A Suggested Model for Evaluating MOOC Platforms According to Educational and Technical Standards

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Abstract: Background: To provide more opportunities for learners and to achieve greater effectiveness in the educational process, it is necessary to utilize e-learning platforms to support education. However, it is important to monitor the problems of these platforms and evaluate their effectiveness in improving educational performance in the light of approved educational and technical standards. **Objective:** The aim of this study is to provide a suggested model that can be used to evaluate open e-learning platforms according to specific educational and technical standards. **Methods:** Relevant literature on the topic were reviewed and faculty members were consulted. **Results:** Considering literature review and the jury members' response analysis, the researcher set a suggested model consist of two-domain List (educational & technical standards); total of 6 standards, 24 sub-standards and 46 indicators. The educational domain composed of 3 standards, 8 sub-standards and 16 indicators. The technical domain consists of 3 standards, 16 sub-standards and 30 indicators. This list has been judged by 30faculty members from 6 universities. The agreement percentage was calculated according to "Cooper" equation, and the agreement percentage of educational standards was (90.63%) and of technical standards was (86.22%), while the agreement percentage of the Standard List was (87.75%). All percentages are more than 80%. **Conclusion:** It is aspired that the model items will serve as a guide in the MOOC platforms evaluation.
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1. Introduction

The aim of this study is to build a suggested model that can be used to evaluate open e-learning platforms according to specific educational and technical standards. It also aims to inform the users of Massive Open Online Course (MOOC) platforms, designers, implementers, decision-makers and stakeholders, and alert them to the need to refer to these standards to determine the content of MOOC platforms that are based on hypotheses, applications and practices derived from educational theories, and to avoid the use of platforms that are based on unplanned random practices or that take a technical direction that focus on tools only and neglect the educational dimension.

The importance of this study lies in the current trend towards the use of e-learning platforms in different forms that lead officials, designers, users, implementers and interested parties to focus on the theoretical, educational and technical frameworks and backgrounds of the open learning platforms in their design, implementation and utilization. Also, the importance of this study lies in providing a list of educational and technical standards derived from educational theories that can be used to judge the effectiveness of the contents of open learning platforms.

At present, we are witnessing a tremendous revolution in the social networking platform. If we highlight the education sector, it is necessary for teachers to be aware of the right way to employ social networking sites and networks in the educational process with skill and intelligence to achieve high quality educational outcomes, especially as the current generation we teach has become a professional practitioner of technical and communication tools. Therefore, we must develop the methods and tools that we use to achieve harmony and benefit from the technical tools. (Mohammed, 2017, pp. 103-104; Zeidan, Alhalafawy, Tawfiq & Abdelhameed, 2015).

For a faculty member to perform e-learning effectively, it must be done in the light of quality standards (Al-Balawi, Sulaiman and Rushdi, 2000). Al-Saidi (2011) conducted a study at King Abdul Aziz University aimed at determining the standards necessary to evaluate the content of e-courses in distance learning from the experts and specialists' points of view. The results of the study identify 7 aspects comprising 42 standards for evaluating the content of e-courses in distance learning which include: (content accuracy, objectivity, modernity or contemporary, comprehensiveness, relevance, consistency, and modeling).

Considering the above, we note that it is important when using e-learning and its multiple applications in education; it is necessary to focus on linking theory and practice with emphasis on interaction between educational models and

educational strategies and technologies used. Decision-makers in higher education institutions must be aware of the problems before including open e-learning platforms with their development plans, Al-Dahdouh (2016) discussed the problems of open e-learning platforms that higher education institutions need to consider before adopting e-learning platforms, the results revealed eight major problems, interrelated and dominant on these platforms. These problems were identified in: high dropout rate, dependence, business model, reputation, pedagogy, research ethics, student assessment and language barrier. Al-Obaid & Alshaya study (2017) targeted the importance of one of the most popular e-learning platforms, Edmodo, and provided a detailed review of the most important applications and experiences using Edmodo in teaching courses, where the study has proved the effectiveness of Edmodo education in support of many skills. Therefore, the study recommended that Arab educators adopt the use of Edmodo and conduct more researches on teaching practices in Arab environment.

Ahmed's (2017) study focused on the analysis and comparison of selected sample services from the academic platforms that operate according to the framework of the social networking system to identify its features and its roles in scientific publishing and providing services to researchers. To provide more opportunities for learners and to achieve greater effectiveness in the educational process, it is necessary to utilize e-learning platforms to support education and monitor the problems of these platforms and evaluate their effectiveness in improving educational performance in the light of approved educational and technical standards. Hence, the idea of the current research to answer the following question:

What are the most important educational and technical standards that can be used to evaluate the MOOC platforms?

The Concept of MOOC Platforms

MOOC is an abbreviation for **M**assive **O**pen **O**nline **C**ourse, like any online courses (watching videos on YouTube, Lynda or CBT Nuggets), but the difference is that there are universities and university professors preparing these courses to be similar or identical to what they do in their universities (Al-Subhi & Al-Otaibi, 2017, p. 72). Educational platforms are interactive learning sites that help students exchange information, share content, distribute roles among students, and conduct tests and assignments electronically (Ahmed, 2016, p. 1111; Zeidan, Alhalafawy & Tawfiq, 2017).

In addition, Hamed and Hijazi (2015, p. 6) defines educational platforms as online integrated multi-source interactive educational software system to provide courses, educational programs, educational activities, and e-learning resources for learners at anytime, anywhere, synchronously or asynchronously, using interactive information, communication and educational technology tools in a way that enables the teacher to evaluate the learner. Al-Habashi (2017) listed some of MOOCs advantages as follows:

- Improving and organizing information within the school.
- Increase parental interference and support education at home.
- Increase opportunities for autonomy, self-learning, and increase accessibility to educational resources.
- Improve monitoring and evaluation of learning and education.
- Increase opportunities for cooperative and interactive learning.
- Inclusion of specialized educational curricula in a field.
- Can be asynchronous.

In addition, Hassouna (2014) developed a vision for the implementation of MOOCs in university education and training which include:

(1) Setting the overall objectives for the implementation of MOOCs.

(2) Establish a table for actual costs and revenue estimates.

(3) Identification of MOOCs strategies.

(4) Formulation of intellectual property rights policies.

(5) Institutional oversight.

(6) Involvement of faculty members.

(7) Experimenting MOOCs initiative.

(8) End-User License Agreement (EULA).

(9) The ability to adjust the agreements and contracts of higher education institutions.

MOOC Platforms Classification

Despite the widespread use of MOOCs terminology, there is a marked disparity in their nature and content that can be included under more than one classification. For example, Zheng, Rosson, Shih, & Carroll (2015) classified MOOCs into two types:

- The first is Connect ivist Massive Open Online Courses (cMOOCs), which emphasizes on connectivity of the learners and the collaborative learning.
- The second is Extended Massive Open Online Courses (xMOOCs) that are based on the content which include courses that use videos and presentations, ended by short and periodic tests. This type of curriculum emerged in 2011 and was built on the behavioural learning approach that focuses on individual learning rather than on peer learning.

Whereas, Jobe, Östlund & Svenson (2014) added a third classification, Quasi-MOOCs, which provides web-based materials as open educational resources

(OER) to support specific learning tasks and provides little or no social interaction or grading, and a representative example is Khan Academy.

Ballester (2016) think that we have become obsessed with open e-learning platforms but not all of them are equal, and there are many varieties of e-learning platforms. This is an advantage and we must learn from those experiences to move forward and, most importantly, focusing on the real needs of the learner. To achieve that goal, it is necessary to determine the classification of the platforms, not from the institutional aspect, but from the educational aspect in terms of its educational function rather than its origins. Ballester classify MOOCs as follows:

- **Transfer MOOCs**

Transfer MOOCs literally take existing courses and decant them into a MOOC platform.

- **Made MOOCs**

They tend to have more of a formal, quality-driven approach to the creation of material and more crafted and challenging assignments, problem solving and various levels of sophisticated software-driven interactive experiences.

- **Synch MOOCs**

Synchronous MOOCs have a fixed start date, tend to have fixed deadlines for assignments and assessments and a clear end date.

- **Asynch MOOCs**

Asynchronous MOOCs have no or frequent start dates, tend to have no or looser deadlines for assignments and assessments and no end date.

- **Adaptive MOOCs**

Adaptive MOOCs use adaptive algorithms to present personalised learning experiences, based on dynamic assessment and data gathering.

- **Group MOOCs**

Group MOOCs start with small, collaborative groups of students. The aim is to increase student retention.

- **Connectivist MOOCS**

These connectivist MOOCs rely on the connections across a network rather than pre-defined content.

- **Mini MOOCSs**

This is typical of commercial e-learning courses, which tend to be more intense experiences that last for hours and days, not weeks.

Contribution of Educational Theories in the MOOCs Design

Educational theories, such as Behavioral, Cognitive, Social and Structural directions can clearly contribute to the educational design of MOOCs from different aspects as follows:

Mapping Learning Theory to Learning Outcome

Learning theories can make a clear contribution to learning outcomes and mapping through the following educational directions:

- Behavioral direction: emphasizes the analysis of skill or task, determines the sequence of skill components from simple to composite,
- provides a highly focused set of objectives of competencies or skills learning.
- Cognitive direction: emphasizes the development of concepts and the importance of understanding the broad principles of the field, which encourages the framing of learning outcomes in terms of cognitive definition, to teach students how to learn.
- Social direction: promotes defining the learning objectives in terms of the development of corrective practices, and focuses on learning outcomes, in terms of correct practices, such as formulating and solving real problems.
- Structural direction: emphasizes the accumulation of the learning process, and focuses on learning-based understanding, which is self-built by the same learner, by providing a realistic learning environment appropriate to the learning objectives, through which the student acquires knowledge.

Designing the Learning Environment

The effects of the four theories in the educational design of learning environments can be summarized as follows (Ghazzawi, 2007; Ghanem, 2004; Dabbagh, 2005):

(1) Behavioural direction emphasized on:

- The organized activity, which relates to the identification of procedures for the implementation of an activity and aims to provide the learner with a pleasant experience, encourage him to participate and continue to implement the activity.
- Specific and clear goals and different ways of feedback.
- Individual tracks, focusing on actions that are appropriate to the individual's performance and experiences.

(2) Cognitive direction emphasized on:

- Interactive environments to build understanding.
- Encouraging experimentation and discovery of general principles.
- Supporting thinking using perceptions in setting models for emotional, social and mathematical phenomena and engaging the learner and motivate him to participate with the other learners to form linguistic perceptions and providing reinforcement and feedback.

(3) Structural direction emphasized on:

- Providing the means to make learners to be active, implementing activities requiring higher thinking capabilities, and work on the learner's

implementation of the instruction in a practical situation.

- Providing facilities that encourage personal interpretation of the content and discuss topics within groups.
- Providing learners with interactive and immediate instruction so that learners can establish their own knowledge, considering that learners have an initial learning experience.
- Enabling learners to control learning processes and provide a model that guides them in making their decisions, and they can also use some guidance from the teacher.
- Making learning meaningful, by including practical examples of theoretical information.
- Focusing on interactive learning activities; to encourage higher learning levels.

(4) Social direction emphasized on**:**

- Participatory environments in social institutions for learning.
- Providing collaborative and participatory learning methods.
- Support and development of learners' sense of identity and make them capable and confident.

Educational Design of Assessment

When we talk about the role of educational theories in the educational design of electronic evaluation, we found that the four points of view emphasize different aspects about what should be measured and how they are measured. The behavioural direction emphasizes the assessment of knowledge or components of behaviour, the cognitive direction emphasizes the evaluation of the broad conceptual understanding, evaluation of extended performance and encouragement of the development of learner self-assessment, while the constructive direction evaluates the learner's ways of building his own personal view of the world around him, and focuses on his experience, activities and social interactions (Cuckle & Clarke, 2002; Mahmoud, 2009; Alhalafawy & Tawfiq, 2014).

MOOC Platforms Quality Standards

Goldfarb, Pregibon, Shrem, & Zyko (2011 p. 6) referred to several standards to be considered by teachers and learners, including describing the learning objectives to be achieved by interaction within the learning group, clarifying the limits of privacy in the learning environment and using the language correctly when interacting and communicating electronically and emphasizing on the responsibility of each learner for his performance and clarifying the behaviours required through electronic communication, and identifying the learning activities to be completed so that they relate to topics of learning raised. Alvarez & Smith (2013, p. 318) added the need to organize educational activities and processes and agree on deadlines for each of them so that learners can successfully achieve their educational goals.

It is important to emphasize that the role of the teacher in such educational environments is different from the traditional role, as a large part of the information is acquired by the learners from their colleagues and through the available e-learning resources. However, the teachers have an active role in the process of educational social communication, present the main ideas and some information to guide learners and motivate them to perform the required learning tasks, manage the educational process across these platforms, and focus on educational objectives. They are regulators, observers and correctors of information as the process of interaction across these platforms continues between them and between the learners themselves (Munoz & Towner, 2009).

Donlin (2013) and Mason (2011, p. 63) provided some guidance for interacting across social networking platforms, including the need for teachers to engage learners in various activities, follow interactions and dialogues within groups to provide guidance and appropriate assistance to learners in a timely manner, allow learners to identify their own ways of working together, and ensure building close relationships between learners in the context of the learning process. AsShi, Al Qudah, & Cristea (2013) emphasized on the importance of using social interaction tools such as dialogue, labelling, classifying and commenting on learning content, sharing the learning situation, questions/answers, and observations so that the social features of those environments can be utilized.

For a faculty member to perform e-learning effectively, it must be done in the light of quality standards (Al-Balawi et al., 2000). The e-community requires Quality-based education before anything else. Quality-based education is the key to the e-world and the foundation to possess the keys of technological knowledge. Standardization is of great importance in saving effort and time of developers, so that if everyone is committed to standards, it becomes an integrated environment which enables everyone to work and participate in the development and utilization. Therefore, the representatives of the e-community care about the modern educational directions (Abdul Ghafoor, 2004).

By using standards, the availability of the basic components in the open learning platforms and achieving their objectives can be measured. The importance of quality standards that can be used to judge the validity and effectiveness of e-learning models are as follows (Barker, 2007):

- It represents the basis for educational reform since it defines quality and excellence features for both individuals and educational institutions.
- It identifies educational programs that deserve educational accreditation and ensure the continuation of their quality and outcome.
- Works as a reference source for staff members, educational leaders and technology decision-makers to use in upgrading and evaluating e-learning models.
- Efforts are directed at developing the content of electronic models, teaching practices and assessment systems.

Aqeel, Khamis, & Abu-Shukir (2012, p. 20) compiled the design standards for the learning platforms as follows:

- Clarity of the educational objectives of the learning component.
- The quality of the content of the learning component.
- Feedback and evaluation should be available in the learning component.
- The appropriate motivation should be available in the learning component.
- The learning component must contain appropriate learning media.
- The learning component must be characterized by ease of use and interaction.
- The learning component must be characterized by reusability.
- The learning component must contain design standards.
- The learning component should contain student-specific instruction.
- The learning component should contain teacher-specific instruction.
- The learning component should contain metadata.

2. Methodology

This study involved a descriptive analytic study conducted between the period of January and April 2018. A model was used as an instrument of this research, which include the necessary standards for open e-learning platforms.

(1) The model was divided into two main fields that were deduced from national and international studies and by obtaining responses from jury members.

(2) Each field included several standards relevant to the appointed field.

(3) Each standard was subdivided into several sub-standards relevant to the appointed standard.

(4) Each sub-standard was subdivided into several indicators which were used to judge the achievement of that standard.

The content validity of the model items was measured by seeking the evaluation of thirty (30) faculty members from different specialties in 6 universities (King Abdulaziz, King Saud and Umm Al Qura Universities in Saudi Arabia, Sultan Qaboos University in Oman, Minia University and Mansoura University in Egypt).

A two-point scale, i.e., (Agree and Not Agree), was used against each item of the model and all participants enclosed their responses in a separate form. Calculation of agreement percentage was conducted according to the following Cooper's (1974, 39) equation.

$$\text{Agreement Percentage} = \frac{\text{Number of Times Agreed}}{\text{Number of Times Agreed} + \text{Number of Times not Agreed}} \times 100$$

3. Results and Discussion

Considering review ofrelevant literature and studies on assessing MOOC platforms and careful analysis of jury members'responses, certain inferences were drawn. The researcher has developed a number of educational and technical criteria that can be used to design and evaluate the effectiveness of the MOOC platforms, and thus, built a suggested model in a standard list consisting of two fields (educational and technical) with a total of 6 standards, 24 sub-standards and 46 indicators. The educational field consists of 3 standards, 8 sub-standards and 16 indicators; The technical field consists of 3 standards, 16 sub-standards and 30 indicators as illustrated in Table (1).

The agreement percentage among jury members for all standards ranged from 85%-95%, for all sub-standards from 78.33%-96.67% and for all indicators from 76.67%-96.67%. Also, the result shows 90.63%agreement among jury members for educational standards, while 86.22% agreement for technical standards and the agreement percentage for all suggested model items was 87.75% as illustrated in Table (2).

From the above, we can point to the availability of strengths in the contents of the standards list and the correlation of the standards of each field (educational, technical) with its sub-standards and indicators.

Table 1. Fields, standards, sub-standards & indicators for MOOCs Evaluation

Fields	Standards	Sub-standards	Indicators
Educational field	Teaching Methods	1) Teaching Methods	1. Allow simultaneous and asynchronous communication. 2. Coordinated and integrated. 3. Attract and motivate users. 4. Provide the opportunity to share and present successful practices. 5. Provide guidance to users.
		2) Sources of education and activities	6. Clarity of the objective of the sources of learning. 7. Diversity of methods of navigation within the community, such as the use of conceptual maps, guidelines and maps. 8. Allow the user to control the display of learning resources.
		3) Teaching	9. Topics are at the level of difficulty. 10. The use of textual correct language and clear meaning. 11. Titles and paragraphs are short and expressive.
	Evaluation	1) Electronic evaluation	12. Provides a diagnostic summary of each learner's performance.
		2) Assessment of peers	13. Provides space to enable the user to publish the ideas and suggestions he wants to fellow users without the need to use e - mail and receive their responses to what it published.
		3) Feedback	14. Users know their level of progress or failure.
	Planning and management	1) Management And control	15. Different types of interaction between the practitioner and the content of the community (browsing, pressing the keyboard, clicking with the mouse).
		2) Communicate and interaction	16. Interactions between the content of learning platforms and practitioners vary among themselves by joining mailing lists, discussion groups or live video conferences.
Technical field	Digital learning environment	1) Registration	17. Easy registration on site using email. 18. Ease of entry and exit of the platform for the user.
		2) Scheduling	19. Uses tables that facilitate learning.
		3) Plug	20. Link similar elements using colors such as font color or fill color of formal configurations.
		4) Contact	21. The Community of Practice contains the e-mail address of the platform officials to receive and respond to queries.
		5) Choice	22. Allows the user to choose ways to help in the learning process each according to his interests.
	Availability levels	1) Hardware availability	23. Easy access to platforms using different computers or mobile devices.
		2) Availability Software	24. Easy access to platform applications.
		3) Network	25. Security on the link site does not cause problems for the operating system or Internet browser. 26. The required tribal requirements for network operation are determined such as screen resolution, required memory capacity, operating system or browser version number. 27. The platform underwent testing on more than one operating system to ensure its stability.

Table 1. Fields, standards, sub-standards & indicators for MOOCs Evaluation (cont…)

Fields	Standards	Sub-standards	Indicators
	Courses and content	1) Media and sources education	28. Contains tools such as maps, calculators and clocks. 29. Allows viewing of all multimedia files supported by the Internet browser such as Java interactive and mobile files and virtual reality files.
		2) Navigation tools	30. Content is linked to a search engine that allows search in both Arabic and English on the Internet (external search).
		3) DesignLinks	31. Accuracy of links. 32. Provide shortcuts to links.
		4) Availability and accessibility	33. Uses the colors of the distinguishing links. 34. A clear change in button shape shows the use of the button in advance. 35. Control buttons are a text title or a combination of visual symbols and text titles. 36. The community of practice provides advanced search capabilities that provides the user with time and effort.
		5) Assistance and guidance	37. Provides guidance to the user in dealing with the network. 38. Provides a directive or text hint when errors occur from the user.
		6) Interaction and educational control	39. The platform provides tools to search for different information within the content of the community so that the user moves directly to the page where the search words are entered (internal search).
		7) Authentication and reference	40. The information available are correct. 41. Information is attributed to its original sources.
		8) Security and protection	42. All platform files are virus-free using an anti-virus program. 43. The platform is designed to correct all operational and errors that the user is likely to have (intended and unintended) so that the platform does not crash or cause the system to freeze. 44. User data is not available to any system or individuals. 45. The platform cannot be easily penetrated. 46. The platform provides a system that checks the identity of each user so as not to tamper or spy on the data of his colleagues.

Table 2. Agreement Percentage Among Jury Members on Standards List Items

Fields	Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
				agree	not agree					
Educational field	Teaching Methods	Educational Design	1. Allows simultaneous and asynchronous communication.	25	5	83.33%	89.3%	89.3%	90.63%	87.75%
			2. Coordinated and integrated.	27	3	90.00%				
			3. Attracts and motivates users.	27	3	90.00%				
			4. Provides the opportunity to share and present successful practices.	26	4	86.67%				
			5. Provides guidance to users.	29	1	96.67%				
		Sources of education and activities	6. Clarity of the objective of the sources of learning.	29	1	96.67%	93.33%			
			7. Diversity of methods of navigation within the community, such as the use of conceptual maps, guidelines and maps.	27	3	90.00%				
			8. Allows the user to control the display of learning resources.	28	2	93.33%				
		Teaching	9. Topics are at the level of difficulty.	23	7	76.67%	85.56%			
			10. The use of textual correct language and clear meaning.	27	3	90.00%				
			11. Titles and paragraphs are short and expressive.	27	3	90.00%				
	Evaluation	E-evaluation	12. Provides a diagnostic summary of each learner's performance.	29	1	96.67%	96.67%	92.22%		

Table 2. Agreement Percentage Among Jury Members on Standards List Items (cont…)

. Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
			agree	not agree					
	Evaluation of peers	13 - provides space to enable the user to publish the ideas and suggestions he wants to fellow users without the need to use e - mail and receive their responses to what it published.	28	2	93.33%	93.33%			
	Feedback	14 - Users know their level of progress or failure.	26	4	86.67%	86.67%			
Planning and management	Management and control	15 - Different types of interaction between the practitioner and the content of the community (browsing, pressing the keyboard, clicking with the mouse)	29	1	96.67%	96.67%	95.00%		
	Communication and interaction	16. Interactions between the content of learning platforms and practitioners vary among themselves by joining mailing lists, discussion groups or live video conferences.	28	2	93.33%	93.33%			

Table 2. Agreement Percentage Among Jury Members on Standards List Items (cont…)

Fields	Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
				agree	not agree					
Technical field	Digital learning environment	Register	17. Easy registration on site using email.	29	1	96.67%	93.33%	88.89%	86.22%	
			18. Ease of entry and exit of the platform for the user.	27	3	90.00%				
		Schedule	19. Use tables that facilitate learning.	26	4	86.67%	86.67%			
		Plug	20. Link similar elements using colors such as font color or fill color of formal configurations.	28	2	93.33%	93.33%			
		Connection	21. The Community of Practice contains the e-mail address of the platform officials to receive and respond to queries.	26	4	86.67%	86.67%			
		the choice	22. Allows the user to choose ways to help in the learning process each according to his interests.	24	6	80.00%	80.00%			
	Availability levels	Hardware availability	23. Easy access to platforms using different computers or mobile devices.	28	2	93.33%	93.33%	87.33%		
		Software Availability	24. Easy access to platform applications.	25	5	83.33%	83.33%			

Table 2. Agreement Percentage Among Jury Members on Standards List Items (cont…)

Fields	Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
				agree	not agree					
		The network	25. Security on the link site does not cause problems for the operating system or Internet browser.	25	5	83.33%	86.67%	85.09%		
			26. The required tribal requirements for network operation are determined, such as screen resolution, required memory capacity, operating system or browser version number.	27	3	90.00%				
			27. The platform underwent testing on more than one operating system to ensure its stability.	26	4	86.67%				
	Courses and content	Media and educational sources	28. Contains tools such as maps, calculators and clocks.	24	6	80.00%	78.33%			
			29. Allows viewing of all multimedia files supported by the Internet browser such as Java interactive, mobile and virtual reality files.	23	7	76.67%				
		Browsing tools	30. Content is linked to a search engine that allows searching on the Internet (external search).	25	5	83.33%	83.33%			

Table 2. Agreement Percentage Among Jury Members on Standards List Items (cont…)

Fields	Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
				agree	not agree					
		Design links	31. Accuracy of links.	29	1	96.67%	93.33%			
			32. Provide shortcuts to links.	27	3	90.00%				
		Easy access	33. Use the colors of the distinguishing links.	25	5	83.33%	85.83%			
			34. A clear change in button shape shows the use of the button in advance.	27	3	90.00%				
			35. Control buttons are a text title or a combination of visual symbols and text titles.	26	4	86.67%				
			36. The community of practice provides advanced search capabilities that provide the user with time and effort.	25	5	83.33%				
		Assistance and Guidance	37. Provide guidance to the user in dealing with the network.	23	7	76.67%	81.67%			
			38. Provide a directive or text hint when errors occur from the user.	26	4	86.67%				
		Interaction and educational control	39. The platform provides tools to search for different information within the content of the community so that the user moves directly to the page where the search words are entered (internal search).	24	6	80.00%	80.00%			

Table 2. Agreement Percentage Among Jury Members on Standards List Items (cont…)

Fields	Standards	Sub-standards	Indicators	Agreement		Agreement percentage for Indicators (%)	Agreement percentage for Sub-standards (%)	Agreement percentage for Standards (%)	Agreement percentage for Fields (%)	Agreement percentage for list (%)
				agree	not agree					
		Documentation and reference	40. The information available is correct.	25	5	83.33%	80.00%			
			41. Information is attributed to its original sources.	23	7	76.67%				
		Safety and protection	42. All platform files are virus-free using an anti-virus program.	26	4	86.67%	88.67%			
			43. The platform is designed to correct all operational and user errors that the user is likely to have (intended and unintended) so that the platform does not crash or cause the system to freeze.	26	4	86.67%				
			44. User data is not available to any system or individuals.	29	1	96.67%				
			45. The platform cannot be easily penetrated.	24	6	80.00%				
			46. The platform provides a system that checks the identity of each user so as not to tamper or spy on the data of his colleagues.	28	2	93.33%				

Conclusion

All in all, the suggested model was developed to be used as a guide in evaluating the effectiveness of MOOC platforms according to educational and technical standards and to refer to these standards to determine the content of MOOC platforms that are based on hypotheses, applications and practices derived from educational theories.

The researcher recommends conducting further continuous development reviews on the standards included in the suggested model in line with educational innovations in e-learning environments. Also conducting further applied research on the effectiveness of open learning platforms in supporting different educational strategies such as participatory learning, independent learning, project-based e-learning and reflection learning.

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