



Interactive Multimedia in Buddhist Education Learning

Tejo Ismoyo¹(✉), Basuki Wibawa², and Etin Solihatin³

¹ Buddhist Education Department, STIAB Jinarakkhita, Lampung, Indonesia
tejoismoyo@stiab-jinarakkhita.ac.id

² Doctoral Program in Educational Technology, State University of Jakarta, Jakarta, Indonesia
bwibawa@unj.ac.id

³ Pancasila and Citizenship Education Study Program, State University of Jakarta, Jakarta, Indonesia
dr.etinsolihatin@unj.ac.id

Abstract. In the era of 4.0, teaching traditionally has been replaced due to some various learning interactive multimedia. Many educators face the problems in creating and developing interactive multimedia in education especially in Buddhist education. Therefore, this article aims to describe the steps for making interactive multimedia in Buddhist education learning. This type of research is descriptive using critical analysis methods. Those steps are pre-production– production- and post production stages. In the first stages, the educators plan in advance to expedite the production process such as analyzing learning objectives, designing material structures and learning media. The second stage, educators prepare the material to be delivered in the form of a design by developing flowcharts and storyboard. While the third stages, educators present the result of learning media by concerning some aspects of editing, validation, trial, revision, and dissemination. In making interactive multimedia the use of Microsoft PowerPoint applications is one of the alternative ways combined with Adobe Photoshop CS6, Powtoon, Kinemaster, n-Track 8, and Movavi Video to form the learning media production.

Keywords: Learning · Buddhist religious education · interactive multimedia

1 Introduction

Learning and technology go hand in hand, especially in the 4.0 era of interactive multimedia-based Buddhist education. The advancement of technology necessitates the adoption of increasingly engaging and effective learning media. There are many different types of media utilized in education. A single one of them makes use of interactive media. Learning to use interactive technology engages all of the senses, making it simpler to follow the Buddhist educational process. The correct learning resources might help you learn faster. It is therefore time to implement the concept of merging various learning material into interactive multimedia in light of the development of increasingly sophisticated technologies. Buddhist instructors and educational institutions must provide interactive multimedia learning materials that are relevant to the advancement of the times in order to keep up with the times. The purpose of this instructional tool is to inspire pupils to participate in class-based learning. There are many different learning

media available. The synthesis of several educational material into interactive multimedia is one of them. Nonetheless, there are still challenges to creating it, particularly for educators who work in Buddhist religious educational organizations. The synthesis of several educational material into interactive multimedia is one of them.

If possible, educators should design interactive multimedia for use in the teaching and learning of Buddhism. This is crucial because, in the 4.0 era, the learning process no longer just involves the exchange of knowledge between humans, but also between humans and technical products, such as interactive multimedia that is always evolving. Multimedia that is interactive enables students to interact while honing their abilities and getting feedback on the subject being presented. The use of interactive multimedia enables students to engage more fully in the learning process so they can comprehend the course material. Learning media attempts to aid instructors and students in their academic endeavors. The goal of adopting learning media is to hasten the learning process, boost effectiveness, keep the subject matter relevant to learning objectives, and aid in learning concentration [1]. According to Smaldino, the goal of employing learning media is to promote communication and education [2]. The conditions and learning environment are affected by learning media's role as a teaching aid [3]. Interactive multimedia is utilized in Buddhist education as a learning aid to help students reach their learning goals. There are still a lot of teachers who use improvised media to teach in the modern digital age [4]. This is because there aren't any supporting facilities available, including theoretically the processes for creating interactive multimedia, and there aren't any instructional professionals. Buddhism education taught in schools tries to achieve the established competency standards. Thus, it needs to be made more engaging and simpler for kids to understand. Buddhist religious education is best learned through insight rather than memory. To prepare for this, educators must promote interactive multimedia creation so that students can use interactive multimedia. Thus, it is crucial that educators and educational institutions have a theoretical understanding of the processes involved in developing interactive multimedia. Making learning more effective and presenting instructional material based on concepts and subjects in a realistic manner are the goals of employing interactive multimedia. Facilities should be provided for educators to acquire training in creating interactive multimedia if they haven't been able to do so already. The school also helps with the demand for interactive multimedia creation. This article will provide solutions to the issues raised by the question: How might interactive multimedia be used in Buddhist education? This study's goal is to outline the procedures for creating interactive multimedia for use in Buddhist education.

2 Method

A critical analysis research method was employed in this study to find solutions to the challenges. The evaluation of interactive multimedia in Buddhist teaching and learning is based on 13 research articles. All types of theoretical studies are analyzed using the critical analysis method. According to Harold Laswell, communication is a message that is sent to the communicant through media and has an internal impact [5]. "Who says what through what channel to whom with what effect," is the full statement of Laswell's opinion. This academic piece is primarily descriptive in style. The best course of action is to gather data that is pertinent to the research issue (Table 1).

Table 1. 13 Research Journals

No	Authors	Title	Results
	Winwin Wiana, M. Syaom Barliana, Arifah A. Riyanto	The Effectiveness of Using Interactive Multimedia Based on Motion Graphic in Concept Mastering Enhancement and Fashion Designing Skill in Digital Format	Interactive multimedia is designed through the pre-production, production stages and post-production.
	Oktaviani, Harton, P Marwoto	Sets Vision Of Interactive Multimedia On The Problem Based Learning In Science Learning	Interactive multimedia is developed with SETS characteristics and through pre-production, production stages and post-production.
	Reza Rachmadtul lah, Zulela Ms, Mohamad Syarif Sumantri,	Development of computer-based interactive multimedia: study on learning in elementary education	Computer-based interactive multimedia applications are valid and appropriate for the use in teaching and learning activities.
	W. Wiana, M. Syaom Barliana, and A. A. Riyanto,	The effectiveness of using interactive multimedia based on motion graphic in concept mastering enhancement and fashion designing skill in digital format	The concept of interactive multimedia design is applied to fashion design through pre-production, production stages.
	Nurtanto, H. Sofyan, and P. Pardjono,	E-Learning based autoCAD 3D interactive multimedia on vocational education (VE) learning	Making interactive multimedia through 3 stages, namely pre-production, production and post-production.
	W. X. Xiang and T. Liu	Application of interactive multimedia installation art in display design	Interactive multimedia has been applied to display design.
	Komalasar i, PamungkaWihaskoro, Jana, A. Bahrum, and. Khairunnisa	Interactive multimedia based on multisensory as a model of inclusive education for student with learning difficulties	Interactive multimedia makes it easier to absorb information quickly and efficiently.
	Rachmadtullah, M. S. Zulela, and M. Syarif Sumantri,	Computer-based interactive multimedia: A study on the effectiveness of integrative thematic learning in elementary schools	The sequence of making interactive multimedia through the pre-production, production stages and post-production.

(continued)

Table 1. (continued)

No	Authors	Title	Results
	Werdiningsih, M. B. Triyono, and N. W. A. Majid,	Interactive multimedia learning based on mobile learning for computer assembling subject using the principle of multimedia learning (Mayer)	Interactive multimedia based on mobile learning has been developed based on the ADDIE development model which consists of 5 stages, namely Analysis, Design, Development, Implementation, and Evaluation.
	M. F. Amir, F. N. Hasanah, and H. Musthofa,	Interactive multimedia based mathematics problem solving to develop students' reasoning	Utilizing various types of media into appropriate interactive multimedia in the learning process takes place effectively and efficiently.
	N. Rahmadhani and H. Rifai	Preliminary analysis learning media in the form of interactive multimedia based on edupark physics Carocok beach Painan Indonesia with the scientific method	It is necessary to develop learning media in the form of interactive multimedia using various concepts.
	M. N. Nasrifan, M. H. Abdullah, and Z. L. Saidon	The development and testing of interactive multimedia learning materials for teaching and learning of tumbuk kalang music ensemble in formal educational institutions	The combination of many learning media into interactive multimedia. Through 3 stages, namely pre-production, production, and post-production.
	Y. Miaz, Y. Helsa, Zuardi, Yunisrul, R. Febrianto, and R. Erwin	The development of interactive multimedia-based instructional media for elementary school in learning social sciences,	Interactive multimedia is valid, practical, and effective for the use in social studies learning.

3 Results

3.1 Buddhist Education Learning

According to Government Regulation of the Republic of Indonesia Number 55 of 2007 regarding Religious Educations, Religious Education serves to develop people who have faith and piety towards God Almighty, have noble characters, and can uphold peace and harmony among religious communities and inter-religious relations (Article 2 paragraph 1). Additionally, it states that the purpose of religious education is to help students understand, embody, and apply harmonious religious ideals in science, technology, and

the arts (Article 2 paragraph 2). According to the goals of Buddhist education, learning consists of three components: knowledge, application, and enlightenment. In terms of the ethical components, this also complies with the competency standards for Buddhist education courses at the junior high school level.

Buddhist education places a strong emphasis on moral principles including refraining from wrong deeds, developing virtue, and cleansing the mind. The implementation of Buddhist education learning in schools, the growth of Buddhist education learning, the uniqueness of topics that study the foundations of ethics in the educational process, and identifying national features [6]. The Buddhist educational system encourages societal effectiveness and personal fulfillment via the development of spirituality and individuality. Students who have attended a Buddhist school and gotten a quality education are not permitted to commit crimes, steal, commit murder, or consume alcohol [7].

While honoring and enhancing the school's continuous education program, the Buddhist education learning seeks to support each student's spiritual growth in the classroom. In order to foster the information, skills, and values required to live in harmony, Buddhist education focuses on tolerance, collaboration, and nonviolence [8]. Nirvana is the ultimate objective of Buddhist education; to get there, one must concentrate their efforts in three areas: compassion, mental awakening, and ongoing practice [9]. Purity, nonviolence, humanism, equality, happiness, and compassion are among the ethical principles taught in Buddhist schools [10].

3.2 Instructional Media

The term "media" has a fairly broad definition because it is used in many different contexts. Education-related examples are referred to as educational media. The context in which the term "media" is used has a significant impact on how well the concept is understood. Learning media is a tool that provides a comprehensive explanation of various learning programs [11]. To carry out a planned, guided, and controlled learning process, learning media is defined as something that is utilized to channel messages that stimulate thoughts, feelings, and attention. Learning media is a way to stimulate students' minds so that learning takes place. The teaching and learning process is enhanced by the usage of learning media [10]. This justification leads to the conclusion that educational media is a tool used to support learning activities.

3.3 Learning Media Functions

Learning media serve as a teaching tool that can alter the setting set up by the instructor [12]. Learning media, in Sanaky's opinion, stimulates learning, produces imitations of real items, and fosters a positive learning environment [13].

3.4 Media Type

According to technical advancements, media types can be split into two categories: conventional media and cutting-edge media [1]. The teacher's efforts to ensure pleasurable and relevant learning while utilizing the right learning resources. An educator must be aware of the appropriate media for the learning subject in order to choose the appropriate media. The qualities of traditional media are as follows.

1. Projected visualizations using overhead projection, slides, and film strips.
2. Non-projected visualizations include posters, pictures, graphics, photographs and exhibits.
3. Audio, such as tapes, and scientific magazines.
4. Prints, like textbooks, modules, workbooks.

While the characteristics of the latest technology media are as follows:

1. Telecommunication-based media such as teleconferences and distance lectures.
2. Microprocessor-based media such as Computer Assisted Instruction.

In addition, according to Arsyad [14], media includes human-based media, print media, visual media, audio-visual media, and computer media. Human media may communicate, direct, and send messages. The process of learning through guided exploration through examination of the moment it occurred. Textbooks, manuals, journals, and periodicals are the print-based media that are most generally recognized. Print-based media and visual media are similar in many ways. The traits of visual media include the observation of images in relation to space, the exhibition of one-way communication, the declaration of images as inactive, and the student-focused nature of optical media [15].

Media that uses mechanical and electronic devices to transmit audiovisual messages is known as audiovisual-based media. Video is a form of audio-visual technology that uses sound and moving pictures to communicate ideas. Media that is audio-visual in nature tends to be teacher-focused, linear, and show visualizations that progress. A method of creating and distributing content using digital sources is computer-based media.

Computer-based media's characteristics include the ability to be employed at random, in accordance with the teacher's wishes, with a strong focus on learning and lots of student involvement. Identify the fundamental divisions between media, including text, audio, visual, video, and artificial objects [16]. The learning medium that may be utilized in Buddhist education learning is interactive multimedia, according to the explanation regarding the sorts of media that are available and have been discussed regarding the learning objectives. Student engagement and activity in the learning process are prioritized in this interactive multimedia. Interactive multimedia should therefore be utilized in educational activities.

3.5 Learning Media Production Stages

The stages in the design of learning media production are arranged in three stages: the pre-production, production, and post-production stages [17]. The following is a picture of the stages of making learning media (Fig. 1):

The steps taken in making learning media into interactive multimedia in Buddhist education learning are as follows:

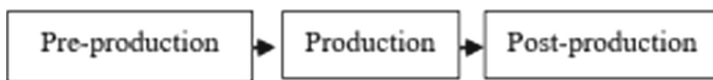


Fig. 1. Learning Media Production Stages

Preproduction Stage

In the pre-production stage of learning media, educators plan well in advance. This is done to expedite the production process, the pre-production stage includes several steps, namely analyzing learning objectives, designing material structures and practice questions, finding and forming images or graphics, video and sound as needed. Apart from material, the media can also add quizzes or practice questions, and summaries. According to Suryani [18], this pre-production stage includes several stages:

1. Review learning objectives. Before making learning media, it is mandatory to know the learning objectives, the material to be used, so that the media to be designed is effective.
2. Designing the structure of materials and scripts for the media to be designed. This structure is obtained through supporting books, learning materials used in teaching and learning activities.
3. Forming images according to the needs of learning media, and the format is adapted to the application to be used.

Production Stage

The production stage of learning media that must be carried out is to form a design using PowerPoint which is combined with Adobe Photoshop CS6, Powtoon, Kinemaster, n-Track 8, and Movavi Video Suite 18 applications. In the production section, educators prepare material to be delivered in advance. Also added quizzes and summaries. The creation process is done in PowerPoint. Powerpoint is a program used to process presentations that can be designed as learning media. The application of using PowerPoint can be done without being connected to an internet network. At the learning media production stage, what must be done is to form a design by developing flowcharts and storyboards.

Create Flowcharts

Flowchart is a flow chart contained in learning media. This diagram is very important to be adapted to the learning objectives.

Create Storyboards

Storyboards are images that will be designed in learning media. Storyboards are designed to be used as an initial plan of what will be shown. Making learning media must be based on flowcharts that have been made before to be used as a design reference.

Enter Material

Incorporating material in the form of images, sound and video into the learning media developed at this stage requires creativity to express ideas in storyboards. This is necessary in order to display interesting learning media.

Post-production Stage

The third stage in making learning media is the post-production stage. In the post-production stage, editing, validation, trial, revision and dissemination are carried out [19]. All these steps must be carried out systematically to make good learning media. The resulting learning media is a combination of many media. The combination of various learning media using supporting software, becomes an interactive multimedia product in mp4 format. The resulting interactive multimedia products can be run on electronic devices such as smartphones, as well as other supporting electronic media. The use of interactive multimedia in the Buddhist education learning process is very important.

This is because integrated interactive multimedia is an embodiment of 21st century learning [20]. In the modern era, with the rapid development of the internet industry, editing programs are becoming cheaper and more popular and interactive multimedia is growing. More and more are starting to explore the application of interactive multimedia technology in installations to create dynamic interactive multimedia. This trend has effectively driven the development of interactive multimedia [21].

Multimedia comes from the words 'multi' and 'media'. Differences in the understanding of multimedia known before 1980 is different from after 1980, because it is always evolving. Interactive multimedia is defined as the interactive delivery of information which includes text, images, sound, video or animation [22]. Interactive multimedia is a combination of digital communication technology and computers, which forms an interactive system. All types of linked information are media text, graphics, images, video and audio combined. This system is known as interactive multimedia, which effectively combines interactive multimedia components.

One of the technologies that can be utilized to transmit learning content in Buddhist education is computer-based interactive multimedia. The emergence of interactive multimedia technology holds out the possibility of altering how people learn, gather information, and apply it. Interactive multimedia gives Buddhist education the chance to develop more creative teaching methods. Similar to adults, it should be simpler to evaluate what and how pupils can quickly and effectively acquire information while using interactive multimedia [23].

A computer system that combines images, video, photos, graphics, and animation with sound, text, and data that is managed by a computer program is referred to as multimedia. It consists of both hardware and software. Multimedia is characterized as the fusion of many media elements, such as music, video, images, text, and animation, into a cohesive whole that provides users with more advantages than any one element alone [24]. The term "multimedia" refers to the usage of diverse media or the blending of sound, animation, graphics, text, and video. Interactive information refers to information that is continuously exchanged between a computer and its users, in this example pupils, [25]. Multimedia can be understood in the context of the computer era as computer information that can be shown through sound, images, text, graphics, and more intricate animations. Interactive and linear multimedia are the two categories into which multimedia may be divided. Multimedia that has no controller attached is referred to as linear multimedia. This has to do with the sequence or length of the impressions, which can be gauged as necessary. Although interactive multimedia comes with a user-operable controller, allowing the user to run whatever he chooses as the next process.

One of the learning tools that is frequently employed by educational professionals in the learning process, including when teaching Buddhism, is interactive multimedia. Interactive multimedia is an excellent source of supplemental material for the learning process in the classroom and has been shown to improve student learning results [26]. Given the information above, it is important to grasp the benefits of interactive multimedia in the learning process. Text, graphics, animation, music, and video are just a few of the visual formats that interactive multimedia might use to provide content. Students can understand the material better as a result. The benefits of interactive multimedia in facilitating the dissemination of knowledge to pupils, such as the ability to visualize

concepts: providing easy feedback, freedom to determine learning topics, and systematic control in the learning process.

Learning designs that incorporate interactive multimedia are frequently an efficient teaching strategy for enhancing learning abilities [27]. Learning media is defined as tools and materials that feature a combination of words and visuals to support learning activities that can be used to achieve goals. 29 students. One of the interventions carried out by using media in a wide setting is the theory that explains interactive multimedia. Interactive multimedia is a type of usable media. Interactive media uses technology to prioritize user feedback so that students can learn in accordance with their needs.

Because science and technology are currently advancing so quickly, kids can learn at any time and anyplace. Under these circumstances, educators no longer serve as the only source of learning but rather design it. In order for the learning process to be effective and efficient, a learning designer, specifically in learning, must be able to design learning by utilizing a variety of appropriate media and learning resources [28]. The development and use of interactive multimedia, the most notable advancement in the field of education, is said to be a crucial tool for aiding students in the teaching and learning process. Interactive multimedia is equipped with navigational features, audio and video support, text, and graphics. Due to its increased ability to effectively and engagingly impart learning content, it has a significant impact on both teaching and learning. To create an engaging, active, and relevant learning environment, interactive features that enable two-way contact between students, teachers, and computers are used [29]. There are many different kinds of learning media, including audio, visual, and audio-visual. Interactive multimedia refers to learning materials that incorporate all three categories. Animated videos and audio-visuals are two examples of interactive multimedia that can integrate images and movies on one screen and have various benefits that draw in pupils [30].

The idea of interactive multimedia is closely tied to interactive media that can be controlled by a computer, keeping up with the times. Interactive multimedia, which is delivered to users via computers or other electronic media, combines text, visual art, sound, animation, and video [31]. Presenting reality to pupils through interactive multimedia is good. Students are given the chance to personally experience the truth portrayed in a variety of media combinations. The same is true for learning Buddhist education: interactive multimedia is a prerequisite that is essential to achieving the set learning objectives.

4 Conclusion

Media that is used to facilitate learning is referred to as learning media. A variety of educational media are combined to create interactive multimedia, which is used both within and outside of the classroom to assist the study of Buddhism. Microsoft Office PowerPoint is used as the interactive multimedia component, along with other material and a variety of tools. It can be concluded that creating interactive multimedia for learning Buddhist education in a methodical manner (pre-production, production, and post-production) aided the instructional designer and instructor in incorporating technology into the subject to accomplish the learning objectives.

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