

Augmented Reality (AR) Based Approach in Nursing Education: A Preliminary Project

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Abstract

Lecturers aware that learning deepens, not just through reading and listening, but also through creating and interacting. In normal practices, nursing students will utilize the Microsoft words application or produce normal poster to complete their task or assignment for submission. However, problems persist when the students need to do revision where they need to refer to posters or giant book that they had created. The students also had to bring them everywhere and this hinder them from referring to the project to enhance their learning. Therefore, in this project, Augmented Reality (AR) was used as a tool for students to create tasks given by lecturer. This approach was applied to nursing students at PPUKM for the learning of softs skills. In this approach, AR allows the students to engage in and create learning experiences of their own. Lecturers and students can use this open source tool to essentially bring their learning to become more meaningful. Students could also obtain the information related to soft skills easier anytime anywhere. The AR based approach also encouraged students to become creators of their own learning as well as increasing their interest in learning.

Keywords: Augmented Reality (AR); meaningful learning; mobile learning technology; nursing education; softs skills.

1. Introduction

In the teaching and learning process of students especially among Higher Education Institution (HEI) students, each lecturer is responsible with certain tasks according to capacity of the lecturer and the credit hours to be completed by the students in a semester. The lecturer may likely have to teach the subjects that are not included with application of learned skills, for instance, in management strategies in nursing course with subjects with theories and no application of skills such as skills in medication administration procedures and so on [1]. If the subjects assigned to the lecturer are fully factual and conceptual, the subjects might be more difficult to be comprehended and may bore the students. Besides that, factual subject is also giving overload cognitive and physical which students should carry a lot of book or note or big bag when attending class.

In this era, generation Z and Alpha are generations who were born when the technology has already dominated the earth. Computer and Internet technologies are communication field for these generations as compared to verbal communication which is becoming lesser important [2] in [3]. Their free time were spent with gadgets in their hands. This situation may have indirectly influenced the life that they are facing. Such a lifestyle has lessened the ability for these generations to expand their thoughts without the use of technology [4] [5].

Thus, this inspired the authors to have a further look at the common learning patterns to the Internet approach with assumption this will stimulate the interest and mind of the students in using higher order thinking skills. This is because current technology internet which considered to be important to increase students focus in classroom. The changing to technology in teaching should be burst with focus was given through the slogan:

“when the students are having fun with learning, knowledge is easier to be comprehended”.

In teaching and learning process, the lecturers deliver lectures and the students will learn. In this process, Carl Rogers’s theoretical concept of learning stated that it is really important for an educator to understand the learning pattern of an individual. Individual learning pattern is said to start from experience to behaviours based on the experience faced [6]. The importance of an educator to create positive experience by using updated teaching and learning technique to fit the needs of the students is hence emphasized.

In the humanistic concept and theory, Carl Rogers’s is viewed as suitable to be applied in the classroom teaching and learning. This is well supported by the statement of [7] who emphasized on the important concept in Carl Rogers’s learning theory where the teaching and learning process has to be planned according to the emotional needs and development of the teenagers as well as to be student-centred for the students who are the clients to the classroom sessions. In addition, the learning pattern used has to be related to humanistic values, individual rights, self-accountability, and the values of learning individuals [8] [9].

The writer analysed and applied Carl Rogers’s learning theory in constructing classroom learning strategies in order to deal with the students whose favour Internet as the mean of communication over verbal communication. These strategies are student-based learning techniques. It is important for the teaching and learning sessions to be conducted in fulfilling the needs and interest of the students.

Furthermore, the students of this generation were born when the Internet use has already been used widely in every sector. Therefore, the Augmented Reality learning technique need to be introduced to the students [10]. Thus, this motives the researchers to apply AR in a preliminary project conducted to measure the

effectiveness of the technique among the students of the 21st century [11].

2. Methodology

This study employed a mix method research design. This project is a preliminary project conducted on the year 2 students of Masters of Nursing at Universiti Kebangsaan Malaysia Medical Centre. Since this study is focusing on nursing education, purposive sampling was adapted. There were only eight students enrolled for Masters of Nursing education, thus all students were involved in this project. Augmented Reality teaching technique was integrated in Management Strategies in Nursing course.

The authors applied the Augmented Reality teaching technique in every topic, notes, activities, and continuous assessment of the subject. This instructional transformation was adapted from Web 2.0 applications and was made as the foundation in developing Augmented Reality teaching technique.

Augmented Reality teaching technique is a teaching technique based on the technologies which is internet approach used by the authors throughout the teaching and learning process. In the beginning of the lesson, the authors reminded the students to make sure that their Internet or Wi-Fi connection of their gadgets was functioning perfectly. The lesson was conducted as scheduled.

The authors started each lesson with Augmented Reality teaching technique for all topics by providing students with card code. When students want to know important point in each discussion topic, students need to scan the card code and the information required will appear and students can read it easily.

In the end, students were asked to answer a 5-point scale survey (ranging from 1-Strongly Disagree to 5-Strongly Agree) as well as an open-ended question regarding their perception towards the use of augmented reality in the lesson. The questionnaire was adapted from [12].

3. Findings and Discussion

3.1 Ease of Use



Fig. 1: Students' perception towards ease of use

Based on Figure 1, all of the students had shown positive perception towards the use of augmented reality in the lesson with the highest answer is for 'Strongly Agree'. Based on their open-ended responses, one of the students mentioned about the ease of use which they stated "very useful..I don't have to bring heavy note books." and also "I is even easier for revision. The notes can be saved in my phone!"

3.2 Relevance and Suitability

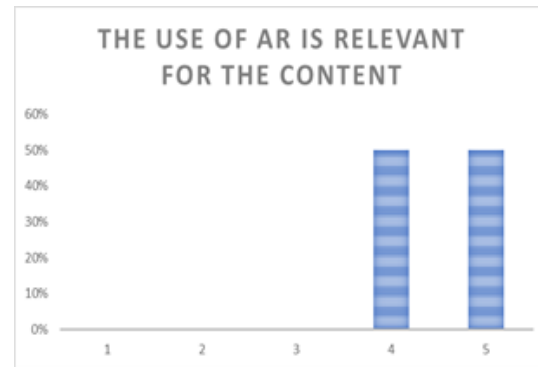


Fig. 2: Students' perception towards relevance and suitability

Based on Figure 2, it could be seen that all students agreed that the use of augmented reality is suitable for the lesson. Even though the lesson is on learning soft skills, the use of augmented reality makes it more interactive and engaging. This is proven by the students' responses in the open-ended question. One of the students wrote, "the learning is more fun and interactive. I like the pop-up image the most!"

3.3 Helpful for Learning Process

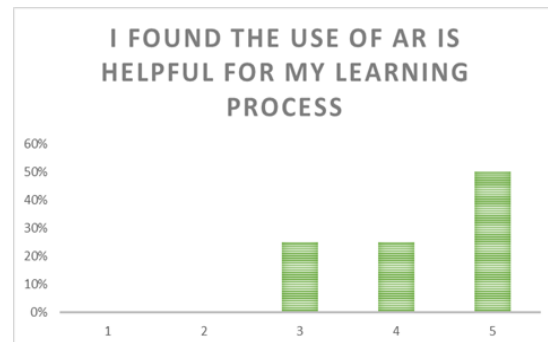


Fig. 3: Students' perception towards the use of AR for learning process

Referring to Figure 3, the students believed that the use of augmented reality help them for their learning process. This is probably because the method used suits their learning style.

3.4 Intention to Use AR



Fig. 4: Students' perception towards the use of AR application for assignment/project/learning activities

Based on Figure 4, the students were found to have interest in using augmented reality application for their assignment, project, learning activities and etc. This is probably because they found that the contents are well organised and easy to obtain as shown in Figure 5.

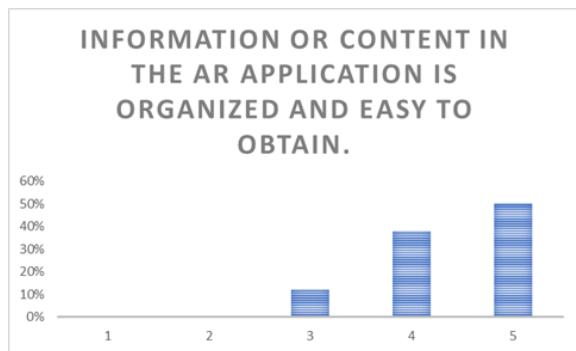


Fig. 5: Students' perception towards the organisation of content

4. Discussion

The excitement of the students to learn is a satisfaction for an educator. This situation can be materialized by the educators easily by using Augmented Reality technique. The findings of the preliminary project conducted show that most of the students were satisfied and were not bored with the learning experience by using the technique.

This situation indicated that the year 2 students of UKMMC were impacted positively in their experience and learning pattern, and the technique introduced has further encourage their cognitive throughout the learning sessions. This is in line with the modern and sophisticated learning pattern of the 21st century. According to [9], educators have to use effective teaching techniques in order to get maximum outcome in teaching and gives minimum impact on the comprehension of the students on the topic taught in the classroom.

When the students are enjoying their learning process, they will not feel bored to learn, and this supports the findings of the authors in developing a new strategy suitable for the students of the digital industrial revolution era. Thus, this also gives minimal impact on the teaching by using the Augmented Reality technique adapted perfectly throughout the teaching and learning sessions in the classroom, costing no sigh of boredom from the students even after a long session of the lesson.

This is also coincided with the statement by [6] which indicated that individual learning patterns start with experience which leads to behaviour based on the experience faced. We are well aware that the main communication method for generations Z and Alpha is by using computer and Internet [2].

The findings of this project also indicate that the students were more motivated and not feeling sleepy during the lessons and they were given opportunities to think critically and creatively in generating ideas to complete the assigned tasks. This shows that the Augmented Reality technique is an instructional transformation developed based on the learning patterns of generations Z and Alpha which is dominated with the advancement of technology and it is shown to influence creative learning process of the students.

This clearly indicates that if lecturers planned student-based learning, understand the emotional needs and development of the students who prefer Internet and gadget over conventional communication, lecturers will be able to provide positive learning experience for the students. This experience will lead the students to use critical and creative thinking skills in order to obtain creative learning.

The findings of this project also indicated that the mind of the students have to be mastered psychologically in order to attract and motivate the students to learn. The easiest way that can be implemented is by applying the Augmented Reality technique which is viewed as suitable for the needs of the current generation. This technique has also fulfilled the instinct and need of the students as mentioned by [6] and [7] that educators need to use effective efforts and strategies in order to assists gen Z and Alpha

in obtaining knowledge in the tertiary level. This is because effective teaching technique has given the students the opportunity to explore knowledge and to use higher order thinking skills in participating classroom activities.

Additionally, the findings of this project showed that the students were also capable to produce interesting ideas, answer questions posed by the lecturer effectively, and to do reflective learning in completing the assigned tasks and to present the findings of the tasks to the class. The findings indicate that the phenomenon faced by the lecturer where the questions posed left unanswered, and answering the question they posed can be tackled. This phenomenon can be handled by using instructional transformation Augmented Reality technique.

The development of this technique was not only based on the advancement of technology, but also through the psychological concept in education applied to boost creative teaching and learning. This aspect is important psychologically as it is an approach that can help to influence the learning process and behaviours of the students in learning. According to [8], educational psychology approach is the foundation in producing excellent students.

This has indirectly assisted the educators in producing a generation who is able to think critically and creatively in line with the aim of the Malaysia Ministry of Education. We are living in the technological era with the need to use sophisticated computers and gadgets. The students of this era have to deal with a lot of self-directed learning in order to gain knowledge and to excel above others. The new teaching technique was introduced and the difference is that the conventional way is replaced with the modernized technique in order to stimulate learning among the generations Z and Alpha. This effort is also coincided with the suggestion made by Mohamed Amin (2014) that the educators should head towards transforming the world of education to be in line with the advanced Wi-Fi generations where computers and gadgets are their toys.

In being in line with the advancement stream of the students and to materialize the need of education in the 21st century, university lecturers have to be more creative and advanced to stay align with the development of gen Z and Alpha, which are the generations of Internet who may change the world (Mohamed Amin, 2015). Thus, this has inspired the teaching and learning innovation developed by the writer which is instructional transformation 'Augmented Reality'.

5. Conclusion

The findings of the project show that the use of instructional transformation Augmented Reality technique has contributed towards positive experience in creative learning among the students. The usage of this technique is the main focus in planning innovative student-centred teaching methodology by using Internet. This paper proposes the use of this technique in planning for factual and conceptual subjects. It is quite easy to be implemented and it will give a big impact to the students, lecturers and the public. Therefore, let's create an impactful creative learning by stimulating the mind of the students in using high order thinking skills through the implementation of Augmented Reality technique.

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