

# A Need Analysis in Developing Interactive Digital Teaching Materials Using Contextual Approach in Microeconomic Theory Course

Yuliana FH\*, Siti Fatimah, Ikbal Barlian

*Economics Education, Faculty of Teacher Training and Education, Universitas Sriwijaya, Indonesia*

*\*Corresponding author. Email: [yulianafh@fkip.unsri.ac.id](mailto:yulianafh@fkip.unsri.ac.id)*

## ABSTRACT

Teaching materials are an important component in supporting the learning process. To develop teaching materials needs to consider various aspects, one of which is the selection of teaching materials based on students' needs. This research was aimed to determine the teaching materials needed to be developed in the Microeconomic Theory course according to students' needs. Later, the results of the need analysis will be taken into consideration for researchers to identify the types of teaching materials and materials that need to be developed in interactive digital teaching materials in future research. This research used qualitative descriptive research carried out in the Economics Education Study Program of FKIP, Sriwijaya University. Interviews, observations, and questionnaires were used for data collections. Based on the results of the research, it was found that as many as 42.9% of students had difficulty in understanding some of the materials in the Microeconomic Theory course depending on the levels of difficulty of the materials. In addition, the most difficult material was the theory of cost, which was 82.1%. Furthermore, 94.4% of students agreed that an interactive digital teaching material was developed to support the learning process.

**Keywords:** *Need analysis, Interactive digital teaching materials, Contextual approach, Microeconomic theory course.*

## 1. INTRODUCTION

Lecturers have an important role to improving the success of learning. The main role of teacher include make the preparation of classroom materials, their strategies used to improve the classroom operation, their implementation and enactment of curriculum materials, and their use of assessments for evaluating students' learning performances [1]. Learning materials is one of important component to be well prepared. To organize it the lecturers can collaborate the creation with student, its means not only lecturers who can arrange teaching materials and provide various evaluations or errors are difficult, but students can also update the material and provide evaluations to other students to find problem solving will make the learning process more effective, because the preparation of teaching materials be adapted to the needs of students contextually [2].

Microeconomic theory that studies various economic variables in a small scope should be packaged as interestingly as possible and contextual. Its instruction should contain not only concepts and theories, but also a

connection to the real life/recent economic events, so that students are able to know the real benefits of the learning materials which can be applied in real life context. However, in fact, there are many students who are not actively involved in the learning process in the classroom, and the interactions tend to be one-way. Furthermore, the course in the classroom was still limited, that each student did not have the same teaching material, because they obtained it from the internet, textbooks. Besides, they also were highly dependent on their lecturer as the primary learning source. Thus, it is necessary to develop a learning materials which enable students understand the materials better and easier.

Development of teaching materials must also facilitate students to develop their critical thinking and active engagement, because the learning process is not just a process of transferring knowledge and information, but also a complex process to form and build their own knowledge so that the learning process becomes more meaningful. Critical thinking can be developed through a constructivism learning process with a contextual approach, which is a teaching-learning concept that

helps teachers connect contents of lesson to real-world context. Contextual approach whose philosophy is based on constructivism can be used to increase the student's level of intellectual, because Contextual teaching and learning is a learning concept that helps teacher connect the learning material to the real condition of the student and encourage students to use their own knowledge in their daily life [3].

Contextual learning has several main characteristics, namely learning based on problems, learning where students organize themselves, learning in multiple contexts, learning that relates the material being studied to various contexts of students' life, learning using authentic assessment, and learning consisting interdependent groups of learners [4]. Therefore, it can be said that constructivism learning with a contextual approach needs to be applied at the tertiary level, because this learning will form higher-order thinking skills for each student, and through problem-based learning and study groups will form collaborative abilities that are very much needed in the 21st century.

Furthermore, the development of technology and information has great potential that can be utilized in the learning process. Technological advances offer the possibility of using mobile devices to enrich learning environments with multimedia content [5].

Seeing the fact that students cannot be separated from the use of smartphones, laptops, tablets and gadgets that they use in their daily lives, this, of course, must be seen as an opportunity by every lecturer to develop innovative digital teaching materials to keep up with the world advancement. This is in line with the results of research conducted by Fojtik (2015) showed that 76% of students are very interested in using mobile applications that make it easier for them to access information and learning materials [6]. The use of interactive digital teaching materials can increase student learning activities so that it has an effect on increasing their learning achievement [7].

Digital teaching materials can facilitate learning process because they can be used independently by students, and explain phenomena that cannot be visualized. The learning process using interactive digital teaching materials makes students more interested in taking part in learning, create more effective and efficient learning, and makes it easier for teachers to deliver materials that are abstract and cannot be observed directly [8]. Moreover, the digital tool use had a positive effect on student learning outcomes [9].

Seeing the importance of the role of digital teaching materials in the success of the learning process and the absence of digital teaching materials developed in this Microeconomic Theory course, the purpose of this study was to determine what teaching materials need to be developed in the Microeconomic Theory course

according to students' needs. Later, the results of the need analysis will be taken into consideration for researchers to identify the types of teaching materials and materials that need to be developed in interactive digital teaching materials for future research.

Teaching material is one of the important aspects in achieving learning success. Teaching materials are all materials, in the form of information, tools and texts that are systematically developed, and cover all learning competencies that will be mastered by students and used in the learning process with the aim of planning and studying the implementation of learning [10].

Furthermore, Lestari (2013) defines teaching materials as a set of subject matter that refers to the curriculum in order to achieve predetermined competency standards and basic competencies [11]. Based on some of these views, it can be said that teaching materials are a set of learning materials that are developed in a planned and systematic manner which is guided by the curriculum and has several main components, including subject matter, various relevant information, and exercises evaluations used in order to achieve learning objectives.

Developing digital-based teaching materials are necessary due to the phenomenon of students who are never separated from the use of technology, such as smartphones, laptops, tablets, and others. Therefore, it can be said that the learning process also needs to be updated with the use of digital technology in order to be able to meet the needs and learning styles of today's students. Digital technology is believed to be able to increase students' retention and persistence in learning, provide rich content, and is more suitable to be applied in the 21st century learning model [12].

In the learning process, interactivity and active involvement of students are needed. Pavlik in Gao and Huang (2019) defines interactivity as bi-directional communication between a source and a receiver [13]. This can be interpreted that interactivity is direct communication between the source and recipient of the message. Interactivity can be demonstrated by the presence of feedback and communication that occurs, such as providing the correct answer and providing the correctness of the answer [9].

According to the Guidelines for Bibliographic Description of Interactive teaching materials are a combination of two or more media (audio, text, graphics, images, and video) which users manipulate to control commands and or natural behavior of a presentation [14]. Furthermore, Khamidah, et al (2019) explained that the application and use of interactive digital teaching materials strongly supports learning that will improve student's learning achievement [8]. It is because this teaching material can visualize the material through pictures, videos, and animation clearly, attractively, and

it can also interact with students. The use of instructional media can change students' thinking about abstract material to be more concrete.

Contextual learning is a learning concept that attempt to connect learning materials to real world situations so that students are able to use their knowledge and apply it in real life. The philosophical foundation of contextual learning is constructivism, which is a learning theory which assumes that learning is a process carried out by students to build their own knowledge, so that the learning process is not only seen as the delivery of information/knowledge to students alone.

The constructivist paradigm views that learning prioritizes problem solving, developing concepts, constructing solutions rather than memorizing procedures and using them to obtain a correct answer [15]. Then the basic principles of contextual learning include constructivism, questioning, inquiry, learning community, modeling, reflection, and authentic assessment [16]. Based on this explanation, it can be said that contextual learning requires active involvement of each student to increase creativity and critical thinking to analyze and solve the problems faced, as previously stated that contextual learning is learning based on problems and contexts that occur in students' lives.

**2. METHOD**

This research is a qualitative descriptive research conducted in Economics Education Study Program, FKIP Sriwijaya University in April-May 2020. The population of this research is the 4th semester students taking Microeconomic Theory course. The 56 students out of 73 students on the population were randomly selected.

The data collection was interviews, observations, and questionnaires. Observations were carried out when the learning process took place in class; interviews were conducted with students and lecturers of a teaching team who taught Microeconomic Theory course. An open-ended questionnaire was used to find out students' responses regarding the lecture process and teaching materials used during the learning process, and students' needs for teaching materials that need to be developed. Furthermore, the results of the research data were analyzed using qualitative descriptive analysis techniques.

**3. RESULT AND DISCUSSION**

Based on the results of interviews and discussions with the lecturers of the teaching team for Microeconomics Theory Course, it was found that no digital teaching materials had been developed in the Microeconomic Theory Course. So far, the learning

process in class used teaching materials in the form of powerpoint slides compiled by lecturers to discuss with students. In addition, the group presentation learning method was most often used in the classroom which aimed to encourage active student involvement in the learning process and find sources of information from books and the internet.

The use of instructional videos were also used, even though the videos were obtained from the YouTube page, because the lecturers did not make their own learning video for the Microeconomic Theory course. The obstacles faced by lecturers in developing their own learning videos are due to limitations in the use of technology and various software/applications, especially in multimedia production. In addition, the time needed to produce a learning video or multimedia was quite long, starting from determining the content, compiling the design to becoming a learning video that can be used by students in learning.

Data collection using a questionnaire was carried out via google form due to the Covid-19 pandemic so that researchers could not meet students directly to investigate their response on the current learning process they had in the Microeconomic Theory Course. Based on the students' responses on the questionnaire, the results are as follows:

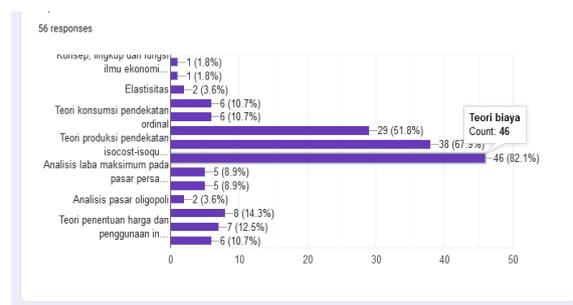
**Table 1.** Difficulty Levels of Understanding Learning Materials in Microeconomic Theory Course

No	Difficulty of Materials Understanding	Percentage
1	Yes	19,6%
2	No	25%
3	Maybe	42,9%

Based on the data in Table 1, it is known that 19.6% of students found it difficult to understand the material in the Microeconomic Theory course, while as many as 25% of students did not. In addition, as many as 42.9% of students answered maybe, which they explained that they had difficulty in understanding certain topics, this depended on the difficulty levels of the material presented

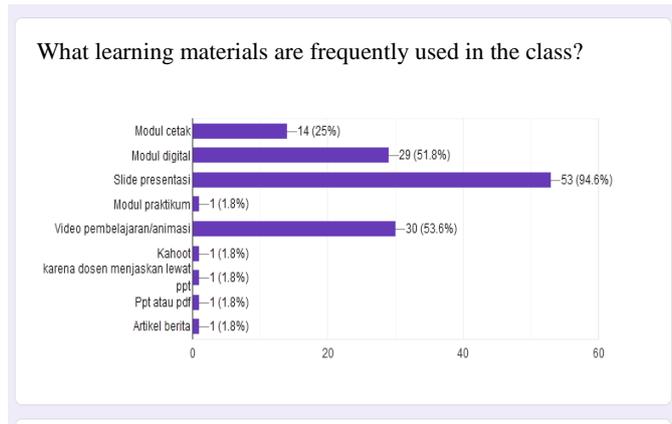
**Figure 1** The most difficult material in Microeconomic Theory Course.

According to you, which material is the most difficult for you to understand?



Based on the data in Figure 1, it is known that the most difficult material for students to understand was the theory of cost (82.1%), then followed by the production theory of the isocost-isoquant approach (67.9%), and the production theory with one variable input (51.8%). They explained that the theory of cost was difficult to understand because many formulas and curve analyses were abundant, so it took a long time to understand. In addition, examples of the application of this theory were not given in relation to the daily lives of students.

**Figure 2** Types of Most Frequently Used Teaching Materials in Microeconomic Theory Course



Based on figure 2, it is known that slide presentation was the most frequently used type of teaching material with a percentage of 94.6%. This was in line with the results of discussions and interviews conducted with the teaching team lecturers. In addition, the use of learning/animation videos was 53.6% and the use of digital modules was 51.8%. As for the learning videos and digital modules used, they came from the internet and YouTube, which were used as learning resources in the classroom.

**Table 2.** The Need of developing Interactive Digital Teaching Materials in Microeconomic Theory Course

No	The Need of Digital Teaching Materials	Percentage
1	Yes	94.4%
2	No	0%
3	Maybe	5.6%

94.4% of students agreed and felt the need to develop interactive digital teaching materials that could be used in Microeconomic Theory Course. They added that in the development of teaching materials that would be carried out, it had to contain several important elements including:

- 1) The teaching materials to be developed had to be in the form of interesting learning videos and animated videos and the materials in the videos were explained in detail and slowly, because if they only learned by reading the presentation slides, it was rather difficult to understand the material presented. This is in

accordance with what is explained by the Institute for Teaching and Learning Innovation (2017) in Nurdin et.al (2019) that the advantages of using video for education include increasing student motivation, increasing learning experience and facilitating thinking and problem solving skill[17]. Moreover teaching materials in the form of learning videos that have been compiled make students more aware and pay attention to the lessons, support independent learning activities and are able to improve learning outcomes, but self-learning also needs to be carefully designed and appropriate so as to minimize dissatisfaction with learners[18].

- 2) It was necessary to present examples or applications of the concept of cost theory in everyday life (contextual in nature), so that it was easier to understand the material presented. As expressed by Rahmawati and Susanti (2019), the contextual teaching material has to connect material to case studies of the current situation in the students' environment so that students find creative ideas through creation, stabilization and relationships in their surroundings[19]. As a result, students will strive to achieve learning objectives and can easily understand what has been learned.
- 3) The developed teaching materials had to be easily accessible and practical to use. This is in line with what Klenner (2015) who states that media must have these characteristics: access type, materialization, semiotic style, degree of specificity, content fragmentation, and expression variety[20]. This means that the media be easy for users to access and study. To make teaching materials had to be easily accessible so teaching materials can be provided in online form. Online learning experience have a positive impact on Pragmatic-Pleasurable Experience[21]. Moreover, online learning can support self learning, so that the learners can manage their own learning effectively[22].

Based on the results of the need analysis, it was found out that there was a need to develop interactive digital teaching materials in the Microeconomic Theory course, especially in the theory of cost which was one of the most difficult materials for students to understand. The forms of teaching materials that need to be developed included text elements, learning videos and animation videos, case analysis, and contextual exercises which had to be integrated as a whole into interactive digital teaching materials, so that it would be easy for students to learn . The results of this needs analysis will be used as the basis for developing interactive digital teaching materials in future research.

#### 4. CONCLUSION

Based on the results of the research, it can be concluded that interactive digital teaching materials needed to be developed, because the use of teaching materials in the learning process of Microeconomic

Theory course had not been maximized properly, which teaching materials had not been compiled in an integrated way and taken the internet such as Youtube. Then, the theory of cost was regarded as the most difficult material. Furthermore, 94.4% of students agreed that interactive digital teaching materials had to be developed with a contextual approach. It is hoped that the development of interactive digital teaching materials will facilitate the learning process and make it easier for students to learn. Thus, the interactive digital teaching materials which will be developed had to meet these characteristics: appropriate and relevant contents, attractive presentations and easy access, and high practicality.

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