Original Article

Pathology of the Virtual Evaluation System in Elementary School

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Abstract

The present study aimed to investigate the shortcomings of the virtual evaluation system in Iranian elementary school. The applied study employed a descriptive research method and a survey research design. The population consisted of all (410) elementary school teachers in Miandoab city in the academic year of 2020-2021. Using a proportional stratified random sampling method and the Krejcie and Morgan Table, the sample size was determined as 201 individuals. A researcher-made questionnaire was used to collect data. Education experts and professors of the Department of Educational Sciences confirmed the face validity of the questionnaire. The reliability of the questionnaire was determined using Cronbach's alpha coefficient of 0.95. Descriptive statistics (frequency, mean and standard deviation, and variance) and inferential statistics (one-sample t-test) were employed to analyze the data. The results indicated that focus on the correlation of evaluation methods with general goals and behavior; the level of student readiness to enter electronic courses in evaluation; the way the teacher interacts with managers, other teachers, staff, and students in the evaluation of the virtual environment; and knowledge level and skills in the evaluation of virtual education are management aspects, and hardware and software requirements and web browsers in evaluation; the possibility of adding evaluation methods by the teacher; the possibility of benefiting from media and digital resources in evaluation; adaptation of technological architecture to the evaluation schedule of the course; the use of educational tools to evaluate students; and the use of technical standards to share questions, assignments and feedback in the evaluation are electronic technology aspects in exploring the shortcomings of virtual evaluation of elementary school. As the research results demonstrate, educational designers and evaluators should consider issues such as the use of inter-curricular questions for self-examination and encouraging content learning in evaluation; focus on setting the structure of each lesson and dividing it into sections of introduction, content, assignments, and evaluation; integration of curriculum and electronic environment tools in virtual education in evaluation; the degree of students' knowledge participation in the learning process in evaluation; the possibility of continuous monitoring and providing quick feedback for the teacher in evaluation; focus on the use of objective evaluation methods that are compatible with the electronic environment; the role of the teacher and how to use the evaluation tools that are the pedagogical issues in exploring the shortcomings of the virtual evaluation in elementary school.

Introduction

Using new technologies in the field of curriculum, in particular, creates essential changes in the learning of learners, and the optimal use of the capacities of these technologies gives a particular breadth and richness to learning (Roshani-Alibanesi, Fathi Vajargah, & Khorasani, 2017).

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Therefore, the development of virtual education is an attempt to respond to the need that is felt in the educational systems of societies today.

Education, which is one of the social institutions and operates in a specific direction, can never be without evaluation, so there is no doubt about the necessity of evaluation in education; therefore, in every educational system, teachers evaluate to determine the relationship between the abilities and activities of students and the changes in their behavior, as well as to predict and control educational situations. Also, elementary education is the basis of all education. Therefore, knowing students' characteristics, abilities, and talents and guiding them to the field of interest is one of this educational course's most essential and fundamental tasks. Therefore, if there is a correct evaluation system following the evaluation standards (efficiency, feasibility, accuracy, and legality) in any educational system, the possibility of the effectiveness and efficiency of that system increases (Disfani et al., 2021). Therefore, evaluation is an inseparable loop of the teaching-learning process (Nouri, Yarmohamedian, & Nadi, 2019). The evaluation cycle, lesson planning, and teaching have an inseparable relationship, and evaluation helps the trainer and planner to analyze the behavioral changes resulting from training in the behavior of learners (Mahmoodi, Abdollahzadeh, & Mansourzadeh, 2016).

Evaluation of students' learning as a penetrating and influential element of the virtual curriculum affects other elements such as goals, content, learning activities, teaching methods, how teachers interact with students, the work process of schools, and their management. Therefore, Eisner (1979) considers evaluation as an operational ideology. In the traditional view, the evaluation of the learner's learning is used only to determine the learner's grade, retention, or promotion, and it is considered the end point of the teaching and learning process. However, in the new understanding, evaluation is a part of the learning process that connects the flow of teaching and learning. In this view, evaluation is used to help improve the learning process, modify the curriculum, and strengthen teaching methods (Ueno, Fuchimoto, & Tsutsumi, 2021). The terms "evaluation of learning" and "evaluation for learning" distinguish these two views on virtual evaluation. The first term emphasizes the evaluation at the end of the learning process, the purpose of which is to determine the amount of the learner's learning, and the second term refers to the gradual, continuous, and consistent nature of the evaluation.

A look at the existing evaluation system of our country shows that an answer with a quantitative approach and standards and criteria such as a minimum score of 10 in the course and average and exceptions such as Article 18 according to the articles related to the single article of the regulations of general course exams for students whose total Grade point average (GPA) should be at least 10 in June (Khordad) or September (Shahrivar). However, in one subject, a score of less than 10, or a GPA of at least 12, but in two subjects, a score of less than ten is accepted. Of course, the regulations for the general course exams have been changed and turned into two separate regulations for middle school and elementary school; the Supreme Council has recently approved the middle school regulations and has tools such as written and oral exams. This approach has reduced all educational expectations to a quantitative scale and grades, unaware that this exploratory approach has come at the cost of ignoring some critical and fundamental goals of education.

Studies show that evaluation in the country's education system relies more on traditional tests (Yadgarzadeh & Sadeghi, 2022). Using traditional evaluation methods has been criticized in schools, and attempts have been made to replace them with other methods (Mousavi & Maghami, 2012). Due to their structure, traditional tests respond to the needs of people other than the examinee and often rank students (Reigeluth, 2011). This method emphasizes the weak points of the examinee and is not sensitive to the student's progress (Culp-Roche et al., 2021). In this type of test, the student is passive and gives back what was induced to him (Bagheri, Asgharanjad, & Nasrollahi, 2022). They ask students to answer questions or solve problems that they will never

face again; they ask them to do these things alone, without relying on any tools or resources, and in conditions with Time limitations, if real life is not like these at all (Mousavi & Maghami, 2012).

Moreover, traditional evaluations are test-oriented and face test-oriented problems such as the phenomenon of cheating, anxiety, emphasis on the part of the content, lack of providing honest feedback to the student, and focus on the student's creativity and sense of questioning (Akbarpouri, 2020). In response to these criticisms, if evaluation is considered a part of the teaching-learning process, these problems can be solved (Zimmerman et al., 2021) because the evaluation purpose is to improve education and determine what, to whom, when, for what purpose, and how should be taught to learn behaviors following the goals and desired (Talebi, Mahmoudian, Rastegar, & Saif, 2015). Evaluation should comprehensively and continuously consider all aspects of students' growth (Pourasfahani, Aida, Gadham, & Naderi, 2019). The best time for evaluation is when the teaching and learning process is underway (Bagheri et al., 2022).

Literature has demonstrated that computer education has its limitations, including that it may not replace the teacher, human, emotional interactions, and face-to-face communication in the classroom (Roshani-Alibanesi et al., 2017). The delay in immediate feedback from the instructor and the lack of social feeling or the feeling of isolation are among the disadvantages of the online training course from the instructor, and these disadvantages are generally caused by not having a relationship with the instructor (Muthuprasad, Aiswarya, Aditya, & Jha, 2021).

Yousefi, Assareh, and Hosseinikhah (2016) reported the lack of possibility for students to measure their progress and the undesiredness of evaluation in the curriculum among the problems of electronic teaching and learning. In general, the results of studies related to curriculum evaluation issues in traditional and virtual forms of higher education show that curriculum evaluation with issues and challenges such as not knowing the meaning of the curriculum and curriculum evaluation and the lack of a specific and legal program for evaluation are not used. It is faced by experts inside and outside the university to carry out the evaluation correctly, not specifying the necessary budget for the evaluation, neglecting the evaluation results, limiting the evaluation of the curriculum to the results of the academic achievement tests, and the lack of possibility for the students to measure their progress (Yousefi, Assareh & Hosseinikhah, 2016).

In their research, "E-service learning: The evolution of service-learning to engage a growing online student population," Waldner, Widener, and McGorry (2012) identified the critical factors of designing online courses. He noted that flexibility, interaction, and participation are essential to online curriculum design.

In their study titled "Predictive role of emotional intelligence and perceived parenting styles in happiness of students," Firoozi, Mohamadi, and Nikdel (2017) indicated that there were some problems related to the design of descriptive evaluation from the point of view of teachers and parents to some extent (at an average level), implementation problems from the teachers' viewpoints were many and from the of parents' viewpoints is to some extent (at an average level). Finally, there were problems after the implementation of descriptive evaluation from the teachers' viewpoints to a large extent and from the parents' viewpoints to some extent. Based on the qualitative findings, an integrated evaluation model was presented. The study also demonstrated that overall, descriptive evaluation is not in a good state of implementation, and the presented integrated model can solve many of the implementation problems of the current model of descriptive evaluation (Firoozi, Mohamadi, & Nikdel, 2017).

Khazaei, Hendi, Samadi, & Parvin (2017), in their research titled "Representation of qualitative-descriptive evaluation experience in elementary schools," showed that among the challenges identified in this direction, the following can be mentioned: teachers' lack of familiarity with the philosophy and theories related to qualitative evaluation, lack of justification of teachers and parents regarding qualitative evaluation, lack of cooperation of the media, especially national media to spread the thinking of qualitative evaluation, the lack of proper support from the authorities in the implementation of the evaluation program, the lack of mastery

of the teachers in the evaluation approach, the incompatibility of programs and educational books with the qualitative approach, the high ratio of students to teachers in the classroom (Khazaei et al., 2017).

Shahmohammadi (2014) did a study titled "Evaluation of Iran's educational programs according to the CIPP," showing that the above courses' philosophy, mission, vision, and general goals are free of fundamental defects. The specifications of the course and the content of the courses are also compatible with the philosophy and goals. However, the evaluation results show significant problems in the process and implementation, and the output area is overshadowed due to the poor implementation of the process. Therefore, the process and implementation part should be strengthened; for another reason, the educational structure should be modified (Shahmohammadi, 2014).

According to Yaraghi, Elahidost, and Khorasghani (2019), evaluation is one of the critical aspects of educational processes. It makes it possible to identify the strengths and weaknesses of education based on the results and to take appropriate steps to transform and reform the education system by strengthening the positive aspects and eliminating deficiencies.

These issues in the evaluation system made the educational system's decision-makers and policymakers focus more on this field of education. The design of two-round exams (continuous evaluation) and qualitative evaluation - description is a sign of a deep focus on this issue (Mahmoodi, Abdollahzadeh, & Mansourzadeh, 2016). According to the contents that have been stated, it can be seen that the need to focus on the pathology of the virtual evaluation system in schools is of particular importance. The present study seeks to examine the pathology of the virtual evaluation system.

Methodology

The applied study employed a descriptive research method and a survey research design. The population consisted of all (410, including 280 female and 130 male elementary teachers) elementary school teachers in Miandoab city in the academic year of 2020-2021. Using a proportional stratified random sampling method and the Krejcie and Morgan Table, the sample size was determined as 201 individuals. However, in the implementation with a drop of 5 people, the study was conducted on 196 participants. The stratified proportional sampling method was employed to select the participants among a population including 410 individuals from different groups. In stratified sampling, the population units were grouped into classes that are more homogenous regarding traits; that is, they have similar characteristics, so their changes within the groups are less than others (Sarmed et al., 2013). The data collection instrument was a five-point Likert scale researcher-made questionnaire including questions 1 to 7 on electronic technology aspects in the evaluation, questions 8 to 14 on pedagogic issues, and questions 15 to 25 on management aspects in the evaluation.

Face validity was used to check the validity of the designed questionnaire. The face validity of the questionnaire was confirmed from the research literature by studying scientific sources and by experts and professors of the Department of Educational Sciences and Educational Psychology. Cronbach's alpha was used to check the validity of the scale. The reliability of the entire questionnaire was calculated using Cronbach's alpha coefficient of 0.95, and for each of the management aspects, electronic technology, and pedagogical issues, the reliability value was calculated as 0.90, 0.84, and 0.86, respectively. Descriptive statistics (frequency, mean and standard deviation, and variance) and inferential statistics (one-sample t-test) were used to analyze the data. The data was analyzed using IBM SPSS Statistics V22.0.

Findings

Before analyzing the data, the Kolmogorov–Smirnov test was used to determine the normality of the data distribution. The results related to the normal distribution of the data showed that they have a normal distribution (Table 1) ($p>0.05$). The distribution of the samples based on gender:

75% female and 25% male; based on field of study: 84.69% humanities, 11.23% basic science, and 4.80% agriculture; based on teaching experience: 64.8% 10-10 years, 26% 11 -20 years, and 9.2% 21-30 years.

Table 01. Significance level of the Kolmogorov-Smirnov and Shapiro–Wilk test regarding the pathology of the virtual evaluation system in elementary school

	Kolmogorov-Smirnov	Shapiro–Wilk
	Sig.	Sig.
Electronic technology aspects	0.10	0.94
Pedagogic aspects	0.14	0.94
Management aspects	0.09	0.97

Table 2 shows that the t-observed for management aspects is statistically significant ($p \leq 0.001$).

Table 2. One-sample t-test related to investigating management aspects in the pathology of the virtual evaluation system in elementary school

Variables	N	Mean	SD	Standard error of the mean (SEM)	Hypothetical mean value=3			
					Mean difference (MD)	T	df	Sig.
Question 15	196	2.43	0.95	0.07	-0.57	-8.29	195	0.001
Question 16	196	2.33	1.21	0.09	-0.67	-7.73	195	0.001
Question 17	196	2.56	1.06	0.08	-0.44	-5.84	195	0.001
Question 18	196	2.49	1.16	0.08	-0.50	-6.08	195	0.001
Question 19	196	2.64	1.14	0.08	-0.36	-4.43	195	0.001
Question 20	196	2.49	1.10	0.08	-0.51	-6.48	195	0.001
Question 21	196	2.36	1.08	0.07	-0.64	-8.27	195	0.001
Question 22	196	2.96	1.22	0.09	-0.04	-0.41	195	0.685
Question 23	196	2.43	1.02	0.07	-0.57	-7.78	195	0.001
Question 24	196	2.30	1.09	0.08	-0.70	-8.91	195	0.001

The results of Table 3 demonstrates that the t-observed for electronic technology aspects is statistically significant ($p \leq 0.01$).

Table 3. One-sample t-test related to investigating electronic technology aspects in the pathology of the virtual evaluation system in elementary school

Variables	N	Mean	SD	Standard error of the mean (SEM)	Hypothetical mean value=3			
					Mean difference (MD)	T	df	Sig.
Question 1	196	2.03	1.02	0.07	-0.97	-13.38	195	0.001
Question 2	196	2.31	1.07	0.08	-0.69	-9.03	195	0.001
Question 3	196	2.14	1.08	0.08	-0.86	-11.09	195	0.001
Question 4	196	2.02	0.99	0.07	-0.98	-13.82	195	0.001
Question 5	196	2.76	1.02	0.07	-0.24	-3.30	195	0.001
Question 6	196	2.69	1.09	0.08	-0.31	-3.99	195	0.001
Question 7	196	2.04	1.12	0.08	-0.96	-12.10	195	0.001
Question 8	196	2.28	1.12	0.08	-0.72	-9.04	195	0.001
Question 9	196	2.30	1.13	0.08	-0.69	-8.62	195	0.001
Question 10	196	2.74	1.23	0.09	-0.26	-2.96	195	0.003
Question 11	196	2.34	1.06	0.08	-0.65	-8.67	195	0.001
Question 12	196	2.23	1.14	0.08	-0.77	-9.44	195	0.001
Question 13	196	2.35	1.04	0.07	-0.65	-8.76	195	0.001
Question 14	196	2.18	1	0.07	-0.82	-11.51	195	0.001

Also, the results of Table 4 illustrate that the t-observed for pedagogical aspects is statistically significant (p≤0.001).

Discussion and conclusion

The research findings related to the first research question showed that according to the elementary teachers, focus on the correlation of evaluation methods with general goals and behavior; the level of student readiness to enter electronic courses in evaluation; the amount of attention, accuracy, and accuracy of the course content in the evaluation; ease of electronic use in evaluation; the level of attention to continuous evaluation and the use of its information for subsequent decisions; accuracy, objectivity and development of skills in virtual education evaluation; the amount of appropriate use of text, sound, and images and dynamism in evaluation, the way the teacher interacts with managers, other teachers, staff and students in the evaluation of the virtual environment; the degree of knowledge and skill acquisition in virtual education evaluation are management aspects. Knowledge level and skills in the evaluation of virtual education have the highest mean value, and focus on the correlation of evaluation methods with general goals and behavior has the lowest mean value. Also, findings demonstrated that focusing on strategies and tools that continuously inform the learner's performance in the evaluation is not statistically significant. According to teachers, this aspect is not part of the management aspects in investigating the pathology of the virtual evaluation system in elementary school. The results of Saraji, Attaran, Naderi, Ezzatollah, & Ali Asgari (2007) are consistent with the present study's results, confirming that the way employees communicate with each other and the way the manager communicates with employees are part of management aspects.

Based on the research theoretical framework, decisions to design, launch evaluation, and maintain e-learning courses require management knowledge. Designers and managers of learning courses should make decisions from a managerial aspect about how employees communicate with each other, how the manager communicates with employees, course fees, receipts and payments, the schedule and implementation of the course (Culp-Roche et al., 2021). Therefore, in explaining this finding, managers, and designers should pay attention to the following aspects: focus on the correlation of evaluation methods with general goals and behavior; the level of student readiness to enter electronic courses in evaluation; the amount of attention, accuracy and accuracy of the course content in the evaluation; ease of electronic use in evaluation; the level of attention to continuous evaluation and the use of its information for subsequent decisions; accuracy, objectivity and development of skills in virtual education evaluation; the amount of appropriate use of text, sound, and images and dynamism in evaluation, the way the teacher interacts with managers, other teachers, staff and students in the evaluation of the virtual environment; the degree of knowledge and skill acquisition in virtual education evaluation.

The research findings related to the second research question indicated that according to the elementary teachers, the need for hardware and software and web browsers in evaluation; the possibility of adding evaluation methods by the teacher; the focus on the evaluation to the precise determination of the roles, duties, and responsibilities of the people involved; benefiting from media and digital resources in evaluation; adaptation of technological architecture to the evaluation schedule of the course; the use of educational tools to evaluate students; the use of technical standards to share questions, assignments, and feedback in the evaluation are electronic technology aspects in the pathology of the virtual evaluation system in elementary school. The need for hardware, software, and web browsers in evaluation has the lowest mean value, and technical standards for sharing questions, assignments, and feedback in evaluation have the highest mean value. The difference in the order of the means declared by the participants is statistically significant. Roshani-Alibanesi, Fathi Vajargah, and Khorasani (2017) showed that from academic staff members' and students' viewpoints, implementing an e-learning curriculum in Iran faces various challenges, including technological infrastructure (Roshani-Alibanesi et al., 2017). Their results are somewhat consistent with the results of the present study. Also, Ebrahimi, Kadivar, Parvin, and Kamkari (2021) showed that the e-learning system of universities implementing e-learning is not in a favorable condition regarding usability in learning, confirming the results of the present study.

Based on the theoretical framework of the research, with the development of information and communication technology, computer facilities, multimedia, and the Internet, the distance education system has entered a new stage. Information, communication, interactive, personalization facilities, and capabilities, at any time and place, allow curriculum planners and educational designers to design new learning environments called virtual, online, or web-based learning environments. In addition, policymakers and educational planners of face-to-face learning environments can also use these technologies to strengthen face-to-face classrooms. Also, decisions on designing, setting up, evaluating, and maintaining e-learning courses require knowledge of electronic technology. In designing electronic learning environments, technological decisions such as Internet access, network interactions, graphic interface design, website appearance, and learning management system features are used to help achieve teaching and learning goals. Therefore, to evaluate electronic courses' quality, the technological components' quality should be examined (Hilton et al., 2020). In explaining this finding, it can be said that educational designers and evaluators should pay attention to the need for hardware and software and web browsers in evaluation; the possibility of adding evaluation methods by the teacher; the focus on the evaluation to the precise determination of the roles, duties and responsibilities of the people involved; benefiting from media and digital resources in evaluation; adaptation of technological architecture to the evaluation schedule of the course; the use of educational tools to

evaluate students; the use of technical standards to share questions, assignments, and feedback in the evaluation in the pathology of the virtual evaluation system in elementary school and make basic decisions about them.

The research findings related to the third research question showed that according to the elementary teachers, the use of inter-curricular questions for self-examination and encouraging content learning in evaluation; focus on setting the structure of each lesson and dividing it into sections of introduction, content, assignments, and evaluation; integration of curriculum and electronic environment tools in virtual education in evaluation; the degree of students' knowledge participation in the learning process in evaluation; the possibility of continuous monitoring and providing quick feedback for the teacher in evaluation; focus on the use of objective evaluation methods that are compatible with the electronic environment; the role of the teacher and how to use the evaluation tools that are the pedagogical issues in exploring the shortcomings of the virtual evaluation in elementary school. The teacher's role and how to use evaluation tools have the highest mean value, and the use of inter-curricular questions for self-testing and encouraging content learning in evaluation has the lowest mean value. The difference in the order of the means for pedagogical issues by the participants is significant.

According to the results of this research section, Zamani, Saeedi, and Abedi (2011) can be mentioned among the studies that are somewhat consistent with the present study's results. They found that ethical (literary and scientific plagiarism), psychological (technological anxiety of power cut during evaluation, time delay in sending answers, and system breakdown), pedagogical (teaching techniques, non-familiarity with the structure and technology, skill, and workload), and technical (telecommunications infrastructure, face-to-face communication, and security) issues are the challenges related to evaluation electronic courses. Also, they showed that technical, pedagogical, and psychological issues are the biggest challenges to evaluating electronic courses from the students' viewpoints (Zamani et al., 2011).

Based on the research theoretical framework, making decisions, launching evaluations, and maintaining e-learning courses need pedagogical knowledge and management and technological knowledge. In examining the elements of the quality of e-learning with an emphasis on supporting the teacher to pay attention to the learning styles and individual differences of the learners; the degree of attention to participation and cooperation among learners; provision of helpful information to the user about the training course; organization of the training course; focus on content characteristics, learning goals, teaching methods and learning materials; consideration of the costs and benefits of the course; examination of the technologies used in setting up and maintaining the training course considers pedagogical components more than technological components (Maenner et al., 2020). Pedagogical aspects refer to elements and categories, including how to integrate the curriculum and tools of the electronic environment, how to prepare and organize the content, the learners' participation level in the learning process of the teacher's role, and how to use evaluation tools. Therefore, in explaining this finding, it can be said that educational designers and evaluators should increase the use of interdisciplinary questions for self-examination and to encourage content learning in evaluation; focus on setting the structure of each lesson and dividing it into sections of introduction, content, assignments, and evaluation; integration of curriculum and electronic environment tools in virtual education in evaluation; the degree of students' knowledge participation in the learning process in evaluation; the possibility of continuous monitoring and providing quick feedback for the teacher in evaluation; focus on the use of objective evaluation methods that are compatible with the electronic environment; focus on the role of the teacher, and how to use evaluation tools are the pedagogical issues in the pathology of the virtual evaluation system in elementary school and make important decisions about them.

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