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Validation of the effectiveness of learning in the virtual education system of Bojnord universities

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ABSTRACT

Background and Aim: As a result of the changes and developments in technology, the phenomenon of education has also gone out of its traditional form and has appeared in the form of distance education or electronic education. This research aims to validate the effectiveness of learning in the virtual education system of Bojnord universities. **Methods:** This research was exploratory in the mixed-method research approach. The statistical population in the qualitative section is 18 faculty members and university lecturers from the universities of Khorasan provinces (Northern, Southern, and Razavi) who were selected in a purposeful and accessible manner. Statistical population of the quantitative part of the study included all academic staff members, faculty teachers, virtual education experts, and doctoral students of North Khorasan, South Khorasan, and Razavi universities were. The sample size was calculated based on Cochran's formula of 347 samples. **Results:** Based on the analysis of qualitative data obtained from exploratory interviews and coding and content analysis of the text of the interviews and, at the same time, their compliance with the theoretical foundations, and according to the opinion of the participants: The main categories and factors (dimensions) and sub-factors (components) influencing in increasing the effectiveness of virtual training can be classified into 5 categories or main dimensions and 40 sub-factors. The main effective dimensions are: From the administrative, administrative, and organizational factors of the university, the curriculum and educational design factors, the factors related to a professor's and comprehensive qualifications, the technological equipment and information technology infrastructure factor, and the cultural factors of virtual space. Finally, each identified component was examined through a questionnaire, and the results showed that the model has a good fit. **Conclusion:** Therefore, it is strongly suggested that Azad University managers take the necessary measures and arrangements for students to access virtual platforms, high-speed internet, quality equipment, and update the equipment.

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Introduction

Today, the development of the Internet and virtual space have become amazing resources for increasing human knowledge and awareness. The emergence of technology and various types of information technology in the field of communication has transformed all aspects of human life and changed the process of past affairs qualitatively and quantitatively. As a result of these changes and developments, the education phenomenon has also gone out of its traditional form and has appeared in the form of distance education or electronic education. In addition to responding to the mentioned needs, electronic education allows the learner to learn at the appropriate times. E-learning uses Internet-based resources in education and is the most common form of distance learning. Also, electronic and distance learning has become one of the high-profit activities in the education industry. E-learning is considered as the most important factor in the development of information technology. Electronic education has become very important to remove traditional education's limitations in recent years, and educational centers have expanded education virtually. Considering the recent global developments and entering the information age in which knowledge creates the highest added value, this issue can be the basis for tremendous changes in the education sector.

The main goal of virtual or electronic education systems, like traditional systems based on physical presence, is to transfer maximum concepts from published sources, especially from the teacher, to the receiver of knowledge. Making improvements in this process is possible only if the goal achievement rate, or in other words, the knowledge transfer process's effectiveness, is measured properly and validly (Shafia & Shakeri, 2009). Virtual training has been listed in several axes of synchronous e-learning, asynchronous e-learning, and combined e-learning. Using virtual learning environments (VLEs) creates important educational issues for universities. Without addressing effective learning issues, their use can exacerbate mistakes and expose the learner to a passive and uninteresting experience that leads to shallow learning (Khalifa et al., 2008). Educators must understand that learning is a social process and that teaching is an effective process. A learning environment that facilitates active learning of thematic and general subjects and requires the adoption of a specific subject or professional culture. Therefore, despite the excitement, facilities, and attractions that the use of virtual education brings, using it without analyzing how the virtual courses in the university have the necessary effectiveness may cause the failure of these courses. Nowadays, with students' access to the vast virtual space and the use of other materials such as educational videos and textbooks, the learning process has increased faster (Hydripour et al., 2021). Therefore, the current research aims to validate the effectiveness of learning in the virtual education system of Bojnord universities.

Method

This research was exploratory in the mixed-method research approach. The statistical population in the qualitative section is 18 faculty members and university lecturers from the universities of Khorasan provinces (Northern, Southern, and Razavi) who were selected in a purposeful and accessible manner. Statistical population of the quantitative part of the study included all academic staff members, faculty teachers, virtual education experts, and doctoral students of North Khorasan, South Khorasan, and Razavi universities were. The sample size was calculated based on Cochran's formula of 347 samples.

Results

In terms of gender distribution of the respondents, 58% (equivalent to 58 people) were male and 42% (equivalent to 42 people) were female. In terms of age distribution of the respondents: 21% (equivalent to 21 people) less than 30 years old; 27% (equivalent to 27 people) between 30 and 40 years; 28% (equivalent to 28 people) between 40 and 50 years; 13% (equivalent to 13 people) over 50 years old. Regarding the distribution of the respondents' education, 38% (equivalent to 38 people) had bachelor's degrees, 37% (equivalent to 37 people) had master's degrees, 19% (equivalent to 19 people) had doctorates and above. 6 people did not specify their education. In terms of job distribution of the respondents, 13% (equivalent to 13 people) were teachers and 21% (equivalent to 21 people) were employees, 1% (equivalent to 1 person) were freelancers, 1% (equivalent to 1 person) were students.

Based on the analysis of qualitative data obtained from exploratory interviews and coding and content analysis of the text of the interviews and,

at the same time, their compliance with the theoretical foundations, and according to the opinion of the participants: The main categories and factors (dimensions) and sub-factors (components) influencing in increasing the effectiveness of virtual training can be classified into 5 categories or main dimensions and 40 sub-factors. The main effective dimensions are: From the administrative, administrative, and organizational factors of the university, the curriculum and educational design factors, the factors related to a professor's and comprehensive qualifications, the technological equipment and information technology infrastructure factor, and the cultural factors of virtual space. There are five main components in the effectiveness of learning in educational systems based on factor analysis and table (2) shows the R2 value of each component. The impact of curriculum and educational design factors is 31%, factors related to professor and general qualifications are 22%, technological and infrastructure equipment of information technology is 26%, cultural factors of virtual space are 26% and managerial, administrative and organizational factors of the university are 33%.

Finally, each identified component was examined through a questionnaire, and the results showed that the model has a good fit. The result showed that the value of Q2, which is greater than 0.03 for all relationships. The value of SRMR is equal to 0.044, which should be less than 0.08, and this condition is met. The NFI value of 0.811 should be close to one, which is also acceptable. The value of Gof is used as a measure to measure the overall performance of the model. This index is manually calculated as average R2 and average shared values. The limits of GOF index are between zero and one and one of the three values is 0.01, 0.25 and 0.36 as weak, medium and strong values, respectively. The average shared values of this model is 0.868 and the average R2 is equal to 0.277. Finally, the GOF index of this model is 0.251, which indicates an average and desirable overall value of the model.

Conclusion

According to the results, it is suggested that the administrators of Azad University take the necessary measures and arrangements for students to access virtual platforms as well as high-speed internet and quality equipment and to update the equipment. To use virtual education equipment, students and professors should be given the necessary training. Teaching professors to use new teaching models and methods in virtual education by professors. It is suggested that the following items be analyzed and revised: Active response before, during and after the class, e-learning and instructor's attitude towards the effectiveness of e-learning and the instructor's interest and enthusiasm towards technology and teaching through those structural, human effectiveness factors and virtual platform facilities in virtual learning systems. The quality of the system, the quality of services, the quality of information and the content of courses, the quality of web page design and technical support, and the design and production of suitable and quality content should be taken into consideration. Other suggestions include: Supporting quality teaching and learning with proper planning of the training course and a combination of learning strategies; introducing students to each other at the beginning of the course; formation and organization of student groups; individual or joint study according to the subjects; Creating opportunities for students to experience; discovery; Changing the role of the teacher from instructor to facilitator.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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