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Determination of student opinions in augmented reality

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Abstract

The rapid development of the new technology has changed classroom teaching methods and tools in a positive way. This study investigated the classroom learning with augmented reality and the impact of student opinions. 97 volunteer undergraduate students took part in this study. Results included data in the form of frequencies, percentages and descriptive statistics. The results show that, with gamification methods, augmented reality content affected students' opinions in a positive way. When QR codes are used in the classroom, students feel independent from classroom materials and can access various resources. Moreover, students think that, when augmented reality in the classroom is used, education is more enjoyable.

Keywords: Augmented reality, gamification, opinions, students

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1. Introduction

The rapid development of the new technology has changed the classroom teaching methods and tools in a positive way (Keser, Uzunboylu & Ozdamli, 2011; Dewitt & Siraj, 2011; Al Bataineh, 2014; Uzunboylu & Karagozlu, 2015; Ozcan & Genc, 2016). Augmented reality is one of the new technology tools with smartphones and tablets in the classroom. According to Cakal & Eymirli, (2012) Augmented reality technology consists of four different environmental tools. These tools are computer, camera, digital marker and real world. We could say that Augmented reality has four different combination of applications reflection in 3D (Cakal & Eymirli, 2012; Gocmen, 2015). Yuen, Yaoyuneyong & Johnson (2011) states that when Augmented Reality is used in the classroom, it increases students' motivation. Augmented reality provides some experiment studies which are impossible to use in the real world (Shelton & Hedley, 2002; Ozbay & Cinar, 2013). According to Akcay & Cetinkaya (2013) Augmented Reality is already being used in the classroom worldwide and it will be important for students. Also, Bachir & Zoubir (2013) used robotic teleoperation system with augmented reality and they obtained positive results. Idoughi (2014) used Augmented Reality User Interfaces in their research and suggested using it. This study investigated the learning process with augmented reality and the impact of student opinions.

2. The aim of the research

The aim of this study is to investigate the student opinions on augmented reality.

3. Methods

3.1. Participants

The participants of this study were 97 volunteers from various departments taught by blended learning method under the learning management system of Near East University Distance Learning Center. The research was conducted during the spring semester 2014-2015.

3.1.1 Department Distribution

Table 1 shows the student distribution according to departments. The students who participated in this study were from the departments of Computer Education and Instructional Technology (f=15, 15%), Pre-School Teaching (f=27, 28%), Psychological Counseling and Guidance (f=25, 26%) and Teaching the Mentally Disadvantaged (f=30, 31%).

Table 1. Department Distribution

Departments	f	%
Psychological Counselling and Guidance	25	26
Pre-school Teaching	27	28
Teaching the Mentally Disadvantaged	30	31
Computer Education and Instructional Technology	15	15
Total	97	100

3.1.2 Gender Distribution

Table 2 demonstrates the student distribution according to gender. The male students composed the 43% (f=42) and female students composed the 57% (f=55) of the participants.

Table 2. Gender Distribution

Gender	f	%
Male	42	43
Female	55	57
Total	97	100

3.2. Instruments

The questionnaire survey was developed by the authors. The questionnaire was developed on five-point Likert scale consisting of 16 positive statements. The reliability of the questionnaire was measured through Cronbach Alpha, yielding the score of 0.89.

3.3. Data Analysis

Data was collected through the questionnaire by using SPSS software. The findings from the study were presented by using percentage, frequency and descriptive statistics.

4. Results & Discussion

Table 3. Student opinions in augmented reality

Items		Mean	Std. Deviation
1.	I could discover more information when I use Augmented Reality	4.12	.64
2.	I could use easy Augmented Reality through mobile applications	4.04	.69
3.	Augemented Reality improves my imagination	4.57	.49
4.	I could understand the course contents easily	4.19	.68
5.	Augmented Reality is providing reachable course materials	4.22	.68
6.	Augmented Reality is providing enjoyable education in the classroom	4.55	.49
7.	Augmented Reality is increasing my course success	4.15	.66
8.	When Augmented Reality is used in the classroom, it improves my attention towards the course	4.05	.68
9.	Augmented Reality increased my motivation to learn	4.58	.49
10.	Augmented Reality should be used in all courses together with gamification method	4.19	.67
11.	I felt independent when I used Augmented Reality in	4.08	.65

	the classroom		
12.	I could understand lessons when I used Augmented Reality in the classroom	4.48	.59
13.	QR code is easy to use	4.17	.66
14.	I could create QR code easily	4.02	.59
15.	Augmented Reality is increasing interaction	4.52	.50
16.	Gamification method together with Augmented Reality increase my motivation	4.49	.69

Table 3 shows that students opinions on augmented reality were mostly "strongly agree". In this respect, the students discover more information when they use Augmented Reality (M=4.12, SD=.64), the students could use Augmented Reality through mobile applications easily (M=4.04, SD=.69), Augmented Reality improves their imagination (M=4.57, SD=.49), they can understand the course contents easily (M=4.19, SD=.68), it provides reachable course materials (M=4.22, SD=.68), it also provides enjoyable education in the classroom (M=4.55, SD=.49), it increases their course success (M=4.15, SD=.66), using Augmented Reality in the classroom improves their attention towards the course (M=4.05, SD=.68), it increases their motivation to learn (M=4.58, SD=.49), Augmented Reality should be used in all courses together with gamification method (M=4.19, SD=.67), students feel independent when they use Augmented Reality in the classroom (M=4.08, SD=.65), students can understand lessons when they use Augmented Reality in the classroom (M=4.48, SD=.59 QR code is easy to use (M=4.17, SD=.66), students can create QR code easily (M=4.02, SD=.59), Augmented Reaity increases interaction (M=4.52, SD=.50) and Gamification method with Augmented Reality increase students motivation (M=4.49, SD=.69). Yuen, Yaoyuneyong & Johnson (2011) states that when Augmented Reality is used in the classroom, it increases students' motivation.

5. Conclusion

Students could easily discover more information when they use their smart phones. When they use Augmented reality in the classroom, they think that they improve their imagination. Also, students stated that they could understand the course contents easily. When QR codes are used in the classroom, students feel independent from classroom materials and can access various resources. Moreover, students think that when augmented reality is used in the classroom, education becomes more enjoyable. Besides, the Augmented reality provides reachable course materials as well as increasing students' course success, attention, interaction together with their motivation. Moreover, students stated that Augmented reality should be used in all courses together with gamification method.

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