Virtual Reality Based on Media simulation for Preparing Prospective Teacher Education Students

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ABSTRACT---Education forms one of the supportive platforms through which the quality of human resources can be realized. To ensure that better learning processes are realized, one of the trends that have been embraced involves the use or incorporation of technology. The aim of this study is to explain the concept of virtual reality in relation to media simulation. The qualitative study gains data via interviews and observation. 10 university students (at year 2 level) are selected Universitas Negeri Jakarta. Indeed, the students were given an opportunity to engage in virtual reality teaching process. The motivation was to help the instructor explain different strategies through which student teachers in the education program could be taught. From the findings, media simulation-led virtual reality improves the learners' ability to implement learning strategies, besides boosting their motivation to gain relevant knowledge and skills. As such, virtual reality is seen as a tool through which learning processes can be improved. For the instructor, the use of virtual reality in the teaching-learning process aided in providing learners with practical teaching skills that they were expected to apply later during teaching-learning scenarios in junior high school levels.

Keywords--- Prospective tecaher, media simulation, virtual reality

I. INTRODUCTION

One of the institutional goals that are worth highlighting concerns the role of a prospective teacher. Particularly, teaching stretches beyond the provision of theoretical knowledge to ensure that relevant learning experiences are gained; especially those related to actual problems experienced in learning environments. Indeed, the use of virtual reality has been affirmed to promote creativity and also pave the way for prospective teachers to explore new ideas [1]. Notably, virtual reality seeks to simulate actual environments [2]. Guided by Williams' research, this study is based on the observation that virtual reality accounts for improvements in skills of neonatal resuscitation among midwifery learners [3]. As avowed by Chang and Weiner, simulation via virtual reality gains application inemergency training because the learning aprooach is user-driven and on-demand, deviating form strategies that rely on scheduling, personnel, and preparation associated with hands-on simulation exercises [4]. It is also notable that through virtual reality, the resultant tecahing-leraning context yields multi-user reference support systems [5].

Some of the areas to which virtual reality applies include interactivity, sensory feedback (that entails response to user inputs), immersion, and the virtual world [6].

Lve proposed the concept of situated activity, which is similar to peripheral participation inwhich there is a description of the correlation among knowledge and practice communities, activities, expertes, and learners. Particularly, situated activity implies that learners are engaged in the practice community [7]. In universities, the concept of situated activity provides room for learmers to gain knowledge in environments that are also similar to those that they are likely to experience during their tecahing-learning processes. As such, virtuyal reality formsd one of the latest trends through which educational technology is promoted [8]. The trend comes in the wake of dissatisfaction with conventional tecahing methodologies that have been embraced previously, especially due to their rigidity and the inability to transfer classroom learning to community practice situations adequately [9]. From research observations, virtual reality is a response to several obstacles that hinder effective learning. Given its interactive nature, the concept proves relevant to an artificial environment, a provision accounting for its ability to motivate learners towards knowledge acquisition. In physical education system models, virtual reality is seen to be a mootivator and tecahing tool [10]. Particularly, the concept promotes interaction with computer systems, eventually yielding a significant increase in the stdunets' interest; especially regarding how they udnerstand phenomena and scientific concepts [11].

Also, virtual reality is seen to be a learning medium through which the students' learning abilities are enhanced via the simulation of tecahing-learning environments. It is also worth noting that classroom environments with virtual reality-based simulations allow learners to associate theoretical content with practical situations, having appeled to studnets' senses such as touch, smell, hearing, and sight [12]. Given that virtual reality links the content that is learned with practical situations to which the subject applies, it is projected that the simulation promises the beneficial effect of attracting the studnets' attention, yielding imrpovements in the understanding of certain skills and knowledge to which they are exposed; proving beneficial to the studnet community due to the growing need to incorporate technology in the work of prospective tecahers.

Based on these scholarly insights, a question that arises is how might proposective student teachers be prepared in innovative learning environments through the use of virtual reality-based simulation?

II. METHODS

Sugiyono observed that qualitative research is characterized by positivism in which the main aim is to establish information regarding natural objects existing in the research context [13]. Also, the qualitative research approach involves the use of descriptions and the presentation of verbal information gained from participants [14]. This study was conducted in the context of Universitas Negeri Jakarta, targeting the Faculty of Education's Education Technology program. During the learning of theoretical content, data was collected through direct observation in second year classes A and B. also, the researchers engaged the selected participants in interviews (regarding virtual reality-based media simulation in teaching-learning processes – and its influence on their academic performance or motivation to learn). This approach was selected because it provided room for open discussions, enabling the researchers to gain an insight into the selected students' viewpoints about the subject under investigation [15]. Based on the observations by Roblyer and Doering, as well as Hannafin and Peck, multimedia learniong models promote simulations of classroom environments [15-17]. Prior to thedevelopment of the selected tecahing-learning model, Rob Phillips' interactive multimedia was used to govern several trials that were conducted [18]. Indee,d the studysought to gain a global understanding of how virtual reality shaping the students' learning experiences. Edgar Dale[19] documented that in children, knowledge acquisition ranges form abstract to concrete information. The process begins with the exp[osure of the studnets to practical experiences before culminating into situations involving the observation of the events presentedto them via media programs or phenomena.

III. RESULTS AND DISCUSSION

A. Virtual Reality Based on Media simulation

In this application, virtual reality-based simulations were designed easily. Particularly, file.apk was the application on focus. In situations, where a device uses the Android operating system, the use of this application implies that it (the program) is installed firstly. Within and outside classroom settings, this study's selected products could gain application to independent learning. Indeed, the virtual reality concept is seen to simulate various teaching-learning strategies and techniques.

Figure 1: View from Virtual Reality Based on Media Simulation

In Figure 1 above, the photographs illustrate the students' learning experience and process using virtual reality. The application allows instructors to teach students practically. From the interview outcomes, virtual reality allows the knowledge and skill acquisition process to gain theoretical content about the subject matter, similar to that which is presented during formal education sessions. It is also notable that most of the interviewees stated that the virtual reality application enabled them to reflect on their learning concept, process and experience. Thus, the application was seen to promote the learners' awareness of their knowledge and skills about the subject matter or content; a trend translating into the beneficial effect of virtual reality-based learning in teaching-learning situations or scenarios.

Table 1: Informan Data

No	Informan	Information
1	Informan one	*This application made me feel like in the real class and teach.*
2	Informan two	*This model use attractive illustrations and use the original character visualization. Its' also helped me to learning practice.*
3	Informan three	*This program can use personal without instructor. We don't need to waiting for learning practice.*

During the construction of knowledge, abilities vary form one context and individual to another. Some of these abilities include re-expressing and remembering experiences. This study's interview outcomes demonstrated that when virtual reality is used, this experience allows students an opportunity to increase the learning of the theoretical content to which they are exposed. By displaying a navigator, most of the learners gained the intended knowledge and skills easily. Hence, virtual reality can be applied in technical practice simulation, as well as strategic learning processes.

B. Virtual Reality Based on Media simulation can fostered learning motivation student's

Two factors have been documented in relation to the criticality of motivation in the teaching-learning context, other than the promotion of learning or knowledge and skill acquisition. Firstly, motivation is seen to a psychic driving

among students. Secondly, motivation is seen to provide pleasure, enthusiasm and passion in learning [20]. In this study, most of the participants expressed these benefits; especially form the interview outcomes that were obtained (about the concept and importance of learning motivation).

Table 2: Informatn Data

No	Informan	Information
1	Informan four	*I'm happy to use virtual reality based on media simulation. Because the program is made with unity software. And look like interesting.*
2	Informan five	*This model helped us to increase our learning motivation. We can repeat teaching practice if we can't do it well.*
3	Informan six	*Virtual reality helped lecture to explain about learning theory. The student's in the class can share their experience while teaching practice and also ask about it.*

Based on the interview outcomes above, it is evident that there is increased motivation among students and teachers, should virtual reality be used as a media simulation-based learning tool. Also, virtual reality is seen to enable students to ask questions about certain concepts, implying that it is an interactive programs, an outcome accounting for the perceived increase in motivation and better learning experiences. From the perspective of the instructor, the use of virtual reality increased the students' understanding of the subject under discussion.

C.Discussion

Upon the completion of the final prospective users' trial, it is worth concluding that several advantages accrue form the use of the developed products. For instance, the unity software linked to programs accounts for an attractive display, a provision to yield learning motivation. From the findings by Powers and Melissa, research concerning virtual reality and special education comes with possibilities and challenges [20, 21]. Also, virtual reality is seen to enable students to link the original and practical situations with character visualizations that the virtual reality programs present. As such, the findings point to the need to provide students with innovative learning environments marked by the use of technology. In program evaluation, virtual reality is also seen to play an informative role, especially in the context of life skills education [22]. The navigator's display is also made in a way that makes it simple, making it easy to use and follow among students. From the data obtained by this study, similar to the findings documented by Alhalabi [23], the achievement of students tends to be enhanced, including in the context of engineering programs. Thus, the technological program allows the learners to gain knowledge and skills with or without an instructor. According to Finkenberg and Mohnsen [24], the use of virtual reality in the context of physical education is a great motivator and informative teaching tool. This study's interview findings and the results obtained via direct observation in the classroom context concurred with the aforementioned scholarly documentation. In particular, a significant number of participants indicated that through virtual reality, there was motivation to learn more skills in the subject. Specific benefits of the program included improved or better learning experience, the ease of use, and the ability to save time or maximize the time spent on gaining knowledge and skills. In relation to the research question that the study sought to answer, these results demonstrated that when virtual reality is used in teaching-learning processes, there is likely to be better learning experience among students.

IV. CONCLUSION

In summary, culture frames authentic activities. The purpose and menaing of the activities tends to be constructed socially via negotiations among the current and previous members of the knowledge community. In educational processes, virtual reality adoption is seen to aid in addressing various challenges that learners and teachers face. Given that the deisgn of this program seeks to steer interactions and simulate an artificial environment, it was foiund to promote student motivation to gain knowledge and skills. The rseearch context was Universitas Negeri Jakarta's Faculty of Education, with particular focus on the Education Technology program. From the results, students who were exposed to virtual reality demonstrated that their teaching experience was motivating and engaging. For the instructor, the use of virtual reality provided room for increased learner understanding regarding the theoretical content that was being taught. The eventuality and resultant inference is that through virtual reality, there is likely be an improvement in the students' ability to apply learning model strategies and techniques, besides boosting their motivation to gain additional knowledge and skills. Overall, the study established that when innovative learning media are implemented, especially by using virtual reality, instructors are likely to be better placed to prepare prospective teacher education students adequately, with an additional benefit being the provision of quality education to junior high school students (by the teacher education students).

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