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Analyzing the components of effective assessment of the academic performance of elementary students in non-attendance education (A phenomenological study)

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ABSTRACT

Background and Aim: With the rise of digital tools, education has moved away from its traditional form and is advancing towards non-physical learning modalities. Distance learning leads to flexibility and easy access through digital media. Thus, the purpose of this study was to understand the lived experiences of students, teachers, and professors regarding the effectiveness of assessment in distance education. **Methods:** This qualitative research was conducted using a phenomenological approach. The method of data collection involved semi-structured interviews. For this purpose, data were collected through interviews with 30 students, teachers, and professors and analyzed using the method of Streubert and Carpenter (2003). **Results:** The analysis of the interviews revealed four main themes including support and backing components, content, infrastructure and ethical, and 22 subthemes such as technical support, enhancing the motivation of teachers and students, continuous training of teachers and students, improving computer literacy of students and teachers, overcoming teachers' resistance to virtual assessment methods, using interactive methods, focusing on learners' depth of thinking, timely and rapid feedback, attention to individual differences, familiarity with virtual assessment methods in teachers, adapting to virtual assessment methods in teachers, availability of electronic infrastructure, ensuring security of assessment in the virtual space, providing high-speed internet, quick and easy access to mobile or computer for students, digitalization of the entire assessment process, promoting the culture of virtual assessment among teachers and students, avoiding cheating due to anonymity, providing agreed-upon criteria and standards in assessment, considering students' backgrounds in virtual assessment, perceiving the student as the core of assessment, and connecting assessment to the student's environment. **Conclusion:** Given the above results, it is clear that performance assessment in non-physical education requires adherence to specific principles and components. Neglecting them can lead to the sterilization of this type of assessment.

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Introduction

To date, distance learning has undergone a significant growth trend. Countless online courses and internet-based curricula have been offered by educational institutions worldwide (Allen & Seaman, 2014). Nowadays, education is undergoing fundamental changes; teaching and learning are no longer confined to traditional classrooms (Wong et al., 2017). Due to the dominance of digital tools, education is distancing itself from its conventional form and moving towards non-physical learning. Distance learning has led to flexibility and easy access through digital media (Camerichro, 2016). It can be confidently stated that in the current era, the growth rate of information technology has reached a level that significantly influences everyone's life. The curriculum has not been immune to this influence. One of the significant areas that education, especially general education, faces is access to the internet. The internet has provided the grounds for online education and distance learning (Kivanja, 2014). One of the capacities related to the internet is virtual curriculum. Consequently, some schools, recognizing the importance of this matter, are gradually encouraging their learners to enter virtual environments. For instance, in the United States, the number of students enrolled in virtual schools has reached 297,712, an increase of about 2,000 compared to 2017 (Monlar et al., 2019). Additionally, in some countries like the USA, Canada, Australia, and the UK, every student is required to complete at least two courses virtually.

Therefore, due to internet-based information technologies, a significant revolution in learning has been created (Rezaei et al., 2009; Hines & Brown, 2017). One of the techniques of electronic education is virtual education (Karadaman, 2018). Virtual education is the intersection of distance education, computer-based education, and internet technologies (Hew & Tiet, 2017). Like traditional curriculum, virtual education and curriculum have components and elements, one of which is assessment. An educational program cannot be considered valuable and effective unless it undergoes a comprehensive and complete assessment (Hosseinpur et al., 2018). Curriculum assessment, as a strategy, determines how each of the program elements, considering the learner's conditions and available resources and limitations, has been fitting and implementable (Maleki et al., 2009). In distance learning, assessment aims to determine to what extent these teachings have met the necessary standards (Aghakethiri et al., 2010). In fact, this type of assessment is a serious and independent act applied to ongoing or completed activities, allowing us to determine how much we have achieved the predetermined goals (Clark, 2009). Various models have been proposed for assessment in distance education. For example, Chua and Dyson (2004) based on ISO 9126 standard, consider the following components essential in virtual evaluation: functionality, reliability, usability, efficiency, maintainability, portability. Zhang and Jiang (2007) suggest the CIPP model, an acronym for context, input, process, and product. Zhang and Cheng (2012) offer the PDPP model, which includes four assessment activities: design, execution, process, and product, each encompassing other topics. Bias and Mayhew (1994) and Dumas and Redish (1993) believe that in virtual assessment, aspects such as utility, effectiveness, learnability, flexibility, and satisfaction should be considered. Fitzpatrick et al. (2006) argue that in virtual assessment, five important approaches should be considered: goal-oriented, management-oriented, consumer-oriented, learning-oriented, expert-oriented, participant-oriented. Atol (2006), in this regard, suggests the SPEAK model, where the three important factors are strategic design, continuous internal reviews, and knowledge sharing. Savick and colleagues (2011) offer the AHP model, which includes three stages: trend analysis, data comparison, and quality index determination. The five-step model of Marshall and Schriver includes five steps: teaching, course materials, curriculum, course plans, and transfer of learning (McArdle, 1992). Kilpatrick's four-stage model (1999) considers the assessment of learner reactions, the learning achieved, the transfer of learning, and the impact of results as essential.

Experts believe that just as traditional and non-physical learning systems differ, it is necessary to use methods and tools appropriate for each system to assess learners' learning. With the increasing demand for distance learning, the need to measure and assess learners in this type of education is a constant necessity (Stalling, 2017). Therefore, in network-based and non-physical education, assessment methods should

be used that are compatible with the nature of this type of education and its environment (Laying & Krizy, 2004). In non-physical assessment, there is more potential for quick feedback and flexibility compared to the traditional method (Akbari Bourneg et al., 2015). The issue of quick feedback in assessment and the interactive and continuous nature of assessment in physical and non-physical education has also been considered by many researchers in this field (Bransford et al., 2004; Nichols, 2012; Bouchard, 2017; Bart, 2007; Morse & Marry, 2015). In distance education, many factors make the structure of distance learning complex and raise concerns for teachers and learners. Moreover, online educators cannot monitor learners' educational activities for long periods and respond to their questions, viewpoints, and non-verbal behaviors. They must discover other techniques to obtain the information they seek (Savon, 2006). Therefore, the specific features of distance education create particular implications for assessment, especially academic performance assessment. It is important to note that academic performance refers to students' success in various educational dimensions and individual acquired or learned abilities in academic subjects (Rezaei et al., 2016). Assessment is a process used to gather necessary information for decision-making regarding students, curricula, and educational policies (Netbko, 2001). Effective assessment, in turn, includes elements of transparency, accuracy, validity, consistency, and coordination (Wheeler et al., 2016). In any case, despite the importance of effective academic performance assessment, it can be said that not much research has been conducted in this area, and most efforts have been focused on designing electronic evaluations (Abdoli & Mohammadhosseini, 2014), with limited research on effective academic performance assessment. Therefore, the present study attempts to answer the question of what characteristics and components a suitable model for effective academic performance assessment of primary school students in distance education would have.

Method

The present research was conducted qualitatively using a descriptive phenomenological method. The aim of phenomenological research is to describe life experiences as they have occurred in real life. Streubert and Carpenter (2003) consider phenomenology an act that aims to describe specific phenomena or the appearance of things and life experiences. The focus of phenomenology is on life experiences, as it is these experiences that create the meaning of any phenomenon for an individual and tell the individual what is real and factual in their life (Adib Hajbagheri et al., 2011). Since the phenomenological method strives to describe human experiences in the context and environment in which they occur, providing the richest and most descriptive information, its use is suitable for clarifying and providing a deeper description of the phenomenon in question. The research participants included professors, teachers, and students involved in non-physical education. The number of participants was 30, each of whom was interviewed. The participants were selected based on purposive sampling and using the snowball method. The number of samples was determined based on theoretical saturation of data; that is, the number of interviews continued until the researcher's information in the field of research was saturated, and no further information was added thereafter.

Materials

1. Semi-structured interview: In terms of research validity, the interview questions were designed and then revised and approved by seven specialists in the related field.

Implementation

For recording interviews, all conversations were audio-recorded. Then, the recorded interviews were carefully listened to by the researcher and transcribed word for word. After the interviews were transcribed, the "member checking" method was used to confirm the validity of the interviews. This means that the transcribed text of the interview was sent back to the participants to verify the accuracy of the content and make necessary corrections if needed. The analysis of the information was carried out using the method of Streubert and Carpenter (2003). This method includes describing the phenomenon of interest by the researcher, setting aside the researcher's presuppositions, interviewing participants, reading descriptions by participants, extracting essences, finding fundamental relationships, writing a description

of the phenomenon, returning the description to participants and obtaining their confirmation, reviewing related texts and publications (Adib Hajbagheri, Parvizi & Salsali, 2011).

Results

After operationalizing a total of 30 interviews with teachers, students, and professors and studying them multiple times, four main themes and 22 sub-themes emerged, including technical support, increasing motivation of teachers and students, continuous education for teachers and students, enhancing computer literacy of students and teachers, breaking teachers' resistance against virtual assessment methods, using interactive methods, attention to the depth of learners' thinking, timely and rapid feedback, attention to individual differences, familiarity with virtual assessment methods in teachers, adapting to virtual assessment methods in teachers, availability of electronic infrastructure, ensuring the security of assessment in the virtual space, providing high-speed internet, easy and quick access to mobile or computer for students, digitalizing the entire assessment process, promoting the culture of virtual assessment among teachers and students, avoiding cheating due to anonymity, presenting agreed-upon criteria and standards in assessment, attention to students' backgrounds in virtual assessment, perceiving the student as the core of assessment, connecting assessment to the student's environment. These 22 sub-themes were categorized into the main themes, resulting in four primary themes: support and backing, content, infrastructure, and ethical.

Table 1. Main themes and sub-themes

Sub-themes	Main themes
1-1: Technical Support 1-2: Enhancing the Motivation of Teachers and Students 1-3: Continuous Education of Teachers and Students 1-4: Improving Computer Literacy of Students and Teachers 1-5: Overcoming Teachers' Resistance to Virtual Assessment Methods	**1. Support**
2-1: Use of Interactive Methods 2-2: Attention to the Depth of Learners' Thinking 2-3: Timely and Rapid Feedback 2-4: Attention to Individual Differences 2-5: Familiarity with Virtual Assessment Methods in Teachers 2-6: Adapting to Virtual Assessment Methods in Teachers	**2. Content**
3-1: Availability of Electronic Infrastructure 3-2: Ensuring the Security of Assessment in Virtual Spaces 3-3: Providing High-Speed Internet 3-4: Quick and Easy Access to Mobile or Computer for Students 3-5: Digitizing the Entire Assessment Process	**3. Infrastructure**
4-1: Promoting the Culture of Virtual Assessment among Teachers and Students 4-2: Avoiding Cheating Due to Anonymity 4-3: Providing Agreed-upon Criteria and Standards in Assessment 4-4: Considering Students' Backgrounds in Virtual Assessment 4-5: Regarding the Student as the Core of Assessment 4-6: Linking Assessment to the Student's Environment	**4. Ethical**

After operationalizing a total of 30 interviews with teachers, students, and professors and studying them multiple times, four main themes and 22 sub-themes emerged, including technical support, increasing motivation of teachers and students, continuous education for teachers and students, enhancing computer literacy of students and teachers, breaking teachers' resistance against virtual assessment methods, using interactive methods, attention to the depth of learners' thinking, timely and rapid feedback, attention to individual differences, familiarity with virtual assessment methods in teachers, adapting to virtual assessment methods in teachers, availability of electronic infrastructure, ensuring the security of assessment in the virtual space, providing high-speed internet, easy and quick access to mobile or computer for students, digitalizing the entire assessment process, promoting the culture of virtual assessment among teachers and students, avoiding cheating due to anonymity, presenting agreed-upon criteria and standards in assessment, attention to students' backgrounds in virtual assessment, perceiving the student as the core of assessment, connecting assessment to the student's environment. These 22 sub-themes were categorized into the main themes, resulting in four primary themes: support and backing, content, infrastructure, and ethical.

First Theme: Support and Backing

Technical support: Undoubtedly, providing technical support is one of the key sub-components in effective performance assessment in remote education. One of the participants states:

"See, when you talk about remote education and assessment in this type of education, you must

be able to support teachers and students with technical and software supports. Otherwise, such an assessment loses its meaning; because it is not even based on the most basic principles" (Participant No. 3).

Increasing motivation of teachers and students: Any new phenomenon truly manifests itself through the deep involvement of its stakeholders. Assessment in non-physical education is no exception. One of the participants in this context states:

"Currently, due to the conditions we face in this era, non-physical education has expanded significantly and inevitably, teachers and students in every school will encounter it. So, if we want to be effective in non-physical education, which also involves non-physical assessment, we must genuinely engage teachers and students in this type of education and assessment" (Participant No. 9).

Continuous education for teachers and students: Education is the key to success in any new and novel phenomenon; therefore, training teachers and students about the various aspects of effective assessment in non-physical education is also a key component. One of the participants in this context states:

"Distance education in Iran is not very well-established. Consequently, assessment compatible with this type of education is also not well-known. In my opinion, training teachers and students about the different dimensions of this type of assessment can create the conditions for effective and efficient assessment in this area" (Participant No. 1).

Enhancing computer literacy of students and teachers: Effective assessment in distance education is impossible without the ability to use computers and knowledge in this area. One of the participants in this regard states:

"Firstly, for distance education, you need to have the skill for this type of education, which is hard to imagine without a computer. Secondly, if we want to conduct effective assessment in this type of education, teachers and students must have sufficient computer knowledge in this area" (Participant No. 12).

Breaking teachers' resistance against virtual assessment methods: Breaking the resistance of traditional teachers against new technologies is one of the influential components in effective distance assessment. One of the participants in this regard states:

"Many of our teachers deliberately don't want to use computers, mobile phones, etc., in education; let alone assessment. Maybe this issue goes back to their mindset and lack of information and familiarity in this area. But I think whatever it is, if these teachers can be convinced to use modern tools in assessment, it would be a significant step towards effective assessment in distance education" (Participant No. 7).

Second Theme: Content Using Interactive Methods: One of the features of effective assessment in non-physical education is the use of interactive methods, as noted by some informants in the current study. A participant in this context states: "In non-physical education assessment, since there is no face-to-face and direct interaction between teacher and student, serious attention to interactive methods becomes doubly important; because the element of presence is subdued in this method. Therefore, emphasizing interactive methods can compensate for this deficiency" (Participant No. 14).

Attention to the Depth of Learners' Thinking: One of the characteristics of effective assessment is paying attention to the depth of students' thoughts. A participant in this area states: "Both myself and many of my classmates are not fond of remote assessment methods; because it doesn't pay any attention to what goes on in our minds. It just asks a bunch of superficial questions that really don't leave any motivation for participation" (Participant No. 8).

Timely and Rapid Feedback: Effective assessment must be able to provide immediate feedback. A participant in this regard states: "Many times, due to software problems, assessment gets disrupted and it's not possible to immediately announce the results to the learner, and this issue reduces the efficiency of this type of assessment" (Participant No. 11).

Attention to Individual Differences: Paying attention to individual differences is a key and essential principle in education and especially in effective assessment. A participant in this regard states: "Unfortunately, the assessment that exists in non-physical education is actually an electronic version of paper-pencil tests and they have the same perennial problem: lack of attention to individual differences" (Participant No. 2).

Familiarity with Virtual Assessment Methods in Teachers: Teachers' familiarity with various virtual assessment methods provides the basis for effective assessment. A participant in this regard states: "Many colleagues think that assessment in distance education means just presenting a few multiple-choice questions to students and that's it. But they are unaware that remote assessment, due to its nature, can be conducted in a wide variety of forms" (Participant No. 15).

Adapting to Virtual Assessment Methods in Teachers: Teachers must be able to adapt and change themselves in accordance with the assessment methods in distance education to facilitate their effectiveness. An informant in this area states: "In the present era, especially in education, it's an era of revolution and change. When distance education is promoted, undoubtedly, assessment methods also change and if a teacher cannot adapt themselves to these assessment methods, they consequently won't be able to perform effective assessment" (Participant No. 4).

Third Theme: Infrastructure Availability of Electronic Infrastructure: Having electronic equipment and facilities is another important component in effective assessment from a distance. A participant in this regard states: "When we talk about distance education and its components, including assessment, the first thing that comes to mind is the availability of up-to-date electronic equipment in this area. Without such equipment, it's impossible to have effective assessment" (Participant No. 6).

Ensuring Security of Assessment in Virtual Space: Ensuring the security of assessment is a fundamental component of effective assessment in distance and virtual education. A participant in this regard states: "Unfortunately, distance assessment in our country has not yet been able to have the necessary security, and there are numerous leaks and gaps in this area" (Participant No. 10).

Providing High-Speed Internet: Having high-speed internet is an essential prerequisite for effective virtual assessment. A participant in this regard states: "Assessment in distance education courses is usually based on the internet; but unfortunately, the low speed of the internet has prevented us from conducting effective and efficient assessment in this area" (Participant No. 13).

Easy and Quick Access to Mobile or Computer for Students: Access to mobile and computer is also among the essential prerequisites for achieving effective assessment in distance education. A participant in this area states: "Some students don't have good access to a suitable mobile or computer, and this issue has prevented us from conducting distance assessment as well as we should" (Participant No. 8).

Digitalizing the Entire Assessment Process: Completely digitalizing the assessment process is among the important actions in the area of effective assessment from a distance. A participant in this regard states: "The problem is that we are still not clear with ourselves and sometimes, part of the remote assessment is done exactly in the traditional way and part of it electronically. In my opinion, from the beginning to the end of the assessment, it should be completely digitalized" (Participant No. 2).

Fourth Theme: Ethical Promoting the Culture of Virtual Assessment Among Teachers and Students: Expanding the culture of virtual assessment among teachers and students is one of the important features in effective assessment in distance education. A participant in this regard states: "Many teachers and students don't give much importance to virtual assessment and seem to take this method of assessment lightly. I think the culture of this type of assessment should be well established among teachers and students" (Participant No. 12).

Avoiding Cheating Due to Anonymity: Cheating in the process of distance assessment is one of the major challenges in effective assessment that needs serious attention. A participant in this regard states: "Virtual assessment is such that the identity of students is not well defined, and this issue facilitates cheating. If we want to have effective assessment, we must prevent such incidents from happening" (Participant No. 9).

Presenting Agreed Criteria and Standards in Assessment: Avoiding one-sided assessment is an important principle in effective distance assessment. An informant in the current study in this regard states: "I think assessment, especially distance assessment, can be effective when all parties involved in this type of assessment come to an agreement on the standards" (Participant No. 13).

Attention to the Backgrounds of Students in Virtual Assessment: One of the most harmful

phenomena in assessment is the lack of attention to students' backgrounds. A participant in this regard states: "In all my years of education, in the exams that were conducted, whether on paper or virtually, they never paid attention to the backgrounds and problems we were dealing with" (Participant No. 3).

Perceiving the Student as the Core of Assessment: The student is the basic element of assessment and should form the core of effective assessment. An educator in this regard states: "Take a look at the assessments that are done, in none of these assessments is the student the basis of the assessment. So what do you expect from its effectiveness?" (Participant No. 10).

Connecting Assessment to the Student's Environment: Connecting assessment to the student's environment provides the basis for its effectiveness. A participant in this regard states: "The virtual and distance assessments that are currently being conducted have no connection or link to the student's environment and are mostly done mechanically" (Participant No. 7).

Conclusion

The purpose of the present study was to understand the lived experiences of students, teachers, and professors regarding effective assessment in distance education. The results of this research revealed four main themes including support and backing, content, infrastructure, and ethical components, along with 22 subthemes such as technical supports, enhancing the motivation of teachers and students, continuous education of teachers and students, enhancing computer literacy of students and teachers, overcoming teachers' resistance to virtual assessment methods, using interactive methods, attention to learners' depth of thinking, timely and rapid feedback, attention to individual differences, familiarity with virtual assessment methods in teachers, adapting to virtual assessment methods in teachers, availability of electronic infrastructures, ensuring security in virtual assessment, providing high-speed internet, easy and quick access to mobile or computer for students, digitalizing the entire assessment process, promoting the culture of virtual assessment among teachers and students, avoiding cheating due to anonymity, presenting agreed criteria and standards in assessment, attention to the backgrounds of students in virtual assessment, perceiving the student as the core of assessment, and connecting assessment to the student's environment. Given these findings, it is clear that educational performance assessment in non-physical education requires adherence to certain principles and components, neglect of which could render this type of assessment ineffective. Generally, with the development of virtual and distance education, attention to elements of this type of education including assessment has become more evident (Deepwell, 2017). In line with the results of this study, Chua and Dyson (2004) considered the following components necessary for effective assessment: functionality, reliability, usability, efficiency, updateability, and mobility. Effective assessment leads to teachers acquiring accurate and practical information about students and significantly impacts the improvement of students' learning processes (Hand, 2012).

Furthermore, considering the emphasis effective assessment places on transparency and accuracy, many educational gaps and blind spots are revealed through this type of assessment (Gilbert, 2007). As mentioned in the current study, this kind of assessment, with its focus on increasing the yield of learners and educators, measurement and development of individual performance, and especially continuous and systematic feedback, is associated (Ardito et al., 2016). Therefore, in the current era, where education is increasingly moving towards non-physical and virtual teaching, attention to effective assessment should be more considered. Effective assessment, taking into account all technical and non-technical aspects, creates an environment for students to flourish academically, leading to an educational path that produces high-quality students in cognitive and non-cognitive dimensions.

The present study, like other research, faced limitations, including: 1) Focusing on qualitative methodology may limit the generalizability of findings to larger populations. 2) Using self-reported data from participants might lead to bias or inaccurate data. 3) The research was limited to a specific population (students, teachers, and professors), potentially overlooking other perspectives in distance learning. 4) Technological differences among participants such as varying access to

high-speed internet or digital devices might influence their experiences and responses. 5) The research was confined to the context of distance learning and might not fully encompass the nuances of blended or physical learning. Considering these findings, it is suggested that to increase the efficiency of distance education, the development and implementation of continuous educational programs to enhance the digital literacy of teachers and students are crucial. Also, strengthening technical support systems to overcome technological challenges and creating a stimulating and interactive environment for learning are necessary. Moreover, integrating interactive teaching methods and providing timely feedback to address individual differences and promote deeper understanding in the learning process is very important. Additionally, further studies with larger and more diverse samples are recommended for a better and broader understanding of the efficiency of distance education. Exploring the impact of distance learning on different age groups and educational levels can provide valuable insights. Additionally, examining the long-term effects of this type of learning on academic performance and psychological well-being of students and the role of parental involvement in this process is important. Finally, evaluating the different effects of digital platforms and tools on the quality and efficiency of distance learning is another area for research.

Conflict of Interest

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

References

Aghakhani, Z., & Fazeliyan, P. (2010). Evaluating virtual education programs of the Faculty of Sciences and Hadith for students and professors. In Proceedings of the 5th National Conference and 2nd International Conference on E-Learning and E-Teaching. (In Persian)

Anari Nezhad, A., & Mohammadi, M. (2014). Practical indicators for evaluating e-learning in higher education in Iran. Electronic Learning Journal, 5(1), 11-25. (In Persian)

Bazargan, A. (1995). Internal assessment in universities and its application in continuous improvement of the quality of higher education. Quarterly Journal of Research and Planning in Higher Education, 3(4), 46-49. (In Persian)

Borng Akbari, M., Jafari Sani, H., Ajam, A. A., Saberi, R., & Shokoohi Fard, H. (2015). Design and validation of a quality virtual teaching model in the higher education system. Journal of Qualitative Research in Curriculum, 1(2), 73-106. (In Persian)

Habibipour, M., & Batwani, M. (2006). The status of assessment in the curriculum. Journal of Educational Technology Development, 22(179). (In Persian)

Khorasani, A., & Hosseini Zarabi, H. (2014). Educational assessment (from theory to practice). Tehran: Iran Industrial Education and Research Center. (In Persian)

Rezaii, A. M., Jahan, F., & Rahimi, M. (2016). Academic performance: The role of achievement goals and motivation for progress. Journal of Educational Psychology, 12(42), 155-171. (In Persian)

Roshani Bonab, H., Fathi Vajargah, K., & Khorasani, A. (2017). Challenges of curriculum assessment quality in virtual education courses (case study: Shahid Beheshti University). Journal of Educational Measurement and Evaluation, 7(18), 29-52. (In Persian)

Seraji, F. (2014). Evaluation in virtual space. Iranian Curriculum Encyclopedia. http://daneshnamehicsa.ir/default.aspx?pagename=pages&id=84 (In Persian)

Saif, A. A. (2010). Educational measurement, assessment, and evaluation. Tehran: Doran Publishing. (In Persian)

Abdoli, S., & Mohammadzadeh, N. (2014). A synthesis of components, tools, and methods used in electronic assessment and the presentation of a comprehensive model for electronic assessment. Journal of Educational Measurement and Evaluation, 5(9), 153-172. (In Persian)

Keyamanch, A. (2002). Educational assessment methods (Educational Sciences field). Tehran: Payam Noor University Publications. (In Persian)

Maleki, H. (2009). Fundamentals of high school curriculum planning. Tehran: Samt Publications. (In Persian)

Allen, I. E., & Seaman, J. (2014). Grade Change: Tracking Online Education in the United States. *Babson Survey Research Group*. Retrieved from http:// www. onlinelearningsurvey. com/ reports/ gradechange.

Anderson, T., & Alum, F. (2005). *E-learning from theory to practice*. Eshrat Zamani, Seyed Amin Azimi, trans. Tehran: Institute of

Intelligent Information Technology Training Schools.

Ardito, C., Costabile, M. F., De Marsico, M., Lanzilotti, R., Levialdi, S., Roselli, T., & Rossano, V. (2006). An approach to usability evaluation of e-learning applications. *Universal access in the information society*, *4*(3), 270-283.

Attwell, G. (2006). Evaluating E-learning: A Guide to the Evaluation of E-learning. *Evaluate Europe Handbook Series*, *2*, 1610-0875.

Attwell, G. (2006). Evaluating E-learning: A Guide to the Evaluation of E-learning. *Evaluate Europe Handbook Series*, *2*, 1610-0875.

Barrett, H. (2017). Researching electronic portfolio & learner engagement: the reflect initiative. *Journal of Adolescent & Adult literacy*, 50 (6), 436-449.

Bedford, W., Gregg, J., & Clinton, S. (2009). Implementing technology to prevent online cheating: A case study at a small southern regional university (SSRU). *MERLOT Journal of Online Learning and Teaching*, *5*(2), 230-238.

Bias, R. G., & Mayhew, D. J. (Eds.). (1994). *Cost-justifying usability*. Elsevier.

Boettcher, J. V. (2007). Ten core principles for designing effective learning environments: Insights from brain research and pedagogical theory. *Innovate: Journal of Online Education*, *3*(3). Available at: http://www.innovateonline.info/index.php?view=article&id=54.

Bransford, J. D. (2004). Critical Success Factors and Effective Pedagogy fore-learning in Tertiary Education. *New Zealand Council for Educational Research*.

Chua, B. B., & Dyson, L. E. (2004, December). Applying the ISO 9126 model to the evaluation of an e-learning system. In *Proc. of ASCILITE* (pp. 5-8).

United Nations Development Programme. (2009). Handbook on planning, monitoring and evaluating for development results. *UNDP*.

Comerchero, M. (2016). *E-learning concepts and techniques.* Institute for Interactive Technologies, Bloomsburg University of Pennsylvania, USA.

De Villiers, R., Scott-Kennel, J., & Larke, R. (2016). Principles of effective e-assessment: A proposed framework. *Journal of International Business Education*, *11*, 65-92.

Deepwell, F. (2007). Embedding quality in e-learning implementation through evaluation. *Journal of Educational Technology & Society*, *10*(2), 34-43.

Dessoff, A. (2012). A new survey reports most states anticipate major challenges in implementing the online assessments. *District Administration*. http://www.districtadministration.com/article/report-major-challengesfuture-online-assessments.

Dolenc, K., & Aberšek, B. (2015). TECH8 intelligent and adaptive e-learning system: Integration into Technology and Science classrooms in lower secondary schools.com*puters & Education*, *82*, 354-365.

Dumas, J. S. & Redish, J. C. (1993). A practical guide to usability testing. Greenwich: Ablex.

Gilbert, J., Morton, S., & Rowley, J. (2007). e-Learning: The student experience. *British Journal of Educational Technology*, *38*(4), 560-573.

Gómez-Aguilar, D. A., Hernández-García, Á., García-Peñalvo, F. J., & Therón, R. (2015). Tap into visual analysis of customization of grouping of activities in eLearning.com*puters in Human Behavior*, *47*, 60-67.

Hand, A. (2012). Evaluating the suitability of current Authoring Tools for developing e-learning Resources. *Heriot Watt University.*

Hansen, H. F. (2009). Educational evaluation in Scandinavian countries: Converging or diverging practices?. *Scandinavian Journal of Educational Research*, *53*(1), 71-87.

Hemby, K., Wilkinson, K., & Crews, T. B. (2006). Converting assessment of traditional classroom assignments to the e-learning environment. *Online Journal for Workforce Education and Development*, *2*(2), 2.

Hintz, A., & Brown, I. (2017). Digital Citizenship amd Surveillance| Enabling Digital Citizenship? The Reshaping of Surveillance Policy after Snowden. *International Journal of Communication*, *11*, 782-801.

Hivon, J., & Titah, R. (2017). Conceptualizing citizen participation in open data use at the city level. *Transforming Government: People, Process and Policy*.

Huerta, L., Shafer, S. R., Rice, J. K., Barbour, M. K., Elgeberi, N., Molnar, A., & Miron, G. *Virtual Schools in the US 2019*.

Joughin, G. (2009). Assessment, learning and judgement in higher education: A critical review. *Assessment, learning and judgement in higher education*, 1-15.

Karaduman, H. (2017). Social Studies Teacher Candidates' Opinions about Digital Citizenship and Its Place in Social Studies

Teacher Training Program: A Comparison between the USA and Turkey. *Turkish Online Journal of Educational Technology-TOJET*, *16*(2), 93-106.

Kim, K. J., Liu, S., & Bonk, C. J. (2005). Online MBA students' perceptions of online learning: Benefits, challenges, and suggestions. *The Internet and Higher Education*, *8*(4), 335-344.

Kirkpatrick, D. L. (1999). *Evaluación de acciones formativas: los cuatro niveles*. Barcelona: Gestión 2000.

Kivunja, C. (2014). Theoretical perspectives of how digital natives learn. *International Journal of Higher Education*, *3*(1), 94-109.

Liang, A. krizi, K. (2004). Evaluation of network-based learning environment in the classroom. *Journal of Educational Technology*, 26, 4.

Marriott, P. (2009). Students' evaluation of the use of online summative assessment on an undergraduate financial accounting module. *British Journal of Educational Technology*, *40*(2), 237-254.

McArdle, G. E. (2007). *Training design and delivery*. American Society for Training and Development.

Morss, K., & Murray, R. (2005). Teaching at university: A guide for postgraduates and researchers. Sage.

Murphy, E., & Coleman, E. (2004). Graduate students' experiences of challenges in online asynchronous discussions. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, *30*(2).

Savic, S., Stankovic, M., & Janackovic, G. (2011). Hybrid model for e-learning quality evaluation. *International Journal of Emerging Technologies in Learning (iJET)*, *7*(2012).

Stallings, D. (2002). Measuring success in the virtual university. *The Journal of Academic Librarianship*, *28*(1-2), 47-53.

Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance education*, *22*(2), 306-331.

Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and higher education*, *6*(1), 77-90.

Wang, Y. S., Wang, H. Y., & Shee, D. Y. (2007). Measuring e-learning systems success in an organizational context: Scale development and validation.com*puters in Human Behavior*, *23*(4), 1792-1808.

Zhang, W. & Jiang, G. (2007). *Evaluation research in distance education*. Higher Education Press.

Zhang, W., & Cheng, Y. L. (2012). Quality assurance in e-learning: PDPP evaluation model and its application. *International Review of Research in Open and Distributed Learning*, *13*(3), 66-82.