Design Of Interactive Learning Content In Bakery Courses In Vocational Education Study Programme For Culinary Art Undiksha

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Abstract. The background of this study is the need for students' understanding of the learning process in the bakery course, where materials are used in standard modules such as texts, images, and YouTube videos, and an interactive approach to understanding the teaching and learning process. There needs to be moreneeds to be more learning media. Not optimal. This study aims to develop and implement interactive learning content embedded in e-learning and find educator and student responses to developing interactive learning content in bakery courses. The subjects of this study are students in the 6th semester of the Undiksha Study Programme in Culinary Art Vocational Pedagogy. The type of research used in this research is Research and Development (R&D) with the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation) at the design stage. Research data were collected using a questionnaire instrument. The analysis results obtained from interviews and field observations show the need for interactive learning content product design bakery course. The result of interactive learning content design is the design of an interactive media interface that consists of home, instructions, and main menu features

Keywords: Interactive Learning Content, Bakery, and ADDIE

1 Introduction

Education is one of the essential components in life to pass on values to future generations of stone. Values in education can be channeled through the learning process because learning activities are a complex process that will occur throughout life. Education development is currently influenced by technological developments, where technology has become one of the human needs in helping humans work, especially during the learning process. When the learning process is centered on educators or teachers, technology and media will support the presentation of learning materials. Appropriate media use depends on the student's needs in the learning process. The use of learning media in a learning process or activity contributes significantly to the effectiveness of the learning process and the delivery of learning materials [1]. One study

program that requires learning media assistance is the Culinary Arts Vocational Education (PVSK) study program.

Culinary Arts Vocational Education is one of the study programs in the Department of Industrial Technology, Faculty of Engineering and Vocational Education, Ganesha University. One of the subjects taught is bakery, where bakery is a compulsory subject in semester VI (six). Based on the results of observations through direct interviews with bakery lecturers at the Culinary Arts Vocational Education Study Programme, it was found that there were obstacles in the learning process, including students who did not understand the bakery course because the learning media used by the lecturers were not sufficiently supportive. In addition, the Covid-19 pandemic has resulted in the learning process on campus being carried out online. This adds to the obstacles for students in understanding practical material, which can usually be done in a laboratory room.

Courses in bakery to make it easier for lecturers to explain the material in communicating details to students so they can understand the material presented by the lecturer well. This interactive learning content can increase students' interest and motivation and lead to an interactive, fun and effective learning atmosphere [2] [3]. This interactive learning content can create different learning variations so that it does not cause saturation in students' learning process. In developing this interactive learning content using technology in the form of adobe captivate. Adobe Captivate is an Authoring Tool that can create interactive learning media containing interactive learning content.

One of the studies related to the development of interactive learning content using Adobe Captivate [4] [5] [6] showed that the use of multimedia-based learning media with the results obtained from the response from students and educators has been effective to use. Based on the description above, to motivate students to learn and increase interactive learning with the existence of interesting and innovative learning media, research is carried out, which is part of development research, namely designing interactive learning content in bakery courses.

2 Literature Review

a. Learning

Media Learning Media comes from the Latin medius. It means intermediary, intermediary, or referral. According to Gerlach & Ely, mediums are, by and large, people, materials, or events that create the conditions that enable a student to acquire knowledge, skills, or attitudes. [1]. Learning media are media used in the teaching and learning process, which basically teaching and learning activities are a communication process [7].

b. Learning Theory

A learning theory involves procedures for applying teaching and learning activities between teachers and students and designing the learning methods used in the learning process. The development of interactive content that will be developed by the author, it refers to 4 learning theories, namely :

1) Behavioristic learning theory is a learning theory that understands human behavior which requires an objective, mechanistic and materialistic approach so that changes in behavior in a person can be done through, not a process that occurs in it [8] [9],

2) Constructivistic Learning Theory is a learning theory that emphasizes more on the Process and Freedom to Explore Knowledge and Effort in constructing experience [10].

3) Cognitivistic learning theory is a theory that is generally associated with the learning process. Cognition is a person's psychic or mental ability in the form of observing, seeing, guessing, paying attention, guessing and judging [11],

4) The humanistic theory of learning states that the purpose of education is to humanize a person. The learning process is successful when students understand their environment and themselves [10].

c. Multimedia Interactive Learning

Munir explained that multimedia comes from the words multi and media. Multi is Latin for "many or different," The word media comes from the Latin word for "medium" and means to mediate, provide, transmit or convey. The American Heritage Electronic Dictionary defines the term medium as a tool for distributing and presenting the information. Multimedia combines different media (files) in the form of text, images (vector or bitmap), graphics, audio, animation, video, interaction, etc. Packaged in a digital file for use. Message to citizens [12].

d. Interactive Learning

According to Suryati, interactive learning content is information available in learning media where users can perform input (input) activities, and the system/program can carry out related response activities in the form of outputs (outputs). Developing interactive learning content must be interesting and easily understood by students to achieve learning objectives optimally [13].

e. Adobe Captivate

According to Setyawan, Adobe Captivate is an authoring tool that can create interactive learning media that includes learning content in a format that combines text, video, audio, graphics, and animation. [14] [15]. *Adobe Captivate* application or *software* E-Learning *Microsoft Windows* and *Mac OS X* that can be used to develop interactive learning media. The way *Adobe Captivate works is similar* to *PowerPoint* but *Adobe Captivate* has templates for quizzes and tests that you can use easily [16].

f. Animation

Animation comes from the Latin word "anima" which means soul, life, and spirit. Characters are people, animals, or other real-life objects cast in the form of 2D and 3D images, while animation can be interpreted as images containing objects as if they were real. Objects in images can be in the form of text, shapes, colors, characters, and special effects. Animation learning media can make the learning process more significant and effective. Rosmiati researched about interactive animation learning media to help children learn about English, and the result was children can learn English in a fun way, and they can remember the material of the lesson [17] [18].

g. Video Live Shots

Live Shoot is shooting moving pictures or live video. Live Shoot can also be interpreted as video shooting requiring editing to perfect the shooting results. It can be said that a live shot is a technique of taking pictures of events directly with the assistance of an editing process to create a dramatic product. The live shot video can attract students' interest and motivation in learning activities by delivering audio and visual directly that has undergone the editing process. The real implementation of live shoot video that can make the learning process more significant was researched by Neta, et al . There is a significant difference regarding the students' understanding of the subject of algorithm introduction material programming by using instructional video media. Overall, learning using live shoot video plus motion graphics significantly affects the learning algorithm subject [19] [20].

h. Bakery Course

Anggraini (2019) explained one of the courses in the Culinary Arts Vocational Education study program, Undiksha. The bakery course is compulsory in the sixth semester (6). *Course bakery* will discuss the meaning of dough, the need for materials and tools, dough-making techniques and skills in making bread learning materials are taken from the syllabus and lesson plans given during observations. *Bakery* is one of the practical foods that is growing rapidly, because many people favor bread. In making *bakery,* in order to obtain optimal bread, yeast.

3 Research Method

a. Research Design

Based on the formulation of the problem that has been found, The type of research used in this study is research and development (R&D) that produces products in the form of learning media. Research and development (R&D) is a process of developing and validating educational products. Research and development is a type of research used to create specific products and test the effectiveness of those products [21]. In this study, the product developed was in the form of interactive learning content. This research focuses on developing interactive learning content in bakery courses.

b. Research Development Model

This research is part of the research and development (R&D) or research and development type. Research and development is a type of research used to create specific products and test the effectiveness of those products. This research work aims to design interactive learning content in the bakery for the Culinary Arts Vocational Education Course. [21] . The development model used in this research is the ADDIE development model, which consists of five phases: analysis-design-development-implementation-evaluation. ADDIE is a sequential and systematic framework for grouping a series of design and development research activities [22]. This development model is structured programmatically with interrelated stages with learning resources according to the needs and characteristics of learning. Based on the opinion, the ADDIE framework can be fragmented according to the stages desired by the researcher so that

the stages of this research are still limited to the *analysis* and *design stages.* The ADDIE model can be seen in Figure 1 [23].

Fig 1. Stages of the ADDIE development model

c. Analysis Stage

The first step in this study is to perform an analytical phase. That is, at this stage of the analysis performed (1) analyzing the competencies that students must master, such as determining competency standards, basic competencies and learning objectives or more often called material analysis, (2) analyzing the characteristics of students or students with respect to the knowledge, attitudes and skills possessed by students or what is often called analysis of student characteristics, (3) analyzing relevant materials for achieving the competencies desired by students) [24].

d. Design Stage

In the next design stage, researchers create the first product (prototype) or product design at this stage. A step taken in the design stage is the selection of materials according to the student's characteristics and the requirements of the abilities to be achieved, learning strategies, forms and methods of assessment and evaluation. The design of the display of interactive learning content is made according to the needs and principles of creating learning content so that the presentation of interactive learning content becomes more attractive.

e. Development

The development stage is carried out by developing the designs obtained from the previous design stage into planned interactive learning content. The development stage is done by searching and gathering various relevant sources to enrich the material, creating the required concepts, typing, editing, and arranging interactive learning content. At this stage of development, several activities are carried out, such as the process of preparing materials, preparing interactive quiz questions and answers, creating and collecting assets, making interactivity, making 3D animated images, and making live shots + 3D videos. Researchers also developed a questionnaire that will be used to measure the suitability of the material presented, the language used, and the usefulness of the interactive learning content produced.

f. Implementation

The implementation stage is the stage of how to implement the results of the design made after passing the previous stages. The results of the development in the form of interactive learning content are shown and used by students to determine the effect on the quality of learning, including attractiveness, efficiency and effectiveness of learning. It is planned that this interactive learning content will be linked to the E-learning LMS Platform used by Undiksha. Lecturers and students in the learning process will use this interactive learning content.

g. Evaluation

The next stage is the evaluation phase, which evaluates the data obtained from the experimental activities. Following the results of quantitative data analysis and questionnaire suggestions, researchers examined the suitability of materials for developing interactive learning content and the usefulness of language used for interactive learning content. Formative assessment comprises content expert, design expert, media expert review, individual testing, small group testing, and field testing. The purpose of the test is to ensure that the developed interactive learning content can handle the needs described.

4 Results and Discussion

The results of this study are in the form of product design for interactive learning content in bakery course. The result of this research is in the form of product design for interactive learning content in bakery courses using the ADDIE development model's research and development method. Several results can be explained at the Analysis stage, including the results of the analysis of student characteristics, the results of course analysis, the results of the analysis of learning resources and the results of the analysis of the research place. The results of mapping learning outcomes are based on the syllabus and RPS used in the bakery course in Table 1.

Table 1. Learning Outcomes (LO)

Learning	Objective
L.O. 4.1. Understand, explain the meaning of Danish dough, materials and tools for Danish dough, as well as techniques and how to make Danish dough, and presentation and packaging of Danish dough	Students are able to understand, explain the meaning of Danish dough, materials and tools for Danish dough, as well as techniques and how to make danish dough, and presentation and packaging of danish dough
L.O.4.2 Understand, explain the meaning of Taiwanese bread dough, materials and tools for Taiwanese bread dough, as well as techniques and how to make taiwanese bread dough, and presentation and packaging of taiwanese bread dough	Students are able to understand, explain the meaning of dough taiwan bread, materials and tools for taiwan bread dough, as well as techniques and methods of making taiwan bread dough, and serving and packaging taiwan bread dough

Furthermore, the researchers analyzed the material to be developed based on the basic competencies that had been previously selected. To determine the valid material, the researcher uses textbooks for references from several publishers to assess the material relevant to the

curriculum. Materials discussed in this learning content include Danish dough and Taiwanese bread dough.

In the design phase, the researcher designed interactive learning content, which was carried out in several stages, namely designing learning materials and displaying learning content. At the stage of designing learning materials, we design materials that will be used in learning content. At the stage of designing this material, the researcher has determined the distribution of the material to be used, namely the Danish dough material and Taiwanese bread dough, whose learning process will reach 8 meetings. Then the design stage is to display learning content interactively. At this stage, the development process is completely made using the Balsamic mockup application, but the design of this storyboard has been developed using Adobe Captivate. Overall researchers can describe the results of the design of interactive learning content in bakery courses that have been developed in table 2.

Table 2. Learning Content Development Results

Object	Description
	The start page is the page that first appears when interactive learning content is run. On this start page, there are two logos, namely the Kemendikbud and Undiksha logos, then there is a start button to start learning.
	The login page is a page that serves to login or enter the main menu of interactive learning content. Users are asked to input the lecture code to enter the main menu
	The main menu page is the main page of interactive learning content. On this page, there are 6 (six) sub-manuals, namely instructions, indicators, materials, mini-games, evaluations and about. In addition, there is also an animated gif and a logout button. The exit button is used to exit the interactive learning content.

The instructions menu, when clicked, will display instructions from the buttons or buttons on the interactive learning content. This page will explain each button's function for the user's convenience.

The indicator menu, when clicked, will display the indicators and learning objectives page. There will be information on the indicator page related to indicators or learning outcomes and objectives in the course. The user can use the following button to view the information.

The material menu, when clicked, will display the learning material page. In the material menu, there are 2 (two) learning materials, namely Danish dough material and Taiwan Bread dough. In the material menu, there is an exit button and a home button which functions to return to the main menu.

Quiz sub-material is part of the material where in this quiz session, students can practice their ability to understand the material that has been studied previously. So, this material quiz is on the page after the learning material is presented.

The evaluation page is a page whose content is an overall material evaluation test that is useful for retraining the memory and understanding of students in learning
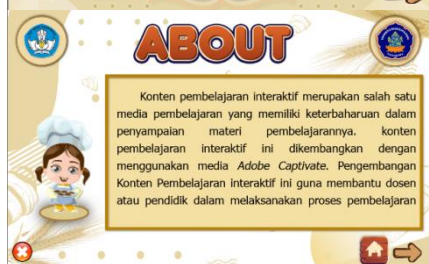
The mini-games menu, when clicked, will display a mini-menu page. On this page, there are 2 (two) game levels, namely normal and hard. This game is a puzzle. On the mini game page, there is a game guide page and a game page that must be completed.

The about menu, when clicked, will display a page about interactive learning content products and developer info, mentor 1 and mentor 2.

5 Conclusion

The interactive learning content in bakery courses can be alternative learning that can be used in the teaching and learning process both online and offline. Interactive learning content is made in a form similar to PowerPoint, which is presented in a good display and has interactivity so that students do not feel bored while learning so that this interactive learning content has the potential effect of increasing students' interest and motivation to learn. With the design of this learning content, educators can realize or use it as a solution for online learning and offline learning. This research focuses on the analysis and design stages. Further research can carry out the development, implementation and evaluation stages. This interactive learning content can actually be used directly by students in an effort to increase student's interest and motivation to learn in bakery courses.

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