Criteria for Designing e-Learning Environment Based to Assessment Style (Peer - Self)

Mohamed Mahmoud Abdelftah
Deputy Head of the Networks Department at the Technology Development Center
Prof. Dr/ Eman Salah ElDeen Saleh
Professor in Instructional Technology Department
Faculty of education- Helwan University
Assist. Prof/ Mohamed Dahy Mohamed
Assist professor in Instructional Technology
Faculty of specific education- Minia University

مجلة البحوث في مجالات التربية النوعية
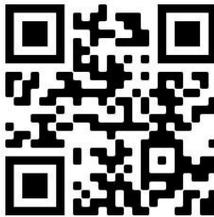
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Abstract:

The use of e-learning environments is of great importance; As the importance of their use increased in the current period when the Corona epidemic appeared and the Ministry of Education was forced to close schools for a long time, e-learning environments were the fastest and only alternative to continuing study processes and reaching the desired educational goals, which prevented the emergence of the epidemic without achieving them. Edmodo is one of the most important and popular educational platforms, and the calendar is one of the tools that are used in e-learning environments; Therefore, the researcher was interested in shedding light on two types of assessment patterns (peers - self) when designing an e-learning environment, where assessment is one of the most important factors in the educational process in general and education technology in particular. System elements such as: general context - inputs - processes - final product - validity report. The evaluation is linked to the analysis of learners' performance in order to answer questions related to the adequacy of tasks, as well as assessing needs, as through performance analysis, goals are set to meet those needs.

Therefore, the current study focused on shedding light on some criteria for designing mobile learning environments, including criteria for the technical and technological field, educational criteria, technical criteria, and criteria for evaluation methods.

Keywords: e-learning environments, self-assessment, peer assessment

المستخلص العربي:

لإستخدام بيئات التعلم الإلكترونية أهمية كبيرة؛ حيث إزدادت أهمية إستخدامها في الفترة الحالية عندما ظهر وباء كورونا وإضطرت وزارة التربية والتعليم بغلق المدارس لفترة طويلة، فكانت بيئات التعلم الإلكترونية البديل الأسرع والأوحد لإستمرار عمليات الدراسة والوصول للأهداف التعليمية المرجوة والتي حال ظهور الوباء دون تحقيقها، فقد بدأت الوزارة في تلك الفترة في إستخدام منصة Edmodo وهي أحد أهم وأشهر

المنصات التعليمية، ويعد التقويم أحد الأدوات التي تستخدم في بيئات التعلم الإلكترونية؛ لذا إهتم الباحث بإلقاء الضوء على نمطين من أنماط التقويم (الأقران – الذات) عند تصميم بيئة تعلم إلكترونية، حيث يعد التقويم من أهم العوامل في العملية التعليمية بشكل عام وتكنولوجيا التعليم بشكل خاص وهو يعني بتحقيق كفايات عناصر النظام لتحقيق الأهداف التعليمية، حيث يشمل التقويم كافة عناصر النظام مثل (السياق العام – المدخلات – العمليات – المنتج النهائي – تقرير الصلاحية)، ويرتبط التقويم بتحليل آداء المتعلمين وذلك للإجابة على التساؤلات المتعلقة بكفاية المهام، وأيضاً تقدير الحاجات حيث يتم من خلال تحليل الآداء تحديد الأهداف لتلبية تلك الحاجات.

لذا فقد إهتمت الدراسة الحالية بتبسيط الضوء على بعض معايير تصميم بيئات التعلم المتنقل ومنها معايير خاصة بالمجال التقنى والتكنولوجى ومعايير التربوية ومعايير فنية ومعايير أساليب التقويم.

Introduction:

The use of e-learning environments is of great importance; As the importance of their use increased in the current period when the Corona epidemic appeared and the Ministry of Education was forced to close schools for a long time, e-learning environments were the fastest and only alternative to continuing study processes and reaching the desired educational goals, which prevented the emergence of the epidemic without achieving them. Edmodo is one of the most important and popular educational platforms.

(Mohamed Attia, 2018), (Grosseck, 2017), (Hanan Al Shaer, 2017), (Coromode & Krishnamurthy, 2016), (Wadhi Al-Otaibi, 2016), (Laddie, 2015), (Arkoful & Abaidoo, 2014), (Algahtani, 2011), (Klasnja-Milicevic, Vesin, Ivanovic& Budimac, 2011), Nabil Gad (2010), (Amal Nasreddin, 2008), (Simons Ertmer, 2006) on a range of features that are available in environments E-learning in the following points:

- It works to increase learning outcomes and educational outcomes, especially in complex topics for learners.
- Enable learners to self-acquire knowledge and achieve the desired educational goals.

- It provides many opportunities to manage learning, whether synchronous or asynchronous, at anytime and anywhere, provided that the electronic content provided to learners is developed and is suitable for all learners.
- The design of educational environments allows learners to obtain information according to their needs, capabilities and preferences, and according to individual differences between them.
- It gives the learner an opportunity to use multiple methods that contribute to training on different communication skills, sharing ideas and dividing work.
- Changed the role of learners from passive recipients to active participants involved in content creation, development, and sharing with colleagues.
- Encouraged the learners to work cooperatively among themselves.
- It allows learners to work in new media that helps develop self-confidence and express themselves.
- Helps learners to create, share and share educational content among themselves.
- Allow learners to learn in a flexible environment away from the pressures of traditional study.
- You do not need specialists in the field of programming, but you only need some competencies that allow dealing with them and that can be developed easily.
- Easy to develop and modify in content, with minimal effort and cost, and allows the learner to choose the appropriate level for his own potential and capabilities.
- Focusing on the learner, as the learner is the center of the educational process and is responsible for learning and building his own knowledge. His role has changed from a passive recipient to becoming the center and center of the educational process.
- It provides the learner with a source of support as it is the most important factor that achieves the learner's self-efficacy, and also provides feedback to the learner after practicing each activity, which helps to increase the learner's motivation.

The researcher concludes from what was previously presented that e-learning environments have many advantages and great importance, including that the e-learning environment saved the learner from being a passive recipient of information until his role became the basis in the educational process and even became the axis on which the educational process was built. E-learning environments allowed the learner to participate In preparing, developing and sharing educational content, electronic learning environments provided the learner with cooperative work between him and his colleagues, which contributes to increasing learning motivation and reaching the maximum levels of learning. It also provided feedback to the learner after each activity performed by the learner, which increases his abilities to academic achievement and increases His self-efficacy in the educational content provided to him, and at the same time the e-learning environment in the current research had another great importance, as we are now living in the era of the global epidemic, which, during its occurrence, had great effectiveness for e-learning environments, without e-learning environments, studies would have stopped in schools and all educational institutions In view of the recommendations of the World Health Organization regarding social distancing during this period, and in this context, uh, The researcher created a list of criteria for designing an e-learning environment based on the assessment style (peers – self).

Research problem:

Through the researcher's work in the Networks Department of the Technology Development Center in the Directorate of Education in Minia, which is authorized to implement the work of the new education system in the governorate, which was started by the Egyptian government in the academic year 2018-2019, and it is known that the new system for education began to be applied to the first grade of secondary school to include teachers and first-year secondary students, as the textbook was replaced with a tablet device, which is a qualitative leap in the education system in Egypt. Therefore, it was necessary to determine the extent to which secondary school teachers and specialists knew the skills of designing e-environments, so it was necessary to set standards for the design of those environments,

The researcher has chosen two evaluation patterns on which the list of criteria is based, and they are two evaluation patterns (peer-self).

After formulating the problem, the researcher formulated the main research question as follows: How can standards for e-learning environments be defined based on the assessment style (peers - self)?

The following sub-questions are derived from the main question:

1. What are the sources of instruction design standards that must be taken into account when designing e-learning environments based on the two assessment patterns (peer-self)?

2. What are the technical design criteria that must be taken into account when designing e-learning environments based on the two assessment patterns (peer-self)?

3. What are the design criteria for the learner that must be taken into account when designing e-learning environments based on the two assessment patterns (peer-self)?

4. What are the assessment criteria that must be taken into account when designing e-learning environments based on the two assessment patterns (peer-self)?

Research aims:

Arriving at a list of instructional, technical and specialized design criteria that must be taken into account when researching objectives:

1. Reaching for a list of educational, technical and specialized design criteria that must be taken into account when designing e-learning environments based on the two assessment patterns (peer-self)?

2. **Research Methodology:**The current research follows the analytical descriptive research method for educational technology research

Search Steps: Follow the search steps below

- **First:** Preparing the theoretical framework for research by reviewing the educational literature represented in educational technology books, and previous research related to the topic of research.

- **Second:** Presentation of literature, studies and previous research related to e-learning environment design standards.
- **Third:** Conducting the field study by applying the following:
  - Preparing a list of criteria for designing e-learning environments through.
  - Compile the criteria extracted and classify them logically.
  - Establishing indicators for each standard.
  - Preparing the initial version of the list of criteria and presenting it to the arbitrators as an exploratory sample.
  - Presenting the initial list to a sample of professors and specialists in educational technology and curricula.

Research Importance:
1. Opening the door for researchers to design electronic environments based on the evaluation style (peers - self).
2. Directing the attention of researchers interested in the field of educational technology to conduct studies and research designing e-learning environments using educational, technical and technological standards.

Search Limits:
The current research is limited to extracting criteria and evaluation tool from studies, research and related literature that could be obtained and then presented to a sample of professors and specialists in the field.

Search Terms:
- **E-learning environments**: defined by the researcher: An integrated, multi-resource environment available through the Internet that is designed according to specific criteria based on the evaluation style (peer-self), which allows the teacher to teach and evaluate through the available capabilities, and this environment has its characteristics that simulate smart systems and depend on standards Standard in design and adjustable and development.
- **Self-evaluation**: learners' participation in making judgments about their achievements and learning outcomes, which leads to support students' learning, especially when

used in a coordinated manner. Self-evaluation is one of the most important skills that students must acquire for future professional development.

- **Peer assessment**: an educational system through which learners share knowledge and conclusions, provide support, assistance and immediate feedback, and exchange experiences with each other with the aim of supporting current skills and gaining new skills, which creates a kind of mutual trust among learners.

Theoretical framework and previous studies:

First: E-learning environments:

E-learning environments have many advantages and great importance, including that the e-learning environment saved the learner from being a passive recipient of information until his role became the basis in the educational process and even became the axis on which the educational process was built. E-learning environments allowed the learner to participate in the preparation, development and sharing of educational content The electronic learning environments provided the learner with cooperative work between him and his colleagues, which contributes to increasing the motivation of learning and reaching the maximum levels of learning. It also provided feedback to the learner after each activity the learner performs, which increases his abilities to academic achievement and increases his self-efficacy in the educational content provided. At the same time, the e-learning environment in the current research had another great importance, as we are now living in the era of the global epidemic, which, during its occurrence, had great effectiveness. Global health from social distancing during this period.

Components of e-learning environments:

Mohamed Attia (2018) indicated that e-learning environments include several main components, which are as follows:

1. Educational Environmental Context: It answers when and where the learning process takes place, and what are the conditions that affect educational activities.

2. The Learner: He is the person who is entrusted with acquiring knowledge and skills, but rather being a participant in the learning process.

3. The teacher: the person who facilitates and guides the learner during the learning process.

4. Learning Strategies: It means the methods and methods used in the learning process to reach the educational goal.

5. Presented educational content: It means the skills, information, knowledge, and values to be communicated to the learner, which must be taken into consideration when presented in appropriate and varied ways in order to be compatible with all educational categories.

The goal of creating the electronic environment:

Qasim Al-Shannaq and Hassan Bani Doumi (2010) explained that the aim of creating an e-environment is as follows:

1- Strengthening the relationship between the learner and the external environment.

2- Providing a multi-source environment to serve the educational process.

3- Compensating the shortage of training cadres in educational institutions.

4- Providing additional services that improve the educational process, such as pre-registration, management of learning systems, assessment and electronic exams.

5- Graduating generations of learners capable of keeping pace with technological development.

The researcher adds that one of the most important goals that e-learning environments seek to achieve is for each learner to obtain educational content that suits his abilities and capabilities at the time he desires, whether the learning style is synchronous or asynchronous. It also aims to encourage the exchange of knowledge. Between learners and working in a team, which contributes to increasing the motivation to learn and increasing the academic achievement of learners.

Previous studies concerned with e-learning Environments Studies:

There were many studies that focused on educational environments, including the study of Saleh Al-Zahrani (2019),

which aimed to reveal the impact of designing a participatory e-learning environment in developing some computer skills and achievement motivation among middle school students. This study followed the experimental approach and a random sample of (56) students was Dividing them into two groups, the first is experimental, numbering (27) and the other is control, numbering (29) students. The researcher used a cognitive test and a card to measure computer skills and a measure of achievement motivation as research tools. The experimental group learned through a participatory electronic learning environment.

And the study of Sahar Shamiya (2018), which aimed to reveal the effectiveness of an e-environment in developing the skills of designing electronic tests. The study was applied to a sample of (24) female students at the Faculty of Education at the Islamic University in Gaza who were chosen randomly. The researcher followed the descriptive approach and the semi-experimental approach, and the results proved The effectiveness of the proposed e-environment in developing the skills of designing e- tests for female students of the College of Education, and the researcher recommended the necessity of training female education students and raising their level of interest about employing the electronic educational environment and applying e-tests on the ground.

And the study of Ayman Al-Attar (2016), which aimed to present a proposal for a learning environment based on participatory tasks to develop the skills of producing e-games for postgraduate students in the professional diploma - Instruction Technology Division, Faculty of Education - Mansoura University) and the researcher used the experimental method using one group consisting of (30) male and female students were randomly selected, and the results of the study concluded that there are statistically significant differences in favor of the post application of the achievement test, the observation card, and the product evaluation card.

And the study of Muhammad al-Bassiouni (2012), which focused on identifying the effectiveness of developing an electronic environment based on the Internet to train a group of computer teachers students on object-oriented programming skills.

In the e-learning environment, this indicates the effectiveness of the proposed e-environment for developing object-oriented programming skills.

Second: self-assessment

- **Self-assessment concept**

Self-evaluation is one of the most important types of formative evaluation that works to increase learner independence, increase his motivation towards learning and develop critical thinking and metacognitive skills. His educational performance and the extent to which the effect of learning remains with him, and thus self-evaluation is to discover and reinforce the elements of strength and the elements of weakness to address them.

(Michael wrided, 2017) defined self-evaluation as "the participation of learners in making judgments about their achievements and learning outcomes" which leads to support students' learning, especially when used in a coordinated manner. Self-evaluation is one of the most important skills that students must acquire for professional development in the future; as it develops their abilities and makes there is a reciprocal interactive relationship between the teacher and the learner, the educational content and the educational curricula.

- **The importance of self-assessment:**

explained (Derradji, 2011), (Leach, 2012), (Ozogul & Sullivan, 2009), (Salah Allam, 2007) the importance of self-evaluation, and the researcher extracted it as follows:

- Giving the learner time to continue learning effectively over time.
- It builds within them the ability to positively interact with their learning, as they are able to accompany and support the educational team throughout the learning period.
- It makes learners more active in their learning.
- A large part of the responsibility for formative evaluation is transferred from the teacher to the learner.
- It reduces the burden on the teacher in the formative evaluation.
- Increasing the student's motivation towards learning.
- Increased self-confidence.

- Enriching the emotional aspects of the curriculum and saving time for the teacher to evaluate the learners and assess the results.
- Gaining knowledge and making education more profound.
- Develops learner independence and cognitive abilities.
- Promotes better understanding of content and better thinking about tasks.
- Reducing the stress of anxiety on students and reducing the intensity of the conflict between the student and the teacher.

Among the studies that emphasized the importance of self-evaluation is the study of Doster, Matsuno, 2006; Kitsantas, et al., 2004; Kitsantas, Reiser, Sullivan, 2002; Bruce, 2000)

Which confirmed that self-evaluation has many positive benefits in the classroom and has an impact on imparting knowledge, making education more profound, and increasing students' responsibility for learning.

On the other hand, despite the aforementioned advantages of self-evaluation, the results of research and studies differed in judging it in terms of its impact on the teaching and learning process. (Fontana and Fernedes, 1994) issued a report stating that primary school students who were trained in self-evaluation in mathematics scored The highest scores, while both (Andrade and Boulay. 2003), (Olina and Slivan, 2004) issued a report stating that there is no significant effect of self-evaluation on learners' performance.

Third: Peer assessment:

- **Peer evaluation concept.**

Peer evaluation is basically based on each student's evaluation of the work of his peers. Two students can exchange the tasks and work entrusted to them, and each of them evaluates the quality, accuracy, and appropriateness of each work. (Elshami & Abdalla, 2016), and peer assessment is concerned with the mutual interaction between the learners and each other, as the assessment is not completed definitively unless each individual within the group performs his role, and therefore each individual within the group is responsible for mastering the learning (Hani Al-Sheikh, 2014).

- **The importance of peer evaluation:**

Several studies have indicated the importance of using peer evaluation, including the study of (Mooney, Brackan & Dignam, 2016), (Planas, et al, 2014), (Hunt & Hutchings, 2014), (Peng, 2009), (Ayesh Zaitoun, 2007), Salah Allam (2007), (Race, et al., 2005), (Flachikov, 2005), (Deakin, Sebba, Harlen, Yu & Lawson, 2005), (Fredricks, Blumenfeld & Paris, 2004), (Patri, 2002). , Qassem Al-Sarraf (2002), Jaber Abdel Hamid (2002), and the researcher extracted them in the following points:

- Peer assessment contributes to developing an understanding of academic and reference standards for the learner.
- It works on developing the ability to express an opinion, make judgments and explain viewpoints, because peer assessment is a social process based on interactive learning within a competitive participatory work environment.
- It improves learners' abilities in terms of collaborative work with peers and constructive criticism of each other's work.
- Enhance communication, communication and business audit skills.
- Peer assessment contributes to developing learners' skills professionally and academically.
- Contributes to a large extent in the development of the personal values of learners such as respect for opinion and other opinion, appreciation of ideas, self-respect and respect for colleagues.
- Peer assessment is of great importance in the learner's self-development and thinking, as it works to develop a sense of responsibility.
- Peer assessment provides learners with great value in enhancing their independence and giving them the ability to make judgments.
- Learners who learn through peer assessment learn more comfortably when they compare and discuss their work with their peers about the teacher; Where there is greater freedom of expression, participation, questions and discussion of the available options.

- Peer assessment provides learners with opportunities to actively participate in assessment processes such as discussion of standards and negotiation.
- Peer evaluation contributes to providing learners with the necessary knowledge to express their opinions in a non-offensive or aggressive manner, and to encourage critical thinking.

Previous studies that focused on peer evaluation:

There are many studies that have been concerned with peer evaluation, including the study of Hasna Al-Tabbakh (2020), which aimed to develop some Web 2.0 skills among students of the Faculty of Specific Education by measuring the impact of using support patterns (teacher - peers). The study experience was applied to number of (80) students from Students of the third year (all people except technology) at the Faculty of Specific Education, Tanta University. The students were randomly divided into two experimental groups, each group included (40) students. The first group studied through the support style (teacher), and the second group studied through the support style (peers). The results revealed the superiority of the first experimental group in the achievement test, and the second group's superiority in the performance note card.

And the study of Iman Al-Sharif (2017), which revealed the impact of the interaction between the sharing pattern and the source of assessment in the social learning platform on the development of learning outcomes and academic achievement motivation among Instruction Technology students, using the technological development approach that includes the descriptive approach and the semi-experimental approach. The study used an achievement test to measure the cognitive aspect of Google educational applications, a product evaluation card for Google educational applications, and a measure of academic achievement motivation as tools for the study, and they were applied to a sample of (60). Academic achievement is due to the main effect of the difference in the source of formative assessment (teacher - peers) in the social learning platform for students of Instruction Technology. The research recommended training Instruction designers in e-learning centers in universities and educational

technology specialists to design patterns of participation (between groups and within them), and the source of formative evaluation (teacher / peers) to enrich and achieve learning goals.

And the study of Hamdi Abdel Azim (2014), which aimed to reveal the effectiveness of a proposed strategy for peer assessment in e-learning environments in developing the knowledge and skill achievement of Instruction Technology students and their attitudes towards them; This is an attempt to identify the impact of using new methods and strategies that keep pace with modern educational trends and e-learning environments. The results indicated an improvement in the level of students in the cognitive and scientific aspects of scripting skills in Action Script, as well as the students expressed their positive attitudes towards the strategy that gave them greater confidence in judgment. on the work of their peers, and made them the owners of the greatest responsibility in their learning and the learning of their colleagues, and gave them sufficient time for implementation, revision and modification, which led to an improvement in the level of their cognitive achievement and their practical performance.

And the study of Hani Al-Sheikh (2014), which tried to reveal the main impact of both the peer assessment method (individual - group) and the identity pattern of students (unknown - known), and revealed the relationship between the two variables in terms of cognitive performance, skills, educational product quality and a statement of the credibility of peer assessment, the research was applied On (60) undergraduate students, by studying one of the electronic units via the web based on peer assessment activities, the results revealed a basic effect of both the peer assessment method and the students' identity pattern on all dependent variables, as well as an interactive relationship between the two variables, which led to The collective peer evaluation method for high results regardless of the students' identity style, and the research revealed a positive correlation between peer evaluation and the assessment of the course professor, and the higher correlations were in favor of the group peer evaluation method regardless of the students' identity style, which recommended the research to emphasize the use of the peer

evaluation method Collective because it has credibility in the results of peer evaluation.

Search procedures:

Prepare a list of criteria for choosing cloud learning management systems by going through the following steps:

▪ **Define the goal from the list of criteria:** The general goal was determined, which is to reach a list of a set of educational and technological criteria for choosing to design an electronic learning environment based on assessment (self-peer).

▪ **Determining the sources for the derivation of the list of criteria:** Several sources were referred to when building the list:

o **Analysis of literature and previous studies** that dealt with standards for designing e-learning environments and their analysis, as well as the opinions of experts and specialists in the field of educational technology regarding standards for the development (design and production) of e-learning environments and the results and recommendations of previous research such as the study (Asmaa Mahmoud, 2022), (Safa Abdul Latif). (2016), (Mohammed Khamis, 2011, 168-1996), (Nabil Azmy, 2006, 277), (Nada Salem, 2011), (Ibrahim Al-Far, 2015, 129-150), (Zainab Min, 2015-07). 29), (Hessa Al-Shaya, Afnan Al-Obaid, 2015), (Huang, et al, 2012) and in light of this, the list was built.

o **Preparing the initial picture for the list of standards:** Through the previous sources, the standards were formulated in their initial form in the form of statements, each of which represents a prerequisite that should be available when designing an e-learning environment.

o **Presenting the list of criteria to the arbitrators:** The initial image of the list was presented to a group of arbitrators specialized in the field of curricula, teaching methods and educational technology.

o Making the necessary amendments in light of the arbitrators' opinions: Amendments were made in light of the arbitrators' opinions in terms of adding some necessary criteria and deleting criteria that could not be observed and measured, integrating some criteria that perform the same task, and amending the language of some criteria and reaching the list in its final form Appendix No. (1)

Search recommendations:

- Adopting the list of criteria used in the current research to be a guiding model for designing e-learning environments based on the assessment style (peer-self).
- Carrying out further revisions to these standards, to keep pace with recent technological developments in the field.
- Include in educational faculties curricula detailed topics about electronic learning environments and train students to use them, so that they can benefit from them during practical education, and when they are assigned to schools.

Suggested research:

- Conducting studies on standards for designing and publishing courses across mobile learning environments.
- Studying the impact of different tools and activities used within mobile learning environments on learning outcomes.
- Conducting similar studies with different evaluation styles.

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