

PERCEPTIONS AND ATTITUDES OF HEALTH PROFESSIONALS TO USE
AUGMENTED REALITY TECHNOLOGIES IN TRAINING



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Objectives

The importance of innovative technologies in improving and developing the education, service delivery and care processes of health professionals, which are the basic building blocks of health services, is increasing day by day. Augmented Reality (AR) technology increases the effectiveness and efficiency of learning processes by making learning attractive, increasing its permanence, embodying abstract concepts, facilitating the learning of dangerous and difficult-to-observe applications, and providing many practical opportunities. With this research, it is aimed to determine the perceptions and attitudes of healthcare professionals regarding the use of AR technologies in applied education processes during the COVID-19 pandemic period and to contribute to a quality healthcare service in line with the recommendations to be made.

Methods

The study was carried out with 182 health workers (physicians and nurses) working in a public hospital. The "Technology Acceptance Model (TKM) Questionnaire" developed by Kaenchan, P. (2018) was used to measure the perceptions and attitudes of healthcare professionals about using AR Technologies. The analysis of the data was made using the IBM SPSS 25.0 statistical package program.

Results

It has been observed that following the technology applications of health professionals, being aware of AR technology applications and receiving training on innovative technologies positively affect their perceptions and attitudes towards using AR technology applications. In addition, it was not observed that there was a significant relationship between age, gender, education level, unit of work and positive attitude towards AR technology. It has been determined that the level of perception and attitude is high in general, mostly about %67,4. It has been observed that as the duration of work experience increases, the level of perception and attitude increases. %96,7 of health professionals believe that AR will be useful in health education. Table 1 ve 2 shows “Do you think positively about using innovative technology applications such as Augmented Reality in the practical training of healthcare professionals?” In the comparisons made between the answers given to the question: It was found that there was a statistically significant difference in terms of the survey score (p<0.05), and those who answered yes had higher scores.

Conclusion

In this study, the perceptions and attitudes of healthcare professionals working in public, private and university hospitals in Turkey's capital city during the COVID-19 pandemic process towards Augmented Reality Technology in their applied education processes were examined. AR technologies have a very important place in terms of improving professional competence, performance and learning levels, especially in cases where the pandemic processes and appropriate application environment cannot be provided. As a result of this study, it is thought that the important results obtained in terms of improving professional competence of health professionals' perceptions and attitudes towards AR technologies, which are among the innovative technologies in their education processes, will contribute to the literature.

With the rapid development and popularity of AR, its innovative ways are expected to transform not only health education and training, but also applications in treatments and treatments (e.g. surgery), telemonitoring, care planning and other fields. Specifically, it is stated that such modern technologies may also affect the effective delivery of education and training for patient care, safety and awareness in the future. On the other hand, more scientific and meticulously designed studies are needed to confirm the effectiveness and benefits of AR in health systems education. In particular, the attitudes of immersive virtual learning require further research, with the potential to improve empathy, sensitivity, and especially knowledge.



Table 1: Findings Regarding the Socio-Demographic Characteristics of the Participants (n=182)

		Ort. ± SS	Medyan (Min - Max)
1. Gender	Woman	155	85,2
	Man	27	14,8
2. Age		38,0 ± 8,2	39,5 (21,0 – 57,0)
	20-30 age	43	23,6
	31-40 age	56	30,8
	41-50 age	75	41,2
	≥51 age	8	4,4
3. Education level	Undergraduate	13	7,1
	Licence	119	65,4
	Degree	39	21,4
	PhD and above	11	6,0
4. Your Institution	Public	149	81,9
	University	21	11,5
	Special	12	6,6
5. Your Unit	Internal clinics	28	15,4
	Surgical clinics	12	6,6
	Intensive care	17	9,3
	Operating room	8	4,4
	Emergency services	12	6,6
	Outpatient services	24	13,2
	Other	81	44,5
6. How long have you been working in your organization		9,3 ± 8,6	5,0 (0,0 – 35,0)
	0-5 year	92	50,5
	6-10 year	20	11,0
	11 and over	70	38,5
7. Do you closely follow innovative technologies in the field of health	No	58	31,9
	Yes	124	68,1
8. Are you aware of Augmented Reality technology applications	No	95	52,2
	Yes	87	47,8
9. Do you think positively about using innovative technology applications such as Augmented Reality in the training of healthcare professionals?	No	6	3,3
	Yes	176	96,7
10. Are Augmented Reality technologies used in the healthcare institution where you work?	No	143	78,6
	Yes	39	21,4
Total Points		66,7 ± 9,8	66,0 (24,0 – 90,0)

Table 2: Comparison of Technology Acceptance Model Survey Score (Mean ± Standard Deviation

		Survey score	P	
1. Gender	Woman (n=155)	66,5 ± 9,4	0,454 _a	t= -0,750
	Man (n=27)	68,0 ± 12,1		
2. Age	20-30 age (n=43)	65,9 ± 9,0	0,942 _b	F= 0,131
	31-40 age (n=56)	67,0 ± 12,3		
	41-50 age (n=75)	67,0 ± 8,4		
	≥51 age (n=8)	66,1 ± 8,6		
3. Education Level	Undergraduate (n=13)	69,2 ± 12,6	0,070 _b	F= 2,394
	Licence (n=119)	65,3 ± 9,9		
	Degree (n=39)	69,8 ± 7,6		
	PhD and above (n=11)	67,5 ± 10,6		
4. Your Institution	Public (n=149)	65,8 ± 9,7	0,004 _b	F= 5,618
	University (n=21)	73,2 ± 8,9		
	Special (n=12)	66,8 ± 8,7		
5. Your Unit	Internal clinics (n=28)	62,4 ± 12,4	0,067 _b	F= 2,005
	Surgical clinics (n=12)	66,0 ± 7,5		
	Intensive care (n=17)	71,8 ± 7,1		
	Operating room (n=8)	65,1 ± 11,5		
	Emergency services (n=12)	64,4 ± 7,9		
	Outpatient services (n=24)	67,8 ± 11,2		
	Other (n=81)	67,4 ± 8,8		
	6. How long have you been working in your organization			
0-5 year (n=92)	66,7 ± 9,4	0,545 _b	F= 0,609	
6-10 year (n=20)	68,9 ± 7,7			
11 and over (n=70)	66,1 ± 10,9			
7. Do you closely follow innovative technologies in the field of health				
No (n=58)	63,1 ± 10,0	0,001 _a	t= -3,533	
Yes (n=124)	68,4 ± 9,3			
8. Are you aware of Augmented Reality technology applications				
No (n=95)	64,8 ± 9,2	0,005 _a	t= -2,819	
Yes (n=87)	68,8 ± 10,1			
9. Do you think positively about using innovative technology applications such as Augmented Reality in the training of healthcare professionals?				
No (n=6)	46,7 ± 18,8	0,042 _a	t= -2,694	
Yes (n=176)	67,4 ± 8,7			
10. Are Augmented Reality technologies used in the healthcare institution where you work?				
No (n=143)	66,3 ± 10,1	0,247 _a	t= -1,162	
Yes (n=39)	68,3 ± 8,7			

