Feasibility of volleyball technics video in physical education for senior high school

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ABSTRACT

This study aims to (1) identify the needs of instructional video media in subjects related to physical education. (2) Designing instructional video media on subjects related to physical education. (3) Measuring instructional video media's validity, practicality, and effectiveness on Physical Education subjects. This study uses the ADDIE Research and Development Model approach, which is carried out through 5 stages, consisting of (1) the analysis phase, (2) the design phase, (3) the development phase, (4) the implementation phase and, (5) the evaluation phase. The research subjects were one teacher and 30 students. The results of the study are: (1) Identification of the need for instructional video media in physical education subjects shows that learning video media is needed as an alternative medium that can be used to support the teaching and learning process. (2) The design of instructional video media includes several stages, including conducting curriculum analysis, preparing teaching material scripts, and designing products. (3) Analysis of the validity, practicality, and effectiveness of learning video media products. The content/material validation results and design construct validation by experts obtained very valid categories so that learning video media products can be tested to determine the level of practicality and product effectiveness. The level of practicality and effectiveness of the product meets the criteria of being very practical and very effective.

INTRODUCTION

Education is crucial in advancing society, mainly cultivating the younger generation as future leaders. To optimize this procedure, many techniques and instruments have been devised (Puspitarini et al., 2018). In the contemporary period characterized by advanced technology, multimedia is crucial in facilitating the comprehension of educational material by integrating visual elements and textual information (Tayoush et al., 2023). The information refers to the content from specific academic disciplines disseminated by an instructor to pupils via designated instructional media. In contemporary times, students fulfill a dual role in the communication process. They serve as passive recipients of communications and actively engage in storing and retaining those messages, transforming communication into a two-way process. The effectiveness of student learning outcomes can be enhanced by using appropriate learning media in learning activities (Suhairi et al., 2020).

Moreover, learning can be conceptualized as a dynamic process wherein students interact with their surrounding environment, resulting in a transformative change in their behavioral patterns towards a more desirable trajectory. Effective communication is crucial in disseminating knowledge (Hasibuan et al., 2018). The learning process is one of the determinants of whether or not the graduates produced by the education unit are competent, integrating the development of students' intellectual skills. Excellent and varied learning tends to have varied thinking skills as well. On the other hand, if learning is done monotonously and does not vary, the graduates formed are similar to the process that occurs.

All subjects in schools require variations in the material delivery method, which is also influenced by the learning media (Solihin, 2020). The more interactive the learning media, the more capable of conveying various forms of messages, such as text, images, sound, and audio-visual. Some subjects require media that can get complex messages, such as subjects that require much practice (Astuti et al., 2022). For example, physical education and health subjects have learning characteristics that are only sufficient if delivered theoretically. This requires media that can present material in various ways so that students can easily understand the basic concepts to practice material for these subjects. The subject of volleyball in physical education is one of the materials in class X, which has many internal terms that students need help understanding, and the amount of material that must be studied can also cause difficulties for students. Because volleyball is small, adequate learning media must support its learning efforts. Media development as a learning resource is crucial for physical education teachers (Ketaren et al., 2023).

The development of science and technology is currently developing rapidly and also influences the development of the world of education (Nurhikmah et al., 2021; Sukmawati et al., 2022; Nurhikmah et al., 2021; Nurhikmah et al., 2023). One of the influences of technology in education is its use in the learning process as a learning medium. Technology in the current learning process is very possible because most schools have facilitated tools to support using technology in the learning process (Imran et al., 2023). Utilizing technology as a learning medium can serve as a means to overcome the limitations in the learning process, maximizing learning objectives (Febriati et al., 2022; Imran et al., 2022). Learning media is everything that can be used to convey a learning message. This is to the understanding of media, which states that the media, if understood broadly, are humans, materials, or events that build conditions that enable students to acquire knowledge, skills, or attitudes. AECT (Association of Education and Communication Technology 1997) in Shoffa et al., (2021) defines media as the form and channel used to convey messages or information.

I am learning media as a communication tool in the learning process. Learning media are all materials and physical tools that may be used to implement teaching and facilitate student achievement towards teaching. Teaching media as a tool in the learning process can be used both inside and outside the classroom (Solihin, 2020). The media is used inside and outside the school (Nurhikmah et al., 2022). The media is used in the context of communication and interaction between teachers and students in the learning process through video learning media as a series of processes or activities to produce a learning media based on existing development theories (Daryono et al., 2021). Video learning media is developing spoken and written theories, which are converted into more interactive video media (Sinurat et al., 2022; Bakri et al., 2020). In designing learning media, several things need to be considered in the selection of learning media, namely: 1) learning targets, 2) learning materials, 3) learning techniques, 4) availability of equipment used, 5) teacher character, 6) students' desires and abilities, 7) learning atmosphere while walking.

Some previous studies stated that research on the importance of learning media greatly influences physical education learning outcomes (Mislan & Santoso, 2019). This study should help instructional designers and teachers make their videos as helpful as possible (Beege et al., 2022). findings for designing a video-based learning system aligned with the Socratic reflection prompts are discussed (Hsu et al., 2022).

The results of initial data collection through interviews, observations, and documentation with class X teachers of SMA Negeri 1 Takalar during the COVID-19 pandemic show teachers still need to be more varied in teaching volleyball game material, namely practice, without giving students primary volleyball game material. So that students cannot receive volleyball game material well. As for student learning outcomes, several problems were found, such as decreased student interest in

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learning and boredom because they needed to have the opportunity to ask questions and get an explanation from the teacher. The teacher's role in achieving learning success during the COVID-19 pandemic must be supported by learning media products that can make students receive learning materials well.

Moreover, a need exists for more student engagement and attentiveness throughout the presentation of theoretical concepts and practical demonstrations in the context of volleyball games. There is a perception among specific individuals that this particular game has frequently been employed to the extent that they no longer find it necessary to actively engage with the instructional content provided by the teacher, resulting in a sense of boredom towards the repetitive pedagogical approach. In addition to exhibiting apathy towards pupils who perceive volleyball games as a means to avoid re-engaging with the teacher's explanations, many students show reduced levels of engagement in the domain due to experiencing monotony stemming from repetitive movements.

Based on the problems found, the solution that can be offered is the development of learning video media that will help students learn. The research aims to identify the need for learning video media, design learning video media, and measure the validity, practicality, and effectiveness of learning video media in class X physical education subjects at SMA Negeri 1 Takalar. The contribution of this research on learning media is that it will be easier for teachers to convey the material, and students will be more motivated in learning as we know. The benefits of using videos in learning include increasing student motivation, making students enjoy learning, and substituting teachers in explaining the material.

METHOD

This research used the type of research and development. Research and development is a research method used to produce a product. The ADDIE (analysis-design-development-implement-evaluate) model in Figure 1 model is the research model used in developing this instructional video media. The subjects in this study were two validators consisting of 1 validator, an expert in design/learning media, Dr. H. Abd—Haling, M.Pd, and one validator expert on content/learning evaluation materials, Dr. Suwardi, M.Pd. At the same time, the subjects for the practicality test were one teacher and a class X student of SMA Negeri 1 Takalar, which consisted of 5 students for the small group test and 30 students for the extensive group test. The object of this research is the development of video media.

Figure 1. ADDIE Model

The data collection technique is an integral part of the research process. This stage is carried out before the research proposal is approved until this research is completed. The data collection techniques used to collect data in this development research are questionnaires and interviews. Validity data was obtained through content validation and design construct tests by experts on the design of learning video products. The results of the content validation test and design constructs by experts using a scoring scale of 1 to 4. Suggestions from the validator then become material for improving the developed product. The created product design was revised based on several expert suggestions through product validation tests in the context of content, constructs, and media. Each suggestion is constructive, explaining the shortcomings and weaknesses of the teaching materials' product design.

Suggestions and input from the media validator are to improve the video quality that will be used in the learning process and reduce the sound of the music in the video so that students do not focus on the music but on the material displayed. Researchers have also made editing improvements based on these suggestions to improve product output. Suggestions and input from the content/material validator increase the duration of the video so that the material presented is more explicit and complete. Based on this suggestion, the researcher has improved by these suggestions and inputs. The footage includes learning objectives and information related to theory and practice on basic volleyball techniques. Practicality data was obtained from the responses of students and educators who directly observed the learning process in each meeting by assessing three practical aspects: ease of use, attractiveness of presentation, and product benefits. The purpose of the practicality test in this study was to determine the accuracy and ease of use of teaching materials that have been produced. Practicality data was obtained by using a score on a scale of 1 to 4 in each aspect of the observation. The effectiveness data was obtained by giving a linear test with the subject of the volleyball game as the material in the developed learning video. The goal is to find out the impact on the target users. It is considered adequate if the learning outcomes of class X SMA Negeri 1 Takalar students meet the minimum completeness criteria and or experience increased learning outcomes after using learning videos.

RESULTS AND DISCUSSION

Results

The current learning process requires many ideas and innovations; this is due to the outbreak of the COVID-19 virus, which causes learning to be carried out online. Based on the results of the needs analysis obtained through in-depth interviews by students who are taking physical education subjects and interviews with physical education subject teachers, it was found that the lack of knowledge of students in online learning during the pandemic because during the learning process, students did not understand the delivery of material and some This is due to differences in student characteristics in understanding the material presented and difficulties in accessing material in online learning platforms because they have to be online and require internet access.

As designed in the lesson plan, practical learning and a good knowledge transfer process must have an exciting core in this physical education subject. Based on one of these benefits, learning media can be used in the COVID-19 pandemic situation, which requires learning to be carried out online because it can make it easier for teachers to teach, especially in the process of delivering material (Sujarwo et al., 2020; Sukmawati et al., 2022). Then, the benefit for students is that it can make it easier to access and understand the material presented. This research produces a video learning media product that is valid, practical, and effective, so it is necessary to go through 5 stages in the order of the stages of the ADDIE development model, namely the analysis stage, the design stage, the development stage, the implementation stage and the evaluation stage which is described in detail as follows:

Description of the Need for Development of Learning Video Media in Physical Education and Health Subjects

The initial stage carried out on the ADDIE model is analysis. At this stage, observations and interviews were carried out in collaboration with the Pesjaskes subject teacher at SMA Negeri 1

Takalar to obtain the data needed to make learning video media products. These need to be analyzed are curriculum analysis, student character analysis, and needs analysis. The product developed by the author in this study is a learning media in the form of learning videos for students of SMA Negeri 1 Takalar for subjects in physical education.

This curriculum analysis was conducted by interviewing the Physical Education subject teachers at SMA Negeri 1 Takalar regarding the curriculum used, core competencies, essential competencies, and materials in physical education subjects in the 2013 curriculum. The following are core competencies and critical competencies used in learning physical education, the subject of volleyball, and the indicators the researcher has designed. Core competencies, necessary competencies, and indicators of learning material. The volleyball game in the physical education subject will be used as a reference for preparing material for the learning video.

This student character analysis was conducted to determine the knowledge and abilities of the students. This analysis was performed by seeking information from class X's physical education subject teacher. The research subjects used were class X students, a total of 32 students. According to the physical education teacher, the characteristics of the students in this class are active in the learning process. Students are engaged in discussing, asking, and communicating. Students will actively ask the teacher if they need help understanding the material. Students are also active in solving problems given by the teacher.
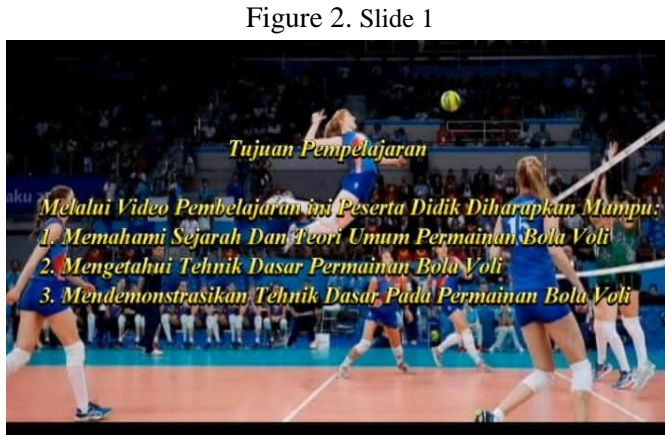
This material analysis will discuss the overall picture of the Volleyball Game Material given to students. Essential competencies and indicators in physical education materials will then be designed and compiled into learning videos. Developed. The sub-materials presented in the learning video include a basic technical introduction to volleyball games and a volleyball game movement technique tutorial. The allocation of learning time, especially on the volleyball game material in the physical education subject, is three and two weekly meetings. One meeting 3 hours of lessons (3 × 40 minutes). So, the volleyball game lesson material takes a total of 2 weeks. In the existing facilities at the school to support the running of learning media developed by researchers. At SMA Negeri 1 Takalar, supporting facilities are available, including computers, speakers, projectors, and wifi. In facility analysis, researchers interviewed the physical education teacher concerned through observation.

Overview of Design Development of Learning Video Media in Physical Education and Health Subject

This second stage in the ADDIE model is designed. The design stage is when we create an outline (skeleton) of the media that will be developed. Several more stages are carried out, including compiling a product design storyboard, selecting an initial design and format, and preparing a product design assessment instrument. Referring to the needs analysis, it is considered essential to design a learning video media that can support the implementation of the learning process during the pandemic to minimize the problems among students. At this stage, the researcher begins to design the learning video media that will be developed—preparing a learning video media framework using Cyberlink Power Director at SMA Negeri 1 Takalar. The framework in question is the opening section of the video, the content/material section, and the closing. The opening part will present the learning video and media about the essential competencies and learning objectives. The second part is the material's content on the learning video media. The next part is closing.

The tools menus on the software used in designing Cyberlink Power Director learning video media are Flypaper, Camtasia, and Snagit. Flypaper combines images, flash videos, transition animations, memory games, etc. This software can generate SWF files that are easily integrated with Lectore Inspire. Camtasia can be used to record steps performed on the monitor screen. This software can edit videos and publish them in standard formats. Snagit can be used to capture the monitor screen. Furthermore, Snagit can combine multiple images into one and post them in various image files. Designing learning video media begins with preparing teaching materials and video scripts, taking pictures, editing, and finishing. The storyboard for the design of learning video media development using Cyberlink Power Director software can be seen in Table 1.

Table 1. The Revisions

No.	Documentation	Information
1	Figure 2. Slide 1	Initial View of the Concept of a Volleyball Game.
2	Figure 3. Slide 2	Display of Volleyball Game Techniques.
3	Figure 4. Slide 3	The Steps of the Game of Volleyball.
4	Figure 5. Slide 4	Various Techniques in the Game of Volleyball.

Overview of Design Development of Learning Video Media in Physical Education and Health Subject

The third stage of the ADDIE development model, namely development, is carried out by combining all assets into a development product in the form of learning video media using Cyberlink Power Director software and will then be validated by experts from the content and construct aspects as well as media. The leading indicator in determining the feasibility of a learning product is the result of design validation. The design validation process is carried out by involving two experts to provide an assessment of the product design that has been produced. As for those who act as validators in evaluating product designs developed in research, namely the evaluation by the material expert validator, this learning video got a total score of 61 with an average of 4.35, including the outstanding category. If it is a percentage, the learning video receives a score of 87.14%, including the very valid category. The results of the assessment of the product design of instructional video media for the subject of physical education, the subject matter of volleyball, are described in Table 2 as follows.

Table 2. Content/Material Validation Results

No.	Aspect	No. Statement	Score	Average	Percentage	Criteria
1	Completeness	(1).(2).(3).(4).(5)	20	4	80%	Valid
2	Contents	(6).(7).(8).(9)	17	4.25	85%	Very Valid
3	Language	(10).(11).(12).(13).(14)	24	4.8	96%	Very Valid

Based on Table 2 above, the data obtained from the assessment results by material expert Validators showed that the average percentage was 87.14%.In validating material related to the design of the developed video media product, the learning implementation plan, which will be used in the learning process, is also included. Based on these data, it can be concluded that the learning video media on the subject of physical education, the subject of Volleyball, which has been developed, meets very valid criteria and can be tested. Still, some improvements must be made to the suggestions given by the expert validators.

Effectiveness analysis describes or provides an overview of the object under study through sample data without analyzing and making conclusions that apply to the public. The effectiveness of the learning video product was tested using a pretest and posttest for the tenth-grade students of SMA Negeri 1 Takalar. Ten multiple-choice questions cover all class X SMA Negeri 1 Takalar material. Implementation of pretest and posttest offline and distributed to students. The description of the test results for Class X students in the implementation of small-scale trials can be seen in Table 3 below.

Table 3. Analysis of Pre-Test and Post-Test Results for Small-Scale Trials

No.	Respondent	Pre-Test	Post-Test	Information
1	Subject 1	46.7	74	Complete
2	Subject 2	33.3	74	Not Complete
3	Subject 3	46.7	87	Complete
4	Subject 4	40	87	Complete
5	Subject 5	46.7	87.7	Complete

Table 3 shows that of the five subjects involved in the implementation of small-scale trials, there were five people, or as many as 87.0% of the total subjects, declared complete with a score above the minimum completeness criteria standard that was set, namely 76. Pretests and posttests were still carried out on large-scale trials by involving 30 different subjects with large-scale test subjects.

Discussion

The design stage of the media video product is designed in such a way that it can be helpful to and by the characteristics of students; this is by the opinion of Wibawanto (2017) about the benefits of learning media, namely with different characteristics and the material being taught is the same, it

can be overcome with learning media, namely giving the same stimulus, equating experience, giving rise to the same perception. This learning video media product was developed concerning the learning implementation plan, then a script/script that the narrator will use to deliver the material and take pictures/objects by involving the physical education subject teacher as an object in the video media.

The editing process uses three applications, namely Adobe Photoshop, to create visual effects and backgrounds, which will be included in the Learning Video Media product. Furthermore, a visual-based application, namely Canva, can be used to edit videos and images. This application is used to make intro videos so that the appearance the first time you watch Learning Video Media products becomes more attractive. Finally, the application that is used to combine video and rendering and to add animation and background effects is Cyberlink. The learning video media consists of 3 parts, namely learning video 1 discussing the basic Concepts of the volleyball game, the second video, the basic techniques of the volleyball game, and the third explaining the steps of the volleyball game.

The development of this learning video media product is by collecting previously recorded video capture materials and then entering the editing process using several applications that have been mentioned and making adjustments to the text and material for physical education subjects and lesson plans. The results of the design construct validity test by experts on this learning video media product obtained excellent qualification results from the experts. Aspects of the assessment of the suitability of the language used are pretty straightforward because the script that is prepared and refers to the lesson plan uses standard Indonesian so that it will make it easier for participants to listen to the material presented, the accuracy of the layout arrangement is arranged in such a way that students can watch media products. This learning video is comfortable and not too overedited; the color of the writing with the background is made by paying attention to the suitability of colors and color combinations with one another so that the writing looks straightforward to read,

Learning video media products also obtained assessment results that were in excellent qualification by content experts/materials for physical education subjects assessed from the aspect of the suitability of learning objectives to be achieved with learning video media because the script made in this learning video media refers to the learning implementation plan physical education subjects so that the products developed can help the learning process and can achieve the learning objectives to be achieved, the clarity of the formulation of learning achievement indicators with learning video media so that the learning indicators to be performed can be adequately implemented with the learning video media products developed. The suitability of learning outcomes for Physical and Health subjects with the duration of learning video media is made with the most efficient possible time so that students can easily understand the material presented without feeling bored. The time used in this learning video media product is about ±10 minutes.

The next stage is the trial stage to determine the practicality of the learning video media product developed. This learning video media product is then distributed to the teacher. This practicality test is carried out online by providing a questionnaire with the practicality test objective, namely to find out the ease of users in using the learning video media product to 10th-grade students taking physical education subjects totaling five people for a small group. The results obtained through the questionnaire are suitable qualifications so that the media can be tested for practicality in large groups. Then, in the large group trial obtained through the questionnaire, the qualifications were excellent, judged from the attractiveness aspect of the learning video display, which was designed to be more attractive so that students could be more interested in learning, adjust the learning sub-achievements of physical education subjects and the material presented on the media. Learning videos because this Learning video media product was developed in accordance with the learning implementation plan and adjusts the materials and media needed by students, the suitability of the themes used in this learning video media product is adapted to the characteristics of students and also adjusted to the proportional images used,the ease of reading text in learning video media is made by paying attention to color so that the color of the writing used does not blend with the background color, the clarity of sound in the learning video media has been refined so that there is no noise and can make it easier for students to listen to the material presented and not interfere with concentration in learning,and the last aspect of the ease of understanding the contents of the learning video media

is made by providing animation and transition effects so as not to make students bored in watching learning video media products and providing a little visual impact because in addition to attracting students' interest or attention in learning the products developed are also fixed. Pay attention to the element of convenience in learning so that this media video product can be an easy way for students to understand learning material.

This learning video media is flexible for teachers and students to share. In addition, this learning video media product can also be played on various devices such as Android, iPhone, iPad, and others. The suitability of writing color is used with the background color so that it can be read clearly; the clarity of the narrator's voice is recorded by paying attention to the clarity of the voice so that there is no noise in the video media, as well as the accuracy of the supporting audio used in this learning video media product using sound no copyright in addition to not violating copyright the use of supporting audio in this video also the audio used sounds quite relaxed and comfortable which is selected based on the audio category that is suitable for use in learning then the audio has arranged the level of clarity so that it sounds soft. The sound produced is not higher than the narrator's voice. The results were excellent qualifications in a practical trial by this physical education subject teacher. However, there was a slight improvement, namely the volume of the background or supporting audio that sounded higher than the voice of the narrator, so a revision was made to the learning video media product so that the product developed was of high quality.

Student learning outcomes experienced a significant increase in both small-scale trials and large-scale trials. These results indicate that the learning video media product is valid, practical, and effective as an alternative medium to support the teaching and learning process at SMA Negeri 1 Takalar. The results of this study are supported by the results of other studies that show that video learning media is feasible to use as a learning medium (Puspitarini et al., 2018), in line with further studies claiming that the output of this research is a video of learning that will be appropriate to be used as a medium for learning (Bakri et al., 2020). This is supported by other studies indicating that the feasibility of developing video animation on material expert perceptions obtained a value of 82.121%, included in the very feasible category (Daryono et al., 2021).

The advantage of this learning video media product is that it can help students with difficulties understanding physical health subject matter, especially volleyball game material. Using learning video media is also very easy if you want to use it in the online or offline learning process because this product can be distributed directly to students during the learning process, so students themselves can easily access the learning video media that has been provided. Has been provided by the teacher via their respective gadgets. This is because the product developed uses standard Indonesian, so it is easy to understand, and the presentation of the material involves physical education subject teachers so that students can be enthusiastic about independent learning.

CONCLUSION

Description of the need for developing instructional video media for physical education subjects. The biological education material begins with an analysis of conditions in the form of identifying potential and problems that occur; the information obtained through a direct interview process and processed to get an initial picture that will become a frame of reference in determining the initial design format of the product to be developed. The level of validity of using learning videos based on the results of the content validation test and design constructs by experts is a very valid criterion. The level of practicality of the use of these teaching materials is analyzed based on student response questionnaires and teacher/tutor response questionnaires, with the results shown being inefficient criteria, and the level of effectiveness seen from the assessment of learning outcomes based on the pretest and posttest of students with the results meeting the very effective criteria.

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