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Feasibility Study of Using Digital Scientific Resources and Virtual Education Using Augmented Reality in the Educational Program of Shahid Bahonar University of Kerman

Adel Soleimani Nezhad –
Associate Professor, Department of Knowledge and Information Science, Shahid Bahonar University, Kerman, Iran

Fariborz Doroudi
Assistant professor, Iranian Research Institute for Information Science and Technology (Irandoc), Tehran, Iran

Fatemeh Ghorbani
Msc student, Department of Knowledge and Information Science, Shahid Bahonar University, Kerman, Iran

Abstract

Purpose: The purpose of this research is to evaluate the feasibility of using digital scientific resources and virtual education using augmented reality technology in the educational program of professors and doctoral students of Shahid Bahonar University of Kerman.

Method: This research is descriptive-survey but is applied in terms of type and purpose. The statistical population of this research is all professors who teach in the doctoral program and doctoral students in Shahid Bahonar University of Kerman. Sampling method in this research is stratified random sampling. The sample size was 333 using Cochran's formula. Data collection tool, researcher-made questionnaire and the validity of the questionnaire were calculated by experienced professors and experts. The validity and reliability of the questionnaire were calculated using Cronbach's alpha test of

– Corresponding Author: a.soleimani@uk.ac.ir

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0.86. The collected data were first stored in the database and then by transferring this data to SPSS and EXCEL 23 software, the field of analysis of this data and their results was provided.

Findings: The findings showed the possibility of using virtual educational resources and digital scientific resources, as well as the possibility of using augmented reality technology in educational and scientific research programs at Shahid Bahonar University of Kerman. There is a significant difference between the views of professors and doctoral students in the use of virtual educational resources and digital scientific resources in the educational and research programs of professors and doctoral students, while there is no significant difference between their views on the use of augmented reality technology.

Conclusion: One of the most important reasons for the need to organize e-learning centers and institutions is the growing demand for education, especially higher education in the country, which has become a special social issue due to limited resources and educational capacity in the current education system. Ease of access and use of digital scientific resources and better understanding and mental creativity with the use of new technologies, including augmented reality, has necessitated the use and application of this technology in the educational programs of scientific and academic centers. Have a long-term and codified plan with instructions and rules related to augmented reality technology. Provide adequate funding, create hardware and software infrastructure, motivate, desire, sufficient expertise and empower the ability of faculty and students to use augmented reality technology.

Keywords: Feasibility Study, Digital Resources, Duct Education, Augmented Reality, University Curriculum, Shahid Bahonar University of Kerman.

Introduction

Technological advances through digitization are paving the way for a new form of life (Sorko & Brunnhofer, 2019), and with rapid advances in communication and high-speed computing, augmented reality and virtual reality are emerging as next-generation display platforms for deeper human-digital interactions. Are emerging (Xiong et al., 2021). Augmented reality is a technique that enables users to interact with their physical environment through the overlay of digital information (Grubert et al., 2016) and is attracting a lot of attention due to its potential as a platform for exciting new applications. (Azuma, 2017). Augmented reality is a technology that combines virtual reality with reality. In recent years, the rapid development of augmented reality technology has attracted the attention of citizens (Chen et al., 2019). By embedding layers of digital information in the real world, these technologies offer exciting new opportunities to support inclusive learning. Digital enhancement can provide richer learning experiences by placing learning content in authentic contexts and enhancing research-based learning (Kyza & Georgiou, 2019).

The implementation of usability in mobile augmented reality learning applications has been used in a large number of standards, methods and techniques. The use and combination of techniques in research approaches is important to determine the quality of usable data collection (Lim et al., 2019). Virtual reality and augmented reality applications enable gifted students to explore content in new and exciting ways. Students can use this technology to create interesting and interactive products that not only demonstrate their proper understanding, but also promote their learning (Siegle, 2019). Augmented reality is a type of technology that allows users to view and interact with virtual images integrated in the real world (Lukosch et al., 2015) and is a comprehensive information technology that digital image processing, It integrates computer graphics, artificial intelligence, multimedia technology and other fields (Amin & Govilkar, 2015).

Augmented reality has been widely used in various fields, one of which is education. In the field of education, augmented reality is used to make the learning process more attractive (Hamzah, Rizal & Simatupang, 2021). Augmented reality is an important technology to enhance learning experiences. Many studies have been conducted to determine the trends, capabilities and challenges of this technology in educational environments (Garzón, Pavón & Baldiris, 2019). In recent

years, augmented reality has become more important in the field of education. This communication has increased due to the ease of use as well as the availability of technical devices for students (Cabero-Almenara, Fernández-Batanero & Barroso-Osuna, 2019). The use of augmented reality programs in all educational levels and fields has received increasing attention (Christopoulos et al., 2021). Perhaps no other digital technology has the potential to revolutionize the educational experience like augmented reality (Kidd & Crompton, 2016). Over decades, research has been conducted on the usability and educational value of augmented reality. However, less work has been done on how augmented reality affects social interactions (Miller et al., 2019). Existing research reflects the multiple benefits of integrating augmented reality technologies into educational environments. Many studies have been conducted to determine the trends, capabilities and challenges of this technology for education. However, most of these studies are qualitative studies that do not measure the impact of this technology on education (Garzón & Acevedo, 2019).

Emerging technologies such as augmented reality have the potential to transform education for novices by making challenging concepts more visible and accessible (Radu & Schneider, 2019). With the emergence of new technologies, simulators, augmented reality and virtual reality, new educational facilities have emerged that help and in some situations can replace traditional teaching methods (Duarte et al., 2020). Recent studies emphasize the positive impact of learning with augmented reality systems in different educational scenarios (Thees et al., 2020) and there is a significant body of research related to the use of augmented reality for learning in primary and secondary education sectors around the world. (Pellas et al., 2019). In recent years, there has been a growing interest in using augmented reality to create a unique educational situation (Chen et al., 2017) and the research findings of et al. Ozdemir (2018) also shows that augmented reality applications increase the academic progress of students in the learning process compared to traditional methods.

The use of augmented reality is used in many fields today and has gradually opened a way in education. However, the role and impact of using this technology in increasing learning is still unclear and limited research has been done on it. Also, in order to implement this technology, it needs to be embedded in the educational environment, creating infrastructure and facilities in universities, schools and even schools. Considering that augmented reality technology can create a new

evolution in the educational system of universities. This research aims to evaluate the feasibility of using scientific digital resources and virtual education using augmented reality technology in the educational program of professors and doctoral students of Shahid Bahonar University, Kerman (Iran), and seeks to answer the following questions:

- What is the status of scientific digital resources and virtual education in Shahid Bahonar University of Kerman?
- What is the status of augmented reality technologies in Shahid Bahonar University of Kerman?
- How to determine the views of professors and doctoral students on the use of resources and virtual training in educational and research programs?
- What are the views of professors and doctoral students on the use of augmented reality technology in educational and research programs?

Literature Review

In a research that was conducted in order to investigate the augmented reality learning environment system based on the UNED ARLE program, 44 students of advanced and intermediate vocational training courses and two teachers were selected. The results indicate that adding virtual content in educational resources can be a tool for acquiring knowledge, motivating and encouraging students. The test of this program showed that the interaction between teachers and the system and comparing the results of two groups of students, those who used UNED ARLE, compared to the traditional system, had better learning progress (Cubillo et al., 2015). In a research conducted on the factors influencing students' motivation in augmented reality learning experiences in vocational education and training, the results show that augmented reality applications that are designed and used with different components motivate students in Strengthens educational environments. This study has identified some components that influence student motivation in augmented reality learning experiences relying on mobile-based applications. The identification of these components was done with the help of a research model made from experimental data and it was found that real-time feedback, degree of success, time to do the work and learning results are positively correlated with the four dimensions of the ARCS model (Bacca, Baldiris & Fabregat, 2018). In another study about the use of augmented reality and virtual reality in libraries and museums, in the field of cyber activity, including in blogs and websites, the results

of the study showed that the benefits of using the mentioned technologies in libraries and museums are very significant. These centers are increasingly using these facilities. It was also found that since Facebook is so popular, many have the opportunity to access these technologies through the use of Facebook's social media platform.

In this study, the many benefits of virtual reality and augmented reality in the use of 3D graphics and its advanced interactions for users in a simulated environment and for awareness and information services have been described (Oyelude, 2018). In a study conducted on the effect of augmented reality applications on reading comprehension and retention of high school students' learning among 89 students in two test and control groups, the findings indicate that the test group uses augmented reality applications in reading activities. They had more success in learning and participation in education than the control group that operated in a traditional way. It was also found that the students of the experimental group have a more appropriate level of understanding and stability of learning compared to the control group. They were satisfied with their participation in augmented reality-based reading activities and expressed a desire to see similar programs offered in other courses. Also, these students reported lower levels of anxiety. Qualitative results showed that augmented reality applications can be effectively used as teaching aids for courses related to reading (Bursali & Yilmaz, 2019).

In a research that was conducted in order to measure and understand the effect of an augmented reality mobile application on the learning motivation of health science students at the undergraduate level of the University of Cape Town, intrinsic motivation theory was used to explain the motivation in the field of learning. The results showed that the attention, communication, confidence and satisfaction model guided the understanding of the effect of augmented reality on student motivation. Differences in students' motivation to learn before and after using augmented reality mobile application revealed that using augmented reality mobile application increases students' learning motivation. The factors of attention, satisfaction, and confidence of motivation increased and these results were significant. Meanwhile, only the correlation coefficient decreased, which was insignificant (Khan, Johnston & Ophoff, 2019). In the review and study of the challenges of augmented reality, it was found that the challenge of limited understanding of how to use technologies such as augmented reality and virtual reality to improve

science learning and teaching is significant. Based on the results of interviews with 29 science teachers, it was found that lack of competence, limited educational design, lack of focused attention, lack of time and limited environmental resources are common challenges in using virtual reality and augmented reality. While both technologies can be used to promote exploratory behavior and perceived usefulness and create a positive attitude (Alalwan et al 2020). In a study that addressed the impact of the role of virtual reality and augmented reality in academic libraries, the results of the study indicate that the growing popularity of virtual reality and augmented reality technologies, along with increasing research on their educational applications, has caused them to be used in large numbers. A lot of university libraries should be used. However, little is known about how many libraries have actually used these technologies or how they have structured library services around them. It was also found that the most common technologies provided were Oculus Rift and HTC Vive. These technologies were usually only provided for use in libraries (Greene & Groenendyk, 2020). A research that has been done on the possibility of using augmented reality in different educational branches, the results show that the use of augmented reality technology in presenting educational materials has a great impact on the level of understanding and learning of students. Also, the use of augmented reality objects has a positive effect on the development of facial expressions, attention, stimulating thinking and increasing the level of information understanding. Its implementation in various fields has undeniable advantages, which can be referred to as "realism, clarity, operational applications, completeness of information, and interactivity." This study evaluates the possibility of using augmented reality in the study of mathematics, anatomy, physics, chemistry, architecture and also in some other fields (Pochtoviuk, Vakaliuk & Pikilnyak, 2020).

In another research, augmented reality has been investigated in different fields, especially educational fields. In this study, it was found that learning through augmented reality technology helps learners to understand the learning content in a more creative frame of mind than ever before. It is necessary to understand the dynamics of the adoption of augmented reality in order to motivate and inspire students to accept this type of highly innovative and effective technology in the learning process. The authors developed a model based on the integration of TTF and UT theories. Oh you. UT2. Tested and suggested. The results of this study lead to an increase in awareness of the dynamics and behaviors of

accepting augmented reality in the perspective of a developing country (Faqih & Jaradat, 2021). In a research about the role of augmented reality technology on anxiety and self-efficacy in the library, the results showed that the use of augmented reality in the library on the perception of the first year undergraduate students in using the library is related to the level of anxiety and confidence of the students. It gets measured, it makes an impact. Two groups of first year undergraduate students participated in library orientation. One based on the traditional informational training model and the other experienced the augmented reality version. Comparing the results before and after the survey from both groups of students revealed that while both orientations had a positive effect on students' perception of the library, augmented reality orientation had a greater effect on students' perception of librarians' willingness to use specialized library services(Kannegiser, 2021). In a research conducted to measure the role of augmented reality in the educational system, the findings indicate that the modernization of the educational system and the emergence of new learning technologies can improve the educational process. The use of augmented reality technology improves students' individual learning, improves their motivation, and also helps to organize teamwork and group cooperation (Osadchyi, Valko and Kuzmich 2021). In the study and research that has been done about virtual reality and augmented reality in social learning spaces, classrooms and museums, the results show that the concepts of social interaction are more visible in reality-based media frameworks and social environment. In this study, several learning theories such as constructivism, social cognitive theory, communication theory, and activity theory have been examined and analyzed. Also, several situations of virtual reality and augmented reality for learning have been investigated, which results in learning and effectiveness are promising (Scavarelli, Arya & Teathe, 2021).

By examining the above-mentioned profiles, various and numerous researches have been conducted regarding virtual education and new technologies, including augmented reality. Some of these researches have addressed the challenges and benefits of using these technologies in education, and others have covered the application of each of these technologies in teaching a specific lesson or subject. What distinguishes this research from the previous researches is the feasibility of using this technology in university curricula as an alternative to the current educational method.

Method

This research is descriptive-survey, but it is practical in terms of type and purpose. In terms of the collection method, the data of this research was collected using a researcher-made questionnaire with 44 questions. Cronbach's alpha test was used to determine the reliability of the questionnaire. The total Cronbach's alpha was 0.86 and because it is higher than the standard level of 0.70, the reliability of the questionnaire is confirmed. The statistical population of this research is all the professors who teach at the doctoral level and the doctoral students of Shahid Bahonar University of Kerman, which, according to the latest statistics received from the statistics unit located in the central organization of this university, is 660 people. The sampling method in this research is stratified random sampling. The sample size was obtained by using Cochran's formula, 333 people, which was determined by specifying the proportion of people in each class from the total population of the sample quota. The collected data was first stored in the form of a database, and then by transferring these data to SPSS and EXCEL software, the analysis of these data and their results was provided.

Findings

- What is the status of scientific digital resources in educational and research programs of Shahid Bahonar University of Kerman?

Table 1. Status of scientific digital resources

Consequences / Row	Options					
	It is not possible		It can exist		It is possible	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Scientific digital resources	1	0.3	120	36.0	212	63.7
Program for designing and producing scientific digital resources	0	0.0	200	60.1	133	39.9

Sufficient budget for the production and use of scientific digital resources	97	29.1	159	47.7	77	23.1

The results of Table 1 show that there are currently 63.7 % of digital resources in Shahid Bahonar University of Kerman, 39.9 % of programs for the design and production of these resources exist, 23.1 % of funds are currently available. According to 36 % of the conditions for the creation of digital resources, there is a 60.1 % possibility of creating a program for the design and production of digital resources and a 47.7 %possibility of realizing the budget for the production of these resources. It can be said that there are conditions for the production and use of these resources in this university.

- What is the status of virtual education in educational and research programs of Shahid Bahonar University of Kerman?

Table 2. Status of virtual education

Consequences / Row	Options					
	It is not possible		It can exist		It is possible	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
E-learning	43	12.9	103	9.3	187	56.2
Infrastructure of virtual education	74	22.2	146	43.8	113	33.9
Virtual training software (ElMS)	39	11.7	13	42.9	151	45.3
Virtual training hardware	47	14.1	201	60.4	85	25.5
Sufficient expertise for virtual training	60	18.0	215	64.6	58	7.4
The ability of professors and students to use	59	17.7	154	46.2	120	36.0

virtual training						
The willingness of professors and students to use virtual education	49	14.7	182	54.7	102	30.6
Long-term and documented program for virtual education technology	96	28.8	186	55.9	51	15.3
Instructions and rules related to virtual training	67	20.1	205	62.5	58	17.4
The necessity of using virtual training	18	5.4	178	53.5	137	41.1

Table 2 shows the results of examining the possibility of virtual education variables in Shahid Bahonar University of Kerman. Currently, electronic education (56.2), virtual education software (Elms) (45.3) and the need to use virtual education (41.1) have the highest percentages in the university, respectively. While sufficient expertise for virtual training (64.6), guidelines and rules related to virtual training (62.5) and hardware for virtual training (60.4) have the highest possible percentage respectively. The long-term and codified plan for virtual education technology (28.8), virtual education infrastructure (22.2) and instructions and rules related to virtual education (20.1) respectively have the highest percentage of non-existence.

- What is the status of augmented reality technologies in educational and research programs of Shahid Bahonar University of Kerman?

Table 3. The state of augmented reality technologies

Consequences / Row	Options					
	It is not possible		It can exist		It is possible	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Program for designing and applying augmented reality technology	49	14.7	246	73.9	38	11.4
Sufficient budget to apply augmented reality technology	96	28.8	187	56.2	50	15.0
Augmented reality technology infrastructure	82	24.6	214	6403	37	11.1
Augmented reality technology software	93	27.9	180	54.1	60	18.0
Augmented reality technology hardware	81	2403	187	56.2	65	19.5
Adequate expertise in augmented reality technology	59	17.7	233	70.0	41	12.3
The ability of professors and students to use augmented reality technology	59	17.7	231	69.4	43	12.9
The willingness of professors and students to use augmented reality technology	68	20.4	198	59.5	67	20.1
A long-term and documented program for the implementation of augmented reality technology	114	34.2	208	62.5	11	3.3

Guidelines and rules related to augmented reality technology	95	28.5	188	56.5	50	15.0
The necessity of using augmented reality technology	50	15.0	189	56.8	94	2

Table 3 shows the results of examining the possibility of variables of augmented reality technologies in Shahid Bahonar University of Kerman. Currently, the need to use augmented reality technology (28.2), the desire of professors and students to use augmented reality technology (20.1) and hardware of augmented reality technology (19.5) have the highest percentages, respectively. While the program to design and apply augmented reality technology (73.9), the ability of professors and students to use augmented reality technology (69.4) and the infrastructure of augmented reality technology (64.3) have the highest possible percentage. The long-term and documented plan for the implementation of augmented reality technology (34.2), sufficient budget for the application of augmented reality technology (28.8) and the instructions and laws related to augmented reality technology (28.5) are most likely to be absent.

Test of research hypotheses

First hypothesis: It is possible to use virtual educational resources and scientific digital resources in educational and scientific research programs in Shahid Bahonar University of Kerman.

Considering that a three-level spectrum was used to measure the introduced criteria and the option is not possible (code 0), the option can exist (code 1) and the option exists (code 2) is assigned; Therefore, to verify the criteria, the number (1.00) was used, which shows the average level of the measured item, and the mean of the opinions of the participants in the sampling was compared with the theoretical value (1.00) by means of a one-sample t-test. If the criterion score is more than the theoretical value (1.00), it can be said that from the point of view of the respondents, it is possible to use virtual educational resources and scientific digital resources.

Table 4. Investigating the possibility of using virtual educational resources and scientific digital resources

Variable	Theoretical average = 1.00			
	Average	Standard Deviation	Tstatistic	P-value
Virtual educational resources and scientific digital resources	1.07	0.34	3.77	0.001

According to the results of Table 4, it can be said that it is possible to use virtual educational resources and scientific digital resources in educational and scientific research programs in Shahid Bahonar University of Kerman. (P-value < 0.05 and average opinion of participants > 1).

Second hypothesis: There is a possibility of using augmented reality technology in educational and scientific research programs in Shahid Bahonar University of Kerman.

Considering that the Likert scale was used to measure the introduced criteria; Therefore, to verify the criteria, the number (3.00) was used, which shows the average level of the measured item, and the mean of the opinions of the participants in the sampling was compared with the theoretical value (3.00) by means of a one-sample t-test. If the criterion score is higher than the theoretical value (3.00), it can be said that from the point of view of the respondents, it is possible to use augmented reality technology.

Table 5. Investigating the possibility of using augmented reality technology

Variable	Theoretical average = 3.00			
	Average	Standard Deviation	Tstatistic	P-value
Augmented reality technology	3.86	0.47	33.59	0.001

According to the results of Table 5, it can be said that it is possible to use augmented reality technology in educational and scientific research programs in Shahid Bahonar University of Kerman (p-value < 0.05 and the average opinion of the participants >3).

The third hypothesis: There is no significant difference between the views of professors and doctoral students in the use of virtual educational resources and scientific digital resources in the educational and research programs of professors and doctoral students.

To check this hypothesis, the t-test of two independent samples was

used. This test is used to compare the average of two independent groups, which in the present study are professors and doctoral students. The premise of this test is that the variables follow the normal distribution. According to Tables 1 and 2, this assumption has been met for the variable of virtual educational resources and scientific digital resources.

Table 6. Examining the average difference between virtual educational resources and scientific digital resources in scientific rank

Variable	Science ranking	Number	Average	Tstatistic	P-value
Virtual educational resources and scientific digital resources	Phd student	217	1.13	4.40	0.001
	Professor	116	0.95		

The results of Table 6 show that there is a significant difference between professors' and doctoral students' views on the use of virtual educational resources and scientific digital resources in the educational and research programs of professors and doctoral students (p-value <0.05). In other words, it can be said that doctoral students tend to use virtual educational resources and scientific digital resources more than professors.

Fourth hypothesis: There is no significant difference between professors' and doctoral students' point of view on the application of augmented reality technology in the educational and research programs of professors and doctoral students..

In order to investigate this hypothesis, the t-test of two independent samples has been used, and in the present study, two independent groups are professors and doctoral students. The premise of this test is that the variables follow the normal distribution. According to Table 3, this assumption has been met for the augmented reality technology variable.

Table 7. Examining the average difference of augmented reality technology in the scientific rank

Variable	Science ranking	Number	Average	Tstatistic	P-value
Augmented reality technology	Phd student	217	3.86	-0.281	0.777
	Professor	116	3.87		

The results of Table 7 show that there is no significant difference between the views of professors and doctoral students in the

application of augmented reality technology in the educational and research programs of professors and doctoral students. (P-value >0.05); In other words, both groups are equally inclined to use augmented reality technology.

Conclusion

The results of the research showed that it is possible to use virtual educational resources and scientific digital resources in Shahid Bahonar Kerman University according to the available facilities and equipment. This finding is consistent with the research results of Bacca, Baldiris and Fabregat (2018), Oyelude (2018). Also, according to the other results of the research, it should be stated that the possibility of using augmented reality technology in the educational and research programs of Shahid Bahonar Kerman University in acceptable conditions exists and it can be used in the educational planning of the university. This result is aligned with the findings of Alalwan et al. (2020) and Faqih and Jaradat (2021). In addition, with a deeper view, we find that augmented reality helps people to understand things and think better, regardless of its weaknesses. And this is while the current need of society is the existence of a creative and efficient mind to invent new issues.

Augmented reality has been noticed by examining its capabilities in various fields with a focus on education. From this point of view, students' learning rate can be increased. In fact, the results indicate that there is a significant difference between the views of professors and doctoral students in the use of virtual educational resources and scientific digital resources in the educational and research programs of professors and doctoral students. In other words, it can be said that doctoral students tend to use virtual educational resources and scientific digital resources more than professors. These cases are consistent with the results of Faqih and Jaradat (2021), Pochtoviuk, Vakaliuk & Pikilnyak (2020) and Kannegiser (2021). Based on the results obtained in the present research, it can be concluded that doctoral students are more inclined to use virtual educational resources than professors due to being involved in academic issues (finding the correct answer and quickly reaching the desired results, i.e. getting a grade). They have scientific digital resources. The rapid and increasing growth of information and communication technology has led to the transformation of various fields of human life, including educational systems.

With the introduction of virtual education, as a manifestation of the influence of information and communication technology in the field of educational-research process, the concept of two interactions in the teaching and learning process has undergone extensive changes. From the point of view of the research community, the most important factor that affects the choice of digital resources is the needs of the user community. These cases are in common with the research findings Osadchyi, Valko and Kuzmich (2021) and also Scavarelli, Arya & Teathe (2021) from the point of view of the applications of digital resources and its role. There is no significant difference between the professors' and doctoral students' point of view on the application of augmented reality technology in the educational and research programs of professors and doctoral students. In other words, both studied groups tend to use augmented reality technology to the same extent. This result is consistent with the research findings of (Osadchyi, Valko and Kuzmich 2021) and (Cubillo et al., 2015). The use of augmented reality in educational programs has made significant progress in the last few decades, and on the other hand, with the increase in the use of mobile devices in this field, the productivity of this technology is growing strongly. This technology can be used in different educational levels from primary and secondary education to high level university education. Information and communication technologies have also created good opportunities and facilities for education in the field of facilitating the teaching and learning process by providing the necessary facilities for collecting, processing and distributing information. This finding is consistent with the results of the research.

Bacca et al. (2018), and Greene and Groenendyk (2020) have alignment recent developments in the computer and information industry; The arrival and emergence of local, national, regional and international information networks, and especially the Internet, has put multimedia, communication technologies, new tools and methods in front of designers, planners and managers, lecturers and implementers of educational programs. The penetration of new information technologies into educational centers (from schools to universities) and even homes has changed the simple relationships between teachers and students in general. In this way, traditional learning patterns have been transformed and users are faced with a vast amount of information and knowledge. Augmented reality provides the ability to increase the amount of scientific interaction and better understanding of the content. This finding

shares the results of the research (Khan et al. 2019). In addition, augmented reality in the learning process reduces the level of anxiety and makes educational communication smoother. This finding or research results of Kannegiser (2021), and Bursali and Yilmaz (2019) have alignment. Electronic education in Iran is a nascent industry in educational technology and distance learning, but educational centers and institutions, especially universities, are trying to provide a model suitable for the country's educational and cultural structure in the field of electronic education as soon as possible.

According to the results obtained from the investigation of information technology infrastructure, the amount of dedicated budget for virtual education, the budget and the strengthening of hardware and software facilities for the use of augmented reality in Shahid Bahonar University of Kerman, the following suggestions are presented.

- Paying attention to issues, skills, learning, development of education, and human resources, it is necessary to design and produce the content of digital resources, launch online education in virtual space and use augmented reality technology in the educational programs of Shahid Bahonar University of Kerman as soon as possible. .
- Provision of high-speed internet, infrastructure, hardware and software facilities needed by professors and students to use electronic resources and virtual training with the capability of augmented reality technology in students' education and research programs
- Creating an online educational environment for easy communication between students and professors through web-based systems for educational programs.

CONFLICT OF INTEREST: The authors declare that they have no conflicts of interest regarding the publication of this manuscript.

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