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RESEARCH PAPER

A Study of the Role of Virtual Learning on Students' Achievements at University Level

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ABSTRACT

The study entitled The Role of Virtual Learning on Students' Achievements at the university level focused on the objectives to study the role of virtual learning on students' achievements and to assess the instructional methodologies for virtual learning. The research was descriptive in nature. The population of the study was both male and female students at the Virtual University (VU) and Allama Iqbal University (AIOU). A sample of 150 students was conveniently selected. The data was collected through questionnaire. After collection of the data, the Statistical Package for Social Sciences (SPSS) was used for the analyzing the data. The results of the study were drawn by using inferential statistical tests. The Results, conclusions, discussions, and recommendations provide insight into the factors that influence virtual learning and their impact on students' academic achievements, as well as the challenges faced by virtual students and proposed solutions.

KEYWORDS Achievement, Instructional Methodologies, Virtual Learning

Introduction

The pace of change in education is equal to the rapid advancements in technology used for teaching. Since the emergence of the internet, it has been evident that the students of secondary classes may learn with internet facilities and less interaction of face to face with teachers (Bri, García, Coll, & Lloret, 2009). The latest technology, including Virtual Reality, provides students with the chance to get experience from society and to virtually presence in online classes. The first generation of virtual reality devices is becoming more mainstream and is a significant component of organizing a distance education system (Penland, Laviers, Bassham, & Nnochiri, 2019).

Virtual education is heavily reliant on e-learning, which allows students to benefit from virtual learning. E-learning, or virtual learning, has received support from many educators, including (Safdar, Javed, & Amin, 2020) who argue that most educational e-learning applications are simply carbon copies of traditional, in-person teaching methods. Despite this, studies such as Dung (2020), have shown that online classes can be just as effective as traditional classrooms, while Kirschner (2009) suggests that the presence or absence of a teacher has no impact on a student's ability to learn, with the success of an educational experience depending instead on the nature of the instructional components.

Additionally, (Shahzad, Hussain, Sadaf, Sarwat, Ghani, & Saleem, 2020) argues that virtual classroom education can be developed more quickly than traditional

classroom instruction delivered by an instructor. As the capabilities of the internet and other communication technologies continue to grow, an increasing number of students are turning to online education. Dolezalek (2007) reports that the percentage of students participating in online education has risen from 54% in 2001 to 87% in 2007, indicating that online learning is becoming increasingly popular. This trend is particularly evident at the university level, where online courses are increasingly replacing traditional classroom instruction.

Online education offers a unique advantage by breaking down geographical and temporal barriers, granting students unparalleled access to the latest information. A major benefit of virtual education is to convenience and ease of with which students can access up-to-date information. Communication technology, such as the Internet, allows for the instant sharing of ideas, discoveries, excursions, and current events between students and various communities (Hussain, 2007). Engaging with members of multiple communities expands the learning opportunities for students. This format enables individuals with common interests to collaborate and achieve more together. Online education facilitates communication between educators and their students worldwide (Hussain, 2016). The role of course designers and teachers are crucial in the online learning system, where they design courses and support students. However, the emphasis is primarily on the students, who have the flexibility to study whenever and wherever suits them best, making it a truly learner-centered approach (Hussain, 2012).

Students in virtual classrooms engage in interactive activities and complete teacher-assigned projects, which are sometimes referred to as "activity-based education." Research has shown that this approach can increase academic capacity, as students who use both text and pictures to study retain more information than those who only use text (Dillenbourg, Schneider, & Synteta, 2002). Students in virtual classrooms also interact with their peers, teachers, and subject-matter experts through a learning management system and discussion board. This face-to-face interaction is a key advantage of virtual education, as it allows students to engage with others in real-time, despite the distance between them (Mueller, & Strohmeier, 2011).

Virtual education has the added benefit of being more cost-effective than traditional classrooms. Rather than building hundreds of universities across the country, the government can save money by implementing a virtual learning system (Keller, 2005). This approach also allows for the creation of internet laboratories as additional instructional resources, further reducing costs. The low overhead associated with telecommunication technologies makes virtual education an attractive option, and many schools in the private sector in the United States have already joined online universities (Abeldina, Moldumarova, Abeldina, & Moldumarova, 2015).

In addition to cost savings, virtual education has the potential to reach a wider audience. For example, Pakistan launched its public-sector virtual university in 2002 with the goal of serving the public good. By offering virtual education, these institutions can provide higher education to the students who are unable to avail the opportunity of education on physical mode (Barrot, Llenares, & Del Rosario, 2021).

Literature Review

Teaching is typically viewed as a means of conveying subject matter knowledge and information face-to-face or in a classroom setting. According to Hussain (2008), it is about shaping the minds of beginners by teaching them life skills. This is a challenging task that requires professional skills based on different teaching approaches, which

include different strategies, techniques and teaching styles. These approaches facilitate student interaction to support and enhance their passion for learning and cognitive abilities, encouraging them to develop knowledge through inquiry and reflective practice (Bughio, Abro, & Rashdi, 2014).

Virtual education is a modern instructional approach that uses technology to facilitate learning. Is used for the acquiring the knowledge, desired skills, behavior and attitude, and required competition in the attractive learning environment (Kerimbayev, 2016). This approach employs innovative teaching strategies and styles, as well as learning, and promotes access to higher education. Virtual education is based on an active learning approach and a participatory method that involves students in their learning through interactions and reflections. This approach is suitable for self-motivated and learning-oriented students who engage in the teaching process through constructive, collaborative, goal-oriented and reflective activities (Martín, Acal, Homrani, & Mingorance 2021).

Virtual education is facilitated by interactive learning environments that utilize innovative, technology-based instruction. In these environments, students actively participate in the process of knowledge construction by engaging in processing, sharing, and interacting with their peers. This can be done through synchronous or asynchronous methods and helps develop critical thinking and analytical skills through reflective practices (Hay, Hodgkinson, Peltier, & Drago, 2004). Virtual students come from different backgrounds and different learning styles, which they apply according to their interests and abilities. They prefer reflective practices and questioning techniques that have a significant impact on their learning in virtual environments. By participating in dialogues and activities, students can gain knowledge and build self-confidence. Participating in these experiences can also broaden their understanding and expand their prior knowledge by guiding their thinking in new directions. However, students' prior knowledge, learning styles, aptitudes, preferences and experiences play a role in their success in virtual education (Barker, & Gossman, 2013).

Virtual education plays a critical role in both knowledge creation and its dissemination, which are essential components of educational and academic endeavors. In addition to this, virtual education helps develop skills necessary for the professional needs of 21st century learners (Hussain, & Ramzan, 2019). Its goal is to prepare students to work individually and to competitive life, virtual education employs different instructional paradigms. It is commonly believed that virtual learners are adults who have a wealth of life experiences and some experience with modern technology, which they can use to enhance their learning through virtual education (Ranjha, Rizvi, & Ahmad, 2020). This modern approach to education is also being used in developing countries to promote wider access through the use of information and communication technologies. The Internet, in particular, has proven to be a reliable means of virtual learning due to its wide accessibility, suitability, low cost for the students, and appropriateness in the country like Pakistan. Virtual learners in these countries appear to be making good use of this opportunity (Alam, Waqar, Zaman, Shehzadi, & Mehmood, 2012).

Virtual education, supported by a virtual mode of learning, has the potential to revolutionize the learning process by simplifying administration, improving teaching performance, and saving costs. This is particularly relevant in the context of virtual learning, where the use of virtual environments may have the influence on the valuable able quality of education. The integration of virtual reality and multimedia technologies can further enhance the learning experience, adapt to different learning styles, and offer

potential in teaching environments. However, realizing the potential of virtual reality in education is complex and requires a focus on deeper content, more engaging activities, and more comprehensive assessment methods. Thus, the present study is intended to investigate the role of virtual learning on students' achievements at the university level

Material and Methods

Research Design

The study was descriptive in nature. There are many types of descriptive research. One of the types of descriptive research, the survey research is commonly used for data collection. So, the survey was considered most appropriate for collecting data.

Population

A population is defined as a group from which the results of the research can be generalized and it comprises participants with particular characteristics (Fraenkel et al. 2019). The population of the current study was all the students at Virtual University VU, and the Allama Iqbal University (AIOU).

Sample and Sampling Technique

A small group of population selected for observation and analysis is called a sample (Best, 2016). The sample of the study consisted of 150 students. The sample were conveniently selected. Both male and female students were given equal weightage.

Development of Research Tool

The study was descriptive in nature so, information was gathered by using the questionnaire. The questionnaire was developed on a Five-Point Likert scale. There were two parts of the questionnaire. Students' basic demographic information was included in Section 1 and there was a close ended questionnaire in Section 2.

Data Collection

The researchers personally visit the data sight. Data was collected by the researchers through the questionnaire. All students were personally approached by researchers. They were requested to fill in the questionnaire.

Data Analysis

The Statistical Package for Social Science (SPSS-25) was used for the data analyses. After data editing and cleaning are done by the researcher. Inferential statistics were used in this study for the finding and conclusion of the research. Frequency, percentage, means score and standard deviation were employed to display the results.

Results and Discussion

Table 1
Efficient use of technology in virtual learning

Options	f	%	Mean	Std. Deviation
SA	70	47	4.09	1.116
A	43	29		
UD	14	9		

DA	12	8
SDA	11	7
Total	150	100

Table 1 indicates the opinions of students about the statement, "Efficient use of technology in virtual learning". The result demonstrates that 29% of students agreed, whereas 47% of students strongly agreed, 8% disagreed, 7% of the respondents strongly disagreed and whereas 9% of students remained undecided about the statement. The majority 47% of students strongly agreed and the mean score 4.09 shows a positive response to the statement.

Table 2
Virtual learning helps to develop an understanding of content

Options	f	%	Mean	Std. Deviation
SA	70	47	3.75	1.372
A	30	20		
UD	20	13		
DA	15	10		
SDA	15	10		
Total	150	100		

Table 2 determines the opinions of students about the statement, "Virtual learning helps to develop understanding about content". The result shows that 20% of respondents agreed with the statement, whereas 47% strongly agreed, 10% of them disagreed, 10% strongly disagreed and 13% of the respondents remained undecided about the statement. The majority of 47% of students agreed and the mean score of 3.75 shows a positive response to the statement.

Table 3
Virtual learning develops time management skills

Options	f	%	Mean	Std. Deviation
SA	75	50	4.16	1.217
A	33	22		
UD	16	10		
DA	15	10		
SDA	12	8		
Total	150	100		

Table 3 highlights the opinions of students about the statement, "Virtual learning develops time management skills". The result displays that 22% of the respondents agreed with the given statement, whereas 50% of them strongly agreed, 10% of the respondents disagreed, 8% of them strongly disagreed and 10% of students remained undecided. The majority of 50% of students strongly agreed and the mean score 4.16 shows a positive response to the statement.

Table 4
Virtual learning develops digital skills

Options	f	%	Mean	Std. Deviation
SA	45	30	3.77	.857
A	51	34		
UD	33	22		
DA	14	9		
SDA	7	5		
Total	150	100		

Table 4 shows the opinions of students about the statement, "Virtual learning develops digital skills". The result illustrates that 34% of the respondents agreed with the mentioned statement, whereas 30% of them strongly agreed whereas 9% of the respondents disagreed, 5% of them strongly disagreed and 22% of students were undecided to the statement. The majority of 34% of students agreed and the mean score of 3.77 shows a positive response to the statement.

Table 5
Virtual learning increases critical thinking and problem-solving skills

Options	f	%	Mean	Std. Deviation
SA	48	32	3.71	1.190
A	55	37		
UD	10	7		
DA	32	21		
SDA	5	3		
Total	150	100		

Table 5 describes the opinions of students about the statement, "Virtual learning increases critical thinking and problem-solving skills". The result indicates that 37% of the respondents agreed with the above statement whereas 32% of them strongly agreed, 21% of them disagreed, 3% of the respondents strongly disagreed and whereas 7% of the respondents remained undecided. The majority of 37% of students agreed and the mean score of 3.71 shows a positive response to the statement.

Table 6
Virtual learning helps to self-paced learning

Options	f	%	Mean	Std. Deviation
SA	35	23	3.50	1.228
A	52	35		
UD	8	6		
DA	44	29		
SDA	11	7		
Total	150	100		

Table 6 demonstrates the opinions of students about the statement, "Virtual learning helps to self-paced learning". The result shows that 35% of the respondents agreed with the given statement and whereas 23% of them strongly agreed, 29% of the respondents disagreed and whereas 7% of them strongly agreed, whereas 6% of them remained undecided. The majority of 35% of students agreed and the mean score 3.50 shows a positive response to the statement.

Table 7
Virtual learning encourages self-direction

Options	f	%	Mean	Std. Deviation
SA	15	10	3.68	.946
A	74	49		
UD	34	23		
DA	17	11		
SDA	10	7		
Total	150	100		

Table 7 highlights the opinions of students about the statement, "Virtual learning encourages self-direction". The result shows that 49% of the respondents agreed with the above statement and whereas 10% of them strongly agreed, 11% of the respondents disagreed, and whereas 7% of them strongly disagreed and 23% of them remained

undecided with the statement. The majority of 49% of students agreed and, the mean score of 3.68 shows a positive response to the statement.

Conclusion

It is concluded that most of the students strongly agreed with the statement that virtual learning helps learners with technology and that they can use effective use of technology in virtual learning. It is concluded that the majority of the respondents agreed that virtual learning helps to develop an understanding of content because these lectures are also available in recorded form and students can get help at any time. The majority of students agreed that virtual learning develops time management skills among students because there is a certain time to take the class with the tutor so students develop time management skills. It is concluded that the majority of students agreed that virtual learning develops digital skills as learners get engaged virtually with class tutors and class peers and they have to use technology so students can enhance digital skills among themselves. It is concluded that the majority of students agreed that virtual learning increases critical thinking and problem-solving skills as technology increases the thinking power of learners. It is concluded that the majority of students agreed that virtual learning helps with self-paced learning because recorded lectures are available and learners can get help as they want to learn. It is concluded that the majority of students agreed that virtual learning encourages self-direction among students.

Recommendations

- The university should provide enough technological infrastructure to support virtual learning among students.
- Reliable learning management systems should be developed and the students should be trained to use them properly.
- Video conferencing platforms and necessary software should also be provided with proper guidance.
- There should be comprehensive training and ongoing support programs for both faculty and students for effective virtual learning.
- There should be workshops and tutorials for the use of the LMS and online collaboration tools.
- Students should be encouraged to active participation through online discussions and virtual group activities.
- There should be a variety of assessment methods to evaluate students' learning effectively.
- There should be online quizzes, assignments, and presentations to assess student progress on a daily basis.

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