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Research Article

Mobile-augmented Reality for Improving Student Entrepreneurial Mindset By Business Model Canvas

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Abstract.

Modern humans' existence is characterized by advances in information, communication, and technology. In the current digital era, augmented reality is one method that can be utilized to encourage learning. This study aims to establish how quickly The Business Model Canvas should be introduced through augmented reality to promote an entrepreneurial mindset for student. The methodology used is a survey of the literature, with a particular emphasis on cellular AR for learning and its use in cultural preservation. The exploratory mixed method is used. Researchers investigated data using a qualitative approach and analyzed it using a quantitative technique to generate measurements linked to the efficacy of augmented reality. Exploratory use is thought to be appropriate for developing new theories as well as testing existing ones. The method is called a systematic literature review (SLR). The SLR process includes the processes of problem formulation, information collecting and analysis, interpretation, arranging, and presentation. Using the Search Method Process (SP), data was gathered. Based on the findings of student trials, it is evident that the mobile-augmented reality produced increases student learning outcomes, which is consistent with the findings of Hsu, Wenting, and Hughes' research. Therefore, mobile-augmented reality has the potential to boost interest in entrepreneurship education. Mobile-augmented reality is expected to increase student attention in entrepreneurship.

Keywords: mobile augmented reality, business model, entrepreneurial

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1. Introduction

The rapid development of information and technology in various areas of life, especially entrepreneurship educations, requires improving in a way that prioritizes efficiency and effectiveness to create a bridge between the present and the future. [1]. To encourage student interest in entrepreneurship, higher education can help to develop entrepreneurship education [2]. Students can develop their critical thinking abilities and get greater, more comprehensive insights [3]. The positive aspects of information and communication technology are its quick access to knowledge and capacity to make learning more engaging, interactive, and visually appealing [4]. By designing more inventive items, the technology sector can be targeted for entrepreneurial development

[5]. Colleges and universities play a part in the industrial revolution by producing superior human resources and influencing students' technical entrepreneurial capabilities and personal innovative behavior. 4.0 [6]. According to the results of Boocock, Frank, and Warren's study [7], technology transfer is necessary to extract educational value from technological development and encourage colleges to guide students in entrepreneurship. As a result, this research provides entrepreneurship education using a board book with augmented reality as its foundation. According to Yun, Won, and Park, user creativity, consumer innovation, and collective intelligence are open sources of innovation that cross knowledge and technological barriers. [8], To inspire creativity in product marketing, however, the growth of media science in educational technology provides the creative business with a variety of learning media, both online and offline. High levels of imagination are needed while creating instructional engineering. Creating objects out of SME items requires creativity [16]. The technology that is employed during the learning process needs to be produced. To help pupils, develop their creativity using augmented reality, researchers have developed one technology [9]. Through a digital process, augmented reality (AR) technology combines actual and virtual things to give the user the impression that they are in front of them [10]. It gives the user a broad perspective of how the actual world and the virtual world can coexist when viewed from the same location [11]. Three qualities define augmented reality: it is interactive (encouraging user engagement and perception of the real environment), it occurs in real time, and it takes the shape of three dimensions [12].

Based on Bower et al., augmented reality is a technology that can aid pupils in developing their capacity for higher-order thought [13]. It's interesting to note that computer science and educational technology experts have different definitions of augmented reality. Accordingly, Elfeky and Elbyaly [14] introduce augmented reality as a tool that uses mobile devices to let pupils interact with digital content that is incorporated into the real environment. The introduction of technology into entrepreneurship education is done to strengthen and advance the way people learn. A smartphone can also be used to run augmented reality software [15]. It is because of the current popularity and great mobility of smartphones [16]. As a result, smartphones have evolved into tools that can support classroom instruction [17].

To create augmented reality on Android-based mobile devices, Vidal et al. [18] highlight the requirement that the necessary hardware support and tools be available. According to Saudagar and Mohammad [19], Android-based augmented reality is more effective, precise, and quick to utilize. Mobile devices are increasingly being used in

the educational process to implement augmented reality [20]. It's because augmented reality development may be supported by mobile devices, which are a stable platform.

2. Material and Methods

The exploratory mixed method is the research methodology used. Researchers investigated data using a qualitative approach and analyzed it using a quantitative technique to generate measurements linked to the efficacy of augmented reality. Exploratory use is thought to be appropriate for developing new theories as well as testing existing ones.

2.1. Qualitative Methodology

Qualitative Research Methods Students were selected to participate using a purposive sample strategy based on the provided entrepreneurship course content. The chosen students must fit the requirements of being engaged learners who partake in entrepreneurship education programs and possess Android devices. Using a semi structured questionnaire and the direct interview method, interviews were conducted. Acer the entrepreneurial education session, interviews were held. Our interviews included 20 students from the study program in animation and 20 from the study program in culinary arts. In this study, the understandings of students on learning design, augmented reality, and canvas business models were examined.

2.2. Quantitative approach

We made the decision to continue a quantitative analysis of augmented reality's appeal to students and lecturers based on the outcomes of the qualitative study. Through entrepreneurship teaching, mobile augmented reality intends to present a business model canvas to pupils. Therefore, we created mobile augmented reality by creating markers to snap images of BMC items in animation, making it simpler for instructors to offer material.

When selecting the BMCs for the research, the client group, value propositions, channels, customer relationships, income stream, key activities, key resources, significant partners, and cost structure were considered. With entrepreneurs and experts in educational technology, the researcher evaluated the application's validity once it had been developed. Additionally, the construct validity was assessed by consulting

experts. The outcomes were then adjusted during field tests. Acer receiving the findings of field studies, the validity of each type of instrument is determined.

There were 100 students that were the subject of the study, distributed as follows: At the State Polytechnic of Creative Media Jakarta, 35 students in the animation program, 35 in the fashion design program, and 30 in the culinary arts program, all of whom are between the ages of 19 and 22, are also receptive to experimen1ng with and utilizing new technologies. In the survey, the following queries were asked: Have you heard of augmented reality? Have you used augmented reality before? 3. How were you first introduced to augmented reality? 3. Which aspects of the program most catch your eye? 4. Would BMC's learning processes be enhanced using mobile augmented reality in entrepreneurship learning? 6. Would you suggest this application to college students?

The Likert scale, which has a range of values from 1 to 5, The assessment of the expert's questionnaire was made using this method. In the meantime, a Likert scale was used to create the questionnaire for the student trials. There were some numerical data from the survey and test findings when researchers conducted an empirical feasibility test.

3. Result and Discussion

We conducted interviews with several informants during the qualitative phase while concealing their identity to adhere to research ethics. Students are aware of the principles of instructional design, according to the findings of interviews with students about their grasp of the BMC. Students have a responsibility to use technology and the internet intensively to become a learning resource. To become a learning resource, students must do. Although many students have expressed interest in augmented reality questions, few have used it in the classroom. The ability to understand the procedures needed to launch a business is made feasible through entrepreneurship education. According to the professors we spoke with, technology-based learning materials are far more efficient than conventional media.

Findings from the qualitative analysis served as research in the creation of a mobile augmented reality. The marker less approach to object recognition is the best one for spoiling actual items. Computer vision methods are employed in Android to identify actual objects. One provider of augmented reality technology integrates these methods into Qualcomm's mobile device to recognize things without needing markers. By creating a mobile augmented reality architecture, we offer solutions for entrepreneurship

education innovation. The three main components of architectural characteristics in augmented reality technology are the blending of the actual and virtual worlds, in-the-moment interactions, and the shape of the object in a three-dimensional or three-dimensional model. In this augmented reality system, contextual data might take the form of location data, audio, video, or 2D model data.

Results of a survey on mobile augmented reality conducted among students at the state polytechnic for creative media, where the first question asks if they have ever heard of augmented reality. 100% of participants in the animation study program indicated they had. In the culinary arts education program, 65% of the students have never utilized augmented reality. Augmented reality has been employed by 58% of students in the fashion design study program. 72% of students say they learned about this technology online, and 38% say they learned about it in the classroom. The information on the most exciting aspects of the mobile augmented reality application is given in the responses to the questions raised above.

Based on the findings of student trials, it is evident that the mobile augmented reality produced increases student learning outcomes, which is consistent with the findings of Hsu, Wenting, and Hughes [21] research. Therefore, mobile augmented reality has the potential to boost interest in entrepreneurship education [22].

4. Conclusion

Applicatons of augmented reality technology are currently used in many different industries, and they will continue to advance significantly in the coming years. We hope to provide augmented reality advancements in entrepreneurship education as a response to the research gap. The outcomes demonstrated that augmented reality could improve the efficacy of the learning process. The findings of this study can teach future studies about how aoractive it is to use augmented reality in an entrepreneurship course. It significantly affects how well students perform on their pre- and post-tests for the BMC content. However, there are several limitations to this study, and more investigation is required. The primary focus of this study is Indonesia.

As a result, we are careful to claim that the findings of this study may be applicable in other nations. It results from variations in entrepreneurship course curriculum across different nations. To make these changes useful for doing comparative investigations in other countries. furthermore, to investigate how variations in entrepreneurship course curricula affect students' choices for augmented reality.

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