, such as podcasts as learning media. So that it becomes an opportunity for students to understand digital literacy through podcasts as a learning media in the classroom with social studies subjects. This study aims to describe the creation of podcast-based social studies learning media model to improve students' digital literacy. The research uses Research and Development with qualitative and quantitative approaches, data collection techniques using observation, interviews, document studies, focus group discussions, and data analysis techniques using regression correlation. The research subjects are students at Universitas Pendidikan Indonesia, Bandung, Indonesia. The results from these studies showed that using digital-based learning media, namely podcasts in social studies subjects, had a good impact and a significant effect on students' digital literacy skills. The application of podcast-based learning media products will work well if they are supported by several funding elements, namely: 1) the involved issues are contemporary; 2) the use of the latest design; 3) in the design of materials, there is a collaboration between lecturers and students.

Keywords: media, learning, podcasts, social studies education, students

Introduction

Advances in technology and information in the era of the industrial revolution 4.0 allow for transformations that combine the physical, digital, and biological worlds through technologies such as artificial intelligence, the Internet of Things, augmented and virtual reality, 3D animation, podcasts, and next-generation robotics (Schwertner, 2017). Likewise, society 5.0 is human-centred, so artificial intelligence will transform in increasing human capabilities that have opportunities for humanity. It needs to be supported by increasing digital literacy capabilities in education, and the results show a positive impact on learning and teaching styles. Learning supported by technology and digitisation will lead to more innovative forms of teaching and learning that involve real-world problems (Shapley et al., 2011; Saidin et al., 2015). One of the developments is through using technology-based learning media, according to the latest developments. During the COVID-19 pandemic, podcasts are one of the future broadcasting media widely used for learning in Indonesia (Lase et al., 2022; Blake, 2020). Podcasts can be easily accessed and downloaded for free through several applications such as Spotify, Google Podcasts, Anchor, Podbean, or the website. Several results showed that using various media applications to explain concepts increased understanding and supported greater collaboration between students (Geer & Sweeney, 2012).

Podcasting has been used by university academics in many ways. These approaches are essentially focused on audio recording. However, Palmer and Devitt (2007) developed interactive case-based content, which also had great potential as a learning media. Podcasting used in this project requires only a digital voice recorder and software to upload the recordings (Hew, 2009; Scutter et al., 2010). Podcasting in higher education appears to be most commonly used to provide recordings of past lectures to students for review and revision, explanation of difficult concepts, explanation of assessment requirements, suggestions for further reading or provision of feedback on assessment tasks (Lonn & Teasley, 2009; McGarr, 2009). Thus, the researcher assumes that learning outcomes can be improved by using various innovative podcast-based learning media models to improve students' digital literacy.

Research Problem

Based on the background of the problem, the formulation of the research problem is how to design podcast-based social studies learning media to improve students' digital literacy. In more detail, the research problems formulated are:

1. How to develop podcast-based social studies learning media to improve students' digital literacy?
2. How to apply podcast-based social studies learning media products to improve student digital literacy?
3. How do podcast-based social studies learning media affect increasing students on the digital literacy model?

Research Methodology

General Background of Research

This research uses “Research and Development”, according to Borg and Gall (1989, p. 782). What is meant by the research and development model is a “process used to develop and validate educational products”. This research is also called ‘research-based development’, which emerged as a strategy to improve education quality. In addition to developing and validating educational outcomes, Research and Development also aim to discover new knowledge through ‘basic research’, or to answer specific questions about practical problems through ‘applied research’, which is used to improve educational practices.

Research Sample

Sampling in this study used a purposive sample, namely undergraduate students at the Social Studies Education Study Program, Universitas Pendidikan Indonesia, Bandung, Indonesia. By using the small sample technique, the sample used was 98 people from 324 populations.

Instruments and Procedures

Data collection techniques in this study used observation, interviews, document studies, Focus Group Discussions and learning media assessment instruments. Research and Development procedures adopted from Borg & Gall (1989, p. 775) include ten steps, namely: *Research and information collecting, Planning, Developing a preliminary form of product, Preliminary field testing, Main product revision, Main field testing, Operational product revision Operational field testing, Final product revision, Dissemination and Implementation.*

Data Analysis

The data analysis technique used is an interactive analysis model consisting of data collection, data reduction, data display and inference/verification (Fraenkel & Wallen, 2006): a) Data Analysis of Expert Validation Instruments, Expert Validation Instruments uses a rating scale so that the data analysis technique uses data analysis proposed by Creswell (2008); b) Analysis of Student Assessment Data and Responses to Podcast-Based Social Studies Learning Media The student's assessment instrument for multimedia and student responses after making podcast-based Social Studies learning media uses a Likert scale so that each answer choice in the form of qualitative data is converted into quantitative data.

Research Results

Smart Podcast-based Social Studies Learning Media Development

Developing podcast media for social studies learning uses a type of research and development (R&D) with a waterfall model. This model is the first to be systematic. The waterfall model's advantage is that it can identify requirements long before programming begins and limit changes to requirements as the project progresses (Sommerville, 2011).

a. Requirement Definition

The requirements analysis stage is the stage of establishing features in the software according to needs through consultation with users (Sommerville, 2011). Requirements engineering provides the basic mechanism for software design and construction. With the needs analysis, the software developed has a very high probability of matching the user's needs. So, in the development of this podcast media, it has been agreed that the features in the software used are the types of audio media connected to the audio maker application system, such as Anchor, Spotify, etc. According to Sommerville, there are four main activities in the needs analysis process: 1) Feasibility Study; 2) Requirements Elicitation and Analysis; 3) Requirements Specification; and 4) Requirements Validation.

In this phase, the researcher will determine the goals to be achieved in learning by determining its instructional design, the instrument used for data collection is the needs analysis, namely a questionnaire containing questions according to needs. Based on data processing, there are results that the most popular digital

learning media used are the YouTube platform and podcasts. It shows that digital learning media using the youtube platform and podcasts generate interest in student learning in social studies learning.

b. System and Software Design

Based on student needs resulting from the survey, a system design is carried out and allocating the needs in the learning media by building an overall architecture (Sommerville, 2011). The design of learning devices using software involves identifying and describing the main abstractions of the software. This design pays attention to predetermined specifications, including the relationship with hardware commonly used by users. The software design development process has various activities depending on the type of software to be developed, but in general, it has four main activities, namely 1) Architectural Design; 2) Interface Design; 3) Component Design; 4) Database Design. All of the above activities produce a series of overall software designs, starting from the design of the user interface to the database used. The results of the interface design plan are validated by the user (Pressman, 2015). If some parts are considered inadequate or inappropriate, a redesign is required.

c. Implementation and Unit Testing

In this stage, the design implementation determined in the previous stage is carried out (Sommerville, 2011). Software development tools are used to realise the designs that have been made. One of the main activities in this stage is the implementation of audio uploading in the application. The tool used is a smartphone as software using the paid Anchor and Spotify applications. Anchor is an application for producing podcasts, which can be distributed directly to various platforms, one of which is Spotify. How to make a Podcast using Anchor. First, we must download the Anchor application on the Play Store or App Store. Log in or register using a Google account or e-mail. After that, click the "I want to make a new podcast" menu. Click the "+" icon to start recording. Make a recording and add background music if you really want to add it. Click "Save" if your recording has finished. Give your recording a name in "Add to episode". When finished, click "Add recording to episode". Now your podcast has been saved in the "Library" folder. Click "Publish" if you want to publish it and fill in complete podcast details, such as the title and description. After that, select the podcast cover and select the podcast category. Then tap "Publish". Done, broadcasts recorded on Anchor will automatically enter the Spotify platform. The following are the results of Sociopedia's podcast media products in social studies earnings that have been produced.

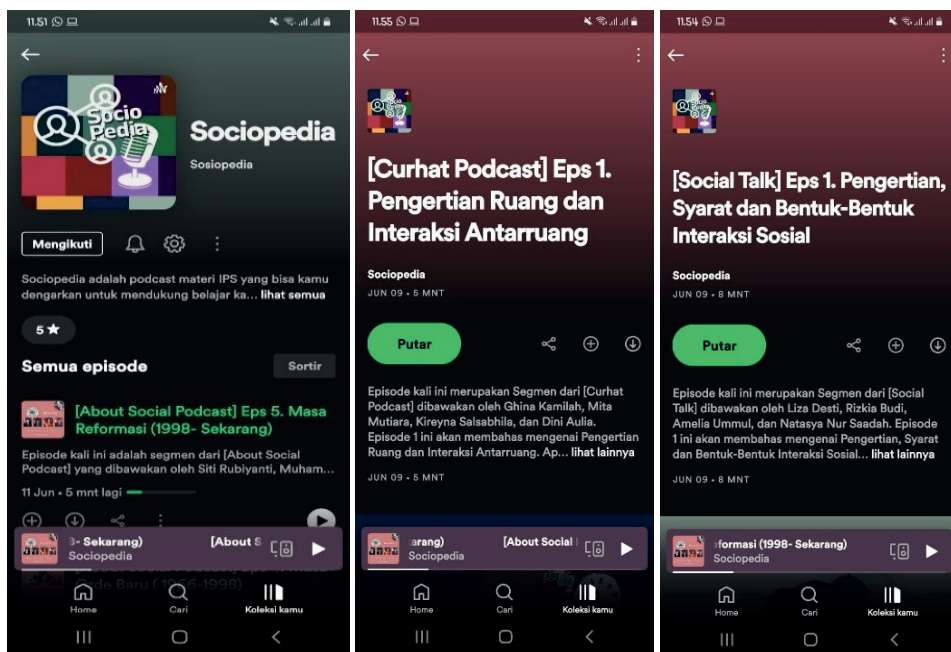


Figure 1. Sociopedia Podcast Products

d. Integration and Validation System Testing

Integrate each piece of software and tested as a complete software to ensure that the software meets specifications. Software testing is carried out in three levels: testing each software component separately, testing the software as a whole after the integration process, and testing the software as a whole using user data (Sommerville, 2011). The validation results of experts/media experts supported by several inputs are our consideration as a learning media development team so that this learning media becomes more qualified.

1) Media Expert Validation

Media feasibility testing is carried out by experts whose field of study is multi-media.

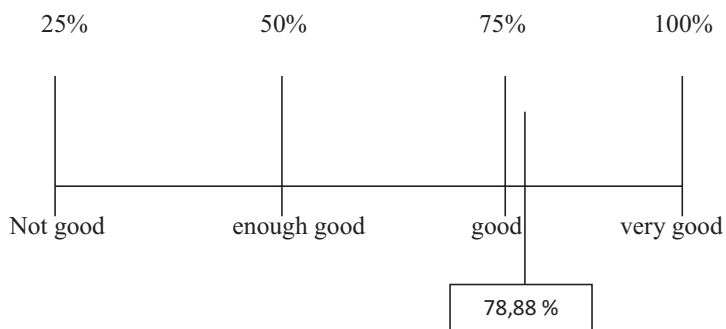


Figure 2. Media feasibility test results

Based on the validation level category, this assessment score can be interpreted that podcast learning media in ICT literacy lectures and social studies learning media are both used.

2) Material Expert Validation

The feasibility of multimedia in terms of material is carried out by social studies learning lecturers. If described using a continuum rating scale, the results of the assessment are in a good position, namely as follows:

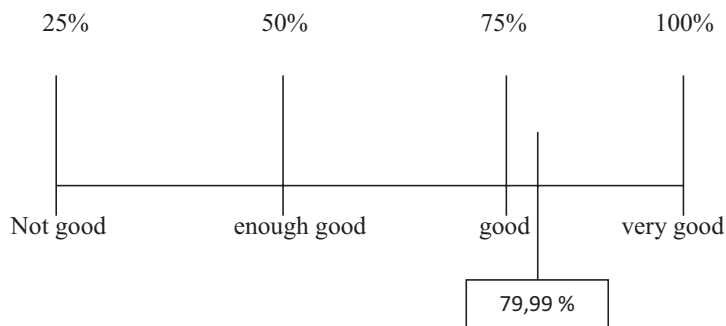


Figure 3. The results of the social studies material and learning expert test

Based on the validation level category, this assessment score indicates that the social studies material on podcast learning media is good to use.

Application of Podcast-Based Social Studies Learning Media Products to Improve Student Digital Literacy

Stages of Application of Podcast-based Social Studies Learning Media

Based on the results of focus group discussions with experts on multimedia learning and social studies material content, as well as practitioners in the field (Lecturers of Learning Media) in general, the stages of making podcasts are carried out following the following pattern:

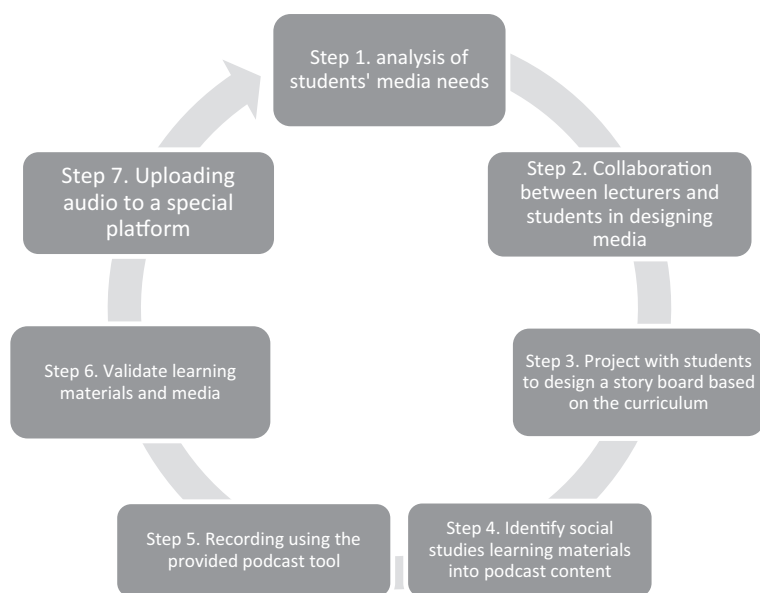


Figure 4. Process Flow of Podcast Media Application in Social Studies Learning

Based on this pattern, the implementation of the podcast-based social studies learning media development process is carried out through stages: a) Planning – at this stage, lecturers and students prepare for social studies learning media; b) Production Stage – in this stage students and their groups determine applications and optical media podcast-based learning; c) Finalization Stage – at this stage, students carry out the finishing stage of podcast-based social studies learning media products, including students recording audio with groups using podcast tools.

Student Perceptions of the Application of Podcast-Based Social Studies Learning Media

Based on the data processing carried out on the questionnaire on aspects of the application of Podcast-based Social Studies learning media in the ICT Literacy and Social Sciences ICT Learning Media courses, 98 student respondents who carried out joint projects were collected. Related to research on variable x, there are the following results:

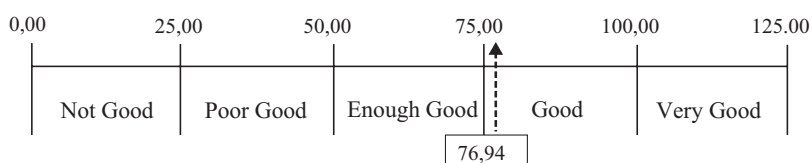


Figure 5. Rating Scale for the Implementation of Podcast-based Social Studies Learning Media

Based on this classification, it can be said that variable X is in the 'Good' category, so it seems that it is already high in the application of podcast-based social studies learning media in ICT literacy lectures and social studies learning media.

The Effect of Applying Podcast-Based Social Studies Learning Media on Increasing Students' Digital Literacy

Based on the results of the correlation test between the variables of the application of podcast-based social studies learning media to the improvement of students' digital literacy (Y), the results of the regression test obtained the results as described in the following table:

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,666 ^a	,443	,428	7,944

a. Predictors: (Constant), X

The value of R² (R Square) from the Model Summary Table shows that 44.3% (0.443 x 100%) of the variance "Y variable" can be explained by changes in the

variable 'X'. Thus, the application of podcast-based social studies learning media has a significant positive effect on increasing students' digital literacy skills.

Discussion

The Learning media essentially functions as a tool to convey information. It is related to the function of learning media, namely as a tool to convey learning-related knowledge in the classroom (Saripudin & Komalasari, 2021). Through research and development with the waterfall model, researchers provide innovative ideas for digital learning media using the podcast platform. Through user surveys (students) related to the selection of learning media, Youtube and Podcasts are in great demand. One of the substances of this learning media is audio communication which can stimulate learners to learn (Kress, 2003; Ashaver & Igyuve, 2013).

The use of social media by social studies educators makes it possible to introduce participatory learning along with civic goals such as deliberation, participation and pluralism (Komalasari & Anggraini, 2020). This social media has emerged as a civic and social landscape to conduct campaigns and social movements. Using social media will certainly provide an opportunity for developing students' abilities, especially by introducing the development of digital literacy. Media is a communication component, namely as an envoy from the communicator to the communicant media is also an intermediary or messenger from the sender to the recipient of the message. Digital literacy is also a 21st-century skill that learners must possess. Learning content is expected to be able to meet the skills of the 21st century; 1) Learning and Innovation skills include mastery of diverse knowledge and skills, learning and innovation, critical thinking and problem-solving, communication and collaboration, and creativity and innovation; 2) digital literacy skills including information literacy, media literacy, and ICT literacy; 3) career and life skills include flexibility and adaptability, initiative, social and cultural interaction, productivity and accountability, and leadership and responsibility (Abdulkarim et al., 2021).

The design of social studies learning media using the Podcast platform needs to be equipped with supporting tools, such as smartphones, and Anchor and Spotify applications to create podcasts. The advantages of this podcast media can be an innovative way to create technology-based learning media, this is in line with the results of research, which show that more students download materials to study (Fernandez et al., 2009). The design of this learning media has been validated by media and social studies learning experts so that podcast-based

social studies learning media can be said to be suitable for classroom learning activities.

In addition, through the project of making learning media podcasts by students, it can support the improvement of students' abilities in studying social studies material, presenting social studies material related to contemporary issues, and creating and designing podcast designs which are then expected to be carried out in an integrated manner between students and lecturers. The results of research published in international journals by Qasim and Fadda (2013) reveal that there are four possible reasons to integrate podcast media in learning: 1) podcast objectives and student learning motivation; 2) discrepancies between podcast design and students' expectations, needs, and preferences; 3) encouragement of teacher and student preparation; and 4) mobile learning experience. The implications of this study for future practice and further research. In this case, the teacher is required to be able to master the technology and be able to use it in learning (Kristiawan & Muhaimin, 2019).

The application of podcast-based social studies learning media has been carried out according to the stages that have been carried out from planning to implementation in ICT Literacy courses and social studies media so that it has a good impact on digital literacy skills. Digital literacy skills as the ability to understand and use information from various digital sources (Gilster, 1998). Students' awareness of using digital technology is at a very high level. There are several characteristics/elements that make up digital literacy (Meyers et al., 2013), namely being able to develop skills consisting of psychomotor, cognitive, and self-efficacy for social use, then showing literacy at different levels. It is shown by the use of digital technology to produce content, new or evaluating experience, able to develop contemporary digital media such as audio podcasts.

Other capabilities resulting from the application of joint projects between lecturers and students in creating audio podcasts are being able to use digital technology as a creative or communicative tool or critically involved in media demonstrations, including compliance with social norms (culture), constructing media content, and using technology effectively. The correlation and regression tests found from this study indicate a significant linear relationship between the application of social studies learning media to the improvement of digital literacy skills. It is evidenced by the ability of students to create designs, be actively involved in social media both in communication and sharing information, seek and investigate information to recognise various digital works, the ability to use digital technology starting from creating, reading, criticising, sorting and redistributing information (Wastiau et al., 2013; Camilleri & Camilleri, 2017). Thus, it

can be said that podcasts have a good influence and impact on increasing student digital literacy.

Conclusions

Based on the results of the study, it can be concluded that the use of digital-based learning media, namely podcasts in social studies subjects, has a good impact and has a significant mutual effect on students' digital literacy skills. It needs to be supported by the ability to plan, design, implement, integrate, and validate, which must be carried out appropriately and organised. It impacts the results used, if good planning will provide an actual digital-based learning media design according to the needs of students. Planning with research and design methods and waterfall models provides convenience and explanations that explain determining planning to implementation. The application of podcast-based learning media products will work well if they are supported by several funding elements, namely: 1) the issues involved are contemporary; 2) the use of the latest design; 3) in the design of materials, there is a collaboration between lecturers and students. With this done according to the planning, ICT Literacy learning media can improve students' digital skills and creativity and provide varied and efficient use of media for learning in schools.

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