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Original Article

The Competencies Expected of Instructors in Massive Open Online Courses (MOOCs)

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ABSTRACT

Background: The aim of this study was to identify the instructor competencies required for teaching in Massive Open Online Courses (MOOCs). A qualitative approach was applied to achieve this objective.

Methods: Qualitative-inductive content analysis was used to identify the competencies of instructors in MOOCs. For this purpose, the articles related to the competence of instructors in MOOCs courses were first collected and the units of analysis were determined. In this respect, purposeful sampling and research criteria were applied to select 31 units from a total of 173 articles extracted from valid scientific databases. Data inclusion criteria limited the search to the articles with relevant topics published between 2006 and 2019. Reputable Persian and international databases were searched for the relevant data until theoretical data saturation was reached. An assessment of applicability and transferability was performed for data validation. Finally, the main categories were distinguished from the sub-categories, and a conceptual model was designed for identifying teachers' competence in MOOCs.

Results: The four main categories of competency obtained from data analysis were as follows: knowledge competencies (Dimension of Knowledge), professional skills (Instructional Content Development, Instructional Design, Evaluation, Communication, Participatory, Management, and Technical Skills), Professional attitude skills (Motivational and Emotional Skills) and the personality dimension of the instructors.

Conclusion: This study draws out the possible implications of developing a curriculum in view of instructors' competence in MOOCs with the goal of providing a comprehensive perspective on their performance in such courses.

Keywords: Competencies, Instructors, MOOCs

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Introduction

Massive Open Online Courses (MOOCs) are becoming more common than ever with the advancement of new technologies and inventions. MOOCs are often seen as an advanced stage in distance education (1-4). With the Internet entering its third life stage, distance education, whether online or offline, has a great potential for teaching and learning.(5) Though MOOCs are considered a major breakthrough, in which the drawbacks are often limited to the quality of resources and online learning materials that support distance education, one cannot ignore the lack of interaction between learners and faculty, the high cost of high quality online courses and assessment. MOOCs bring together teachers to produce large amounts of open educational resource and eliminate the costs of learner attendance (6). MOOCs have made it possible to organize video lectures according to the demands, and to include automatic quizzes and assignments. In addition, MOOCs allow a large number of learners to interact with one another (7).

Highly qualified teachers are regarded as the key elements of effective instructional systems (8). Therefore, qualified trainers are crucial for the successful implementation of the MOOCs courses and might require the appropriate skills and experience to effectively implement the teaching and learning activities. In MOOCs, instructors generally start as novice trainers, and proceed to become competent ones. A competent MOOCs instructor has extensive knowledge and skills about instructional technologies and even a positive attitude towards technological tools and processes. Consequently, MOOCs trainers need to effectively employ different competencies at all stages of providing training, facilitating the learning process, and evaluating the learners' works. Although many educators and teachers are highly professional and have years of experience, they acquire these valuable competencies and experiences in a number of training packages with various groups, learning materials, and methods (9).

Research shows that in every online course, there is a highly qualified instructor (10, 11). One of the most effective approaches to planning MOOCs is the instructor competency approach. The effectiveness of MOOCs is measured through the quality of learning. Learning-oriented programs and qualified teachers are the two major keys to success in higher education. Teaching in MOOC environments requires special sets of skills. Palloff and Pratt (12) argue that online teaching beyond traditional education requires new and facilitative methods. "Not all colleges are suitable for online space," they claim. Although the principles for designing online and traditional classroom courses are similar, Levy (13) admits that "Instructors need training and support to be willing to adopt a new teaching model and implement it in a new environment." They need to find new credible solutions to develop their competencies, and MOOCs offer a unique opportunity. Therefore, MOOCs can make quality learning available to a large number of people. International Board of Standards for Training, Performance and Instruction (IBSTPI) defines competency as a combination of abilities, information, and approaches that enables one to efficiently implement the tasks of a given occupation and achieve the expected objectives. In addition, competency may be defined as the capability to practice, rather than the skill to theorize the practice as emphasized by Houston and Howsam (14). According to Varvel (15), a competent person is an individual who makes proper use of his knowledge, skills, attitudes, and abilities to perform the tasks in a specific field [digital distance education] in accordance with the necessities of the time. Therefore, it is recommended that these features be given more attention in teacher training programs in terms of their function and development. However, what is at stake here is an integrated approach - a viewpoint which considers competence a complex combination of knowledge, attitudes, skills and values displayed within the framework of task performance.

Instructors' competence has a great impact on learners' interaction and participation in online learning (16), as well as deep learning and the quality of learning outcomes (17, 18). Not surprisingly, since their inception, MOOCs have faced some criticisms, including poor instructor performance and low-quality instructional design (19-21).

Most research studies have focused on pedagogy, learner behaviors, course completion rates, and business models in the MOOCs environment (1, 22-24). Yet, Kop (25) states that capable instructors are one of the five key elements of a successful MOOC. Other elements include learners, subject matter, curriculum, and content. Despite the importance of instructors' role in MOOCs, few studies have examined the competence of instructors (20). In addition, the latest studies (26, 27) show that very little research has been carried out on the role of instructors in MOOCs (28, 29).

Recently, efforts have been made to study and identify the competence of instructors in MOOCs. The following studies have identified the competencies of MOOC instructors. Hue (30) provided useful tips and strategies for instructors of MOOCs. These strategies include problem-based learning with clear demonstrations, instructor accessibility and enthusiasm, active learning, peer interaction, and useful course resources. Watson et al. (31) investigated the competencies of instructors over a certain period with a focus on creating a learning community for learners and changing the instructors' attitudes toward MOOCs. Zheng et al. (32) conducted interviews with 14 MOOC instructors and showed that the process of teaching a MOOC involves three stages, namely planning, implementation and feedback. Berge (33) described an online teacher as a "facilitator" whose main role is to model effective instruction and provide electronic content, which should be based on four dimensions, namely instructional, social, managerial and technical. In this classification, the instructional dimension refers to the subject matter expertise, coaching, and evaluation. The social dimension refers to the interpersonal, communication and facilitation skills. The managerial dimension refers to the administrative and leadership skills. Finally, the technical dimension refers to the technological literacy. The model presented by Al-Hunaiyyan, Al-Sharhan, Al-Sharhan (34) defined the latest competencies of computer-assisted instructors to ensure that they could make progress in terms of education, technology, or behavior. They argued that the model of instructional competence comprises six aspects, namely a) knowledge and culture, b) technical and technological aspects, c) practical, behavioral and social considerations, d) supervision and planning, e) teaching methods, and f) instructional design. According to Tersa et al. (2000), considering the methodological criteria set in line with theoretical principles, the online instructors' instructional experience serve as a factor their competence.

Research on MOOCs has been limited to demographic information (35), learning outcomes (22), and learner involvement (35, 36); other issues have received scant attention. Instructor competencies are an ingredient of MOOCs. Given the increasing importance and expansion of these courses across the globe and the increasing number of learners and instructors, it is time to investigate the competencies expected from such instructors. Thus, this research study sought to identify the dimensions of instructors' competencies, namely knowledge, skill, attitude and personality.

Methods

This qualitative study was an applied research conducted to identify the competencies expected from instructors in MOOCs. The research method was a type of documentary analysis known as inductive qualitative content analysis, in which there is no need to quantify words or to accurately classify responses based on predetermined criteria (37). First, a total of 173 articles were obtained from reputable Persian and international scientific databases including: (Web of Science, Science-Direct,

Sage Journals, Proquest, Scopus, Emerald, Google Scholar specialized database, as well as Persian databases such as ISC, Magiran, Noormags, Civilica Institute for Humanities and Cultural Studies, Barakat Knowledge Network System, Irannamayeh, and Ganj Database). The searched keywords included Competence and teacher or instructor, competence and MOOCs or Massive Open Online Courses. The obtained sources were relevant to the topic and published during 2006-2019. After studying the titles and abstracts, a number of articles were removed due to being irrelevant to the subject of the dissertation, as well as being already downloaded from several sites.

Ultimately, 31 articles, which met the inclusion criteria, were purposively selected from reputable domestic and international databases. All of the selected articles were briefly studied for a general understanding of their content. They were then analyzed and coded by theme. The recording unit was considered a theme rather than a word, a sentence, a paragraph or an entire text. In the next step, using MAXQDA 10 software, the themes of the qualitative content analysis related to the design of the instructor competence model received a relevant keyword before being coded and registered. The coding process continued until the theoretical data saturation was reached. Then, the codes obtained from words, sentences, and paragraphs and the whole texts were analyzed. Finally, a conceptual model was obtained based on the results of the content analysis, and the proposed model of competencies expected from instructors in MOOCs was presented. To validate the proposed model, a sample was drawn from the study's population, which consisted of the specialists and the instructors of curriculum planning and instructional technology who were aware of the research topic. In this respect, the views of thesis supervisor and advisors were consulted to identify twenty specialists, and then the questionnaire was validated via email. In order to validate the results of the study, two procedures were undertaken. First, the experts examined the study; this method involves verifying the accuracy of the results by experts to find out whether the study correctly reflects the experts' opinions on the research topic or not. This method is also called audience accreditation and transferability. Then, the proposed components were sent to five experts who took research and teaching courses in the form of electronic questionnaires in order to approve and validate them. Second, in order to study the transferability and applicability of the research results, the results were shared with five experts outside the group of interviewees; they agreed upon these results.

Results

The process of analyzing and coding each category is fully illustrated in the provided Tables. Based on reviewing the theoretical foundations and research literature, and considering the basic concepts such as competence, instructor's role, their competence and MOOCs, and after combining similar factors, extracting important components and eliminating the duplicated items, four main categories related to the instructor's competency were identified in MOOCs. In this research, the codes of professionalism, research and search skills (i.e., ethics in research), knowledge of open educational resources and distributed learning were placed under the category of knowledge dimension. Finally, these four sub-categories were categorized under the general category of the instructor's professional knowledge. The results of this analysis are presented in Table 1.

As observed in Table 1 instructor's professional and theoretical knowledge is typically achieved through academic study. Knowledge development is the foundation of skills development and attitude development, which by itself does not have much effect on the professional competence of instructors.

Instructors' skills are another important factor that plays a critical role in identifying their competencies in MOOC courses. This role can be fulfilled by capable

Table 1: Categories and subcategories of the qualitative content analysis

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Hew (2014)	Instructor's in-depth knowledge of the subject	Professional knowledge	Knowledge dimension	Instructor's professional knowledge
Castello et al. (2018)	Access to first-class content	Research and search skills		
Jemni et al.(2017)	Knowledge of instructional use of social networks such as YouTube and TED talk	Recognition of open educational resources		
Allerio et al. (2014)	Knowledge of the necessary information about hardware, software and work instructions	Technical knowledge (hardware and software)		
Hill (2015)	Knowledge of the impact of motivation on social learning	Motivational knowledge		

Table 2: Categories and subcategories of the qualitative content analysis (professional skills categories - section two)

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Deng et al. (2019)	Using pre-recorded videos to produce Instructional material	Content Development	Instructional content development skills	Instructor's professional skills
Jemni, et al. (2017)	Having the ability to produce effective video lectures			
	Using video lectures to design courses			
Alerio et al. (2014)	Preparing learning content, such as images or other multimedia materials within slides or videos, in advance			
Watson et al., (2016)	Having the ability to provide clear and additional information			
	Knowing how to design a video for an instructional scenario	Video Script Writing		
Jemni, et al., (2017)	Using a variety of media (e.g., texts, charts, audio, and images) to deliver the content	Variety in content		
Leo Löwenthal et al. (2018)	Using Different formats of video lectures to generate the content			
Alerio et al. (2014)	Having the ability to integrate the multimedia contents with other sources, such as PDFs, link to blogs, forum topics and tweets	The integration of content with other sources		
	Using links to public Internet content for learners to access the original source	Knowledge and the use of open ducational resource		
	Considering the structure and formats of the content while designing	Organizing content		
	Teaching staff should keep in mind the target learners who are expected to be the core audience	Learner analysis	Instructional Design	

Zheng, et al. (2016)	Reading community posts and social media posts to gather feedback from students	Needs analysis	
Najafi et al. (2008)	Having assumptions about learners and plan ahead		
Castello et al. (2018)	Set a definite teaching goal		
Zheng, et al. (2016)	Proposing suggestions to learners for the effectiveness of the next training course		
Robinson & Nelson (2015)	Dividing the content of the speech into multiple parts	Chunking	
Castello et al. (2018)	Follow the 10 to 15 minute rule		
Castello et al. (2018)	Choosing a simple and interesting title to start the discussion	Pre-organizer	
	Having the ability to create a multi-sensory experience (i.e. concept transfer power, mastery power, and audience feedback)	Designing learning activities	
	Using more pictures and charts instead of words		
Ortega et al. (2019)	Designing deliberate opportunities		
Hang et al. (2016)	Proposing a careful and detailed design		
Sangra et al. (2014)	Being ready to tell a few good stories	Storytelling	
Castano-Moniz et al. (2018)	Being aware of the resources and features provided in the MOOC platform	Awareness of resources	
Hew (2014)	Using the signature track	Violation prevention (Maintain Test Security)	Assessment and evaluation
Najafi et al. (2015)	Demonstrating the challenges and problems of this type of training through evaluation	Course Evaluation skills	
	Conducting instructional evaluation to assess learners' progress and to engage with learning outcomes		
	Using a variety of activities (e.g., tests, articles, and projects) for learner assessment	Assessment of learners	
	Designing computer tests for grading learners		
Mishra et al. (2017)	Providing detailed comprehensive feedbacks	Providing feedback	
Watson et al (2016)	Providing formative and summative feedback for homework or other distant activities		
Leo Löwenthal, et al. (2018)	Providing formative and summative feedback for homework or other course activities		
Zheng, et al. (2016)	Redesigning courses based on comments	Course review	
	Being prepared for the next MOOC session		

and experienced teachers in the areas of teaching and learning. Having the necessary knowledge and skills, they can turn the teaching-learning process into an effective and appealing experience for learners. Experts have emphasized the instructors' professional skills, and most of the codes belong to this section. Tables 2, 3 and 4 are about the instructor's professional skills and list 38 codes and 7 subcategories in total. The professional competence of the instructor is the ability to apply knowledge in practice.

Table 3: Categories/subcategories obtained from the qualitative content analysis (professional skills categories - section three)

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Gashtaspour et al. (2019)	Creating an open and interactive environment for discussions	Synchronous communication skills	Communication skills	Instructor's professional skills
Hill (2015)	Using a dedicated chat-free platform for face-to-face meetings			
Watson et al. (2016)	Calling learners by name			
Martin et al. (2017)	Warm greetings at the beginning of the course			
Douglas et al. (2019)	Interviewing some learners after the course			
Watson et al. (2017)	Sending notifications via emails	Information skills		
Joyns et al. (2016)	Using course announcements to encourage learners to attend the class			
Apie & Kobe (2016)	Announcing course objectives to learners several times			
Leo Löwenthal, et al. (2018)	Engaging learners in creating knowledge through an interconnected network of social media such as blogs, wikis and other online communication tools	Communication skill		
Watson et al. (2016)	Guiding learners by using examples, clarifying or sharing resources	Direct guidance		
Hill (2015)	Explaining to learners how to use social learning methods	Active learning	Participatory skills	
	Incorporating small group works into courses			
Alerio et al,(2014)	Providing clear guidelines and expectations for teamwork and participatory processes			
Leo Löwenthal, et al. (2018)	Getting teaching assistants to conduct the training process	Collaboration with assistants		
Alerio et al. (2014)	Consulting the teaching staff on learning objectives, having more interaction with coaches			
Deng, et al. (2019)	Having interaction with instructors			
Chi-Un Lei et al. (2016)	Cooperation between the instructional designer and the subject matter instructor			
Zhu et al. (2018)	Interacting and discussing with learners	Interaction with learners		

Yi. et al. (2018)	Intermittent instructor's presence when an instructional video is being designed	Follow up		
Deng, et al (2019)	Posting in forums frequently			
Zheng, et al. (2018)	Sharing opinions, clashing views and creating understanding among learners, reflected in conversations between members of the online learning community	Creating a community discourse		
Chi-Un Lei et al. (2016)	Finding the right topic for discussion	Interesting and controversial topic selection		
Zhu et al. (2018)	Necessity of having a design appropriate to the discussion, and timely and consistent facilitation of discussion	Participation encouragement		
Hew (2014)	Instructor's social access which increases the challenges for students	Social presence		
Hill (2015)	Promoting and explaining the value of social learning to the students	A positive attitude towards social learning		
Watson et al. (2016)	Presenting questions and referring learners to outside sources	Raising questions to engage the audience		
Najafi, et al. (2015)	Asking controversial questions to increase learners' motivation or interest, encouraging them to participate and engaging in knowledge-based discussions			

Table 4: Categories and subcategories obtained from the qualitative content analysis (professional skills category- section four)

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Jemni, et al. (2017)	Using social networks such as You Tube and TED talk educationally	Instructional use of social networks	Technical skills	Instructor's professional skills
Liu et al. (2016)	Using social network like Facebook			
Zhu et al. (2018)	Paying attention to course preparations	Resource management	Management skills	
	Providing the learners with opportunities to control their pace and learning paths	Learning or self-regulation		
Nikolayeva et al. (2016)	Organizing (preparing) a discussion forum	Organizing		
Zheng, et al. (2016)	Monitoring the course implementation process	Monitoring the implementation of the course		
	Supervising the lectures and weekly announcements			
	Monitoring problem solving and answering learners' questions			
Alerio et al. (2014)	Considering careful planning and feasibility studies of the course	Planning and forecasting skills		

In other words, the competence is gained and developed by repeating the application of knowledge in a real environment. Skills development will improve the quality of performance; otherwise, in many cases, information will not make much impact. The development of instructional content is provided according to the needs of the learners. A teacher might be able to identify the problems in real world, which in some cases are complex, and then establish an instructional design if necessary. This is possible thanks to a good understanding of a system and its associated components.

As Table 2 illustrates, the MOOC instructor should have the ability to develop efficient instructional content, design various learning tasks, and assess learners' accomplished activities. The instructor should constantly assess the learners' knowledge and skills, and if necessary, provide them with feedback.

As reflected in Table 3, the instructor can use the communication skills in simulated lessons to communicate positively with the learners and to teach the lessons in an appropriate interactive space and with the cooperation and active participation of the learners in the teaching process.

As shown in Table 3, given the exigency of learners' active involvement in collaborative learning approach and also taking into account that group-members' sustained interactional activity is among the requirements for the optimal implementation of collaborative learning approach, it appears that such an approach can trigger improvement in learners' communicative skills.

Table 4 displays an instructor's technical and managerial skills which would differentiate him from other instructors and increase his abilities.

With regard to Table 4, it can be argued that a MOOC instructor should master the tools and software programs employed in the electronic learning environment, and should also supervise the sources as well as the processes of course implementation and organization.

The instructor's professional attitude is a framework for his mental image which explains and shapes his thoughts and actions. An individual's understanding of his surrounding phenomena and his decision to act are based on his mental image. Proper introduction to the course, timely notification and attracting audiences are among the measures that are important in the curriculum of MOOCs. In fact, since participation in MOOCs is open and the audience is not known in advance, the course must be publicized and timely notifications should be given before it begins. The cost of designing MOOCs is very high and the cost return is only possible if the audience is interested. In this study, the codes of encouraging learners to learn, encouraging learner participation, motivation, audience engagement (motivating participation), gamification and learning to absorb learners were thematized as motivational skills; also, professional commitment as well as satisfaction were categorized as emotional skills. The results of this analysis are presented in Table 5.

As observed in Table 5 one of the main competencies of instructors in MOOCs is to acquire a professional attitude. However, to get these competencies, a motivated instructor is needed who is open to the challenges. Undoubtedly, motivation is a fundamental pillar of learning diagnosis, and today it can only be fully achieved if the instructor is qualified to perform the necessary activities in their profession.

The personality traits of the instructor are considered as a moderator variable. A moderator variable affects the direction or the degree of the relationship between independent and dependent variables. In other words, an instructor's personality traits are considered the second independent variable. In this section, five codes and one subcategory were obtained (see Table 6). Finally, these five sub-categories were categorized under the general category of the instructor's personality traits. The results of this analysis are presented in Table 6.

The analysis of the database revealed a total of 88 key sentences, 57 codes and 4 sub-

Table 5: Categories and subcategories of the qualitative content analysis (professional attitude category – section five)

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Hill (2015)	Encouraging students to use social learning methods	Encouraging learners to learn	Motivational skills	Instructor's professional attitude
	Encouraging students to explain peer assessment scores			
Gashtaspour et al. (2019)	Paying attention to learners' opinions to boost emotional impact on the interaction between them	Encouraging learner participation		
Hill (2015)	Using grades to encourage students' participation	Motivating		
	Highlighting appropriate special cases, voting for quality posts, or voting for students who have the least participation in a social learning method	Audience engagement (motivating participation)		
	Voting to help instructors assess the quality of posts			
Watson et al. (2016)	Expressing nonverbal emotions, enthusiasm and humor	Gamification		
Hew (2014)	Designing periodic content which includes quizzes, articles, videos, or lectures recorded before the class to attract learners	Learning to attract learners		
Hew (2014) Leo Löwenthal et al. (2018)	Having a professional commitment, passion and interest in the course	Professional commitment	Emotional skills	
Leo Löwenthal, et al. (2018)	Feeling satisfied with the teaching experience in MOOCs	Feeling satisfied		

topics as a model of professional competence in MOOCs. In short, professional knowledge includes specialized knowledge, research skills, knowledge of open educational resources, technical knowledge (i.e., hardware and software) and motivational knowledge. In fact, the instructor's professional skills include having synchronous communication skills, being able to interact with learners, segmenting and organizing the content provided to the learners, selecting interesting and controversial topics, managing the projects, monitoring the learner performance, collaborating with teacher assistants, and being able to raise some questions to engage the learners. Instructors' professional attitude which plays an effective role in the teaching process, is represented by skills and abilities such as encouraging learners to learn, motivating them, recognizing or encouraging their participation, engaging them, considering ethics in technology and attracting learners. Finally, the personality traits of an instructor are reflected in their socializing skills, sense of humor, experience and creative talent. As it is evident, the professional competencies of instructors

Table 6: Categories and subcategories of the qualitative content analysis (professional personality category-section six)

Analysis unit	Condensed meaning unit	Open code	Subcategory	Category
Zhang, et al. (2018)	The effect of the instructors' facial expressions on students' success	Charisma	Instructors' personality traits	Instructor character
Leo Löwenthal, et al. (2018)	The experience of teaching in MOOCs	Being a MOOCer		
Mariana (2016)	The desire to interact with learners	Being a social instructor		
Gashtaspour et al. (2019)	Use of humor	Having a sense of humor		
Castello et al. (2018)	Just be yourself!	Personalizing		
Leo Löwenthal, et al. (2018)	Curiosity	Having a creative talent		
Alerio et al. (2014)	The use of creative names to catch learners' attention			

are linked to each other. For instance, if an instructor has more up-to-date knowledge during the MOOCs, his skills would improve and his attitude would be positive. Therefore, the model introduced here can be used as a roadmap for professional development of MOOCs' instructors. Figure 1 features the design of the proposed model for instructor competence in MOOCs; it was validated by a group of experts.

As observed in Figure1, the professional competencies of MOOCs instructors are linked to one another. For instance, their up-to-date knowledge in delivering MOOCs would help them improve their skills and develop positive attitudes. Therefore, the model can be a guide for professional development of MOOCs' instructors.

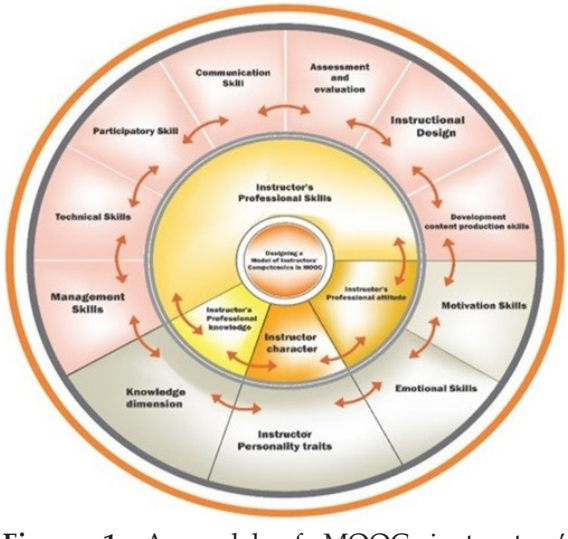

Figure 1: A model of MOOC instructors' expected competency, extracted from the findings of the present study

Discussion

The objective of this study was to identify the competencies expected of instructors in MOOCs. Thus, inductive qualitative content analysis was applied. The model was then validated by a group of experts. The results of the conducted survey revealed that the proposed model was supported by a committee of experts. The main categories in this model include professional knowledge, professional skills, professional attitude and teachers' personalities. These are the components of a teacher's competence. The subcategories of this model include: 1- The Knowledge Dimension 2- Instructional Content Development 3- Instructional Design 4- Evaluation Skills 5- Communication Skills 6- Participatory Skills 7- Managerial Skills 8- Technical Skills 9- Motivational Skills 10- Emotional Skills and 11- Instructors' Personality Traits.

Several studies (2, 7, 19, 31, 35) have endeavored to identify the main elements of instructors' competencies in MOOCs. The instructional model provided by Al-Hunaiyan, Al-Shahran, and Al-Shahran (34) point to the

latest competencies of e-instructors to ensure that they can make progress in instructional, technological, or behavioral fields. Their model of instructional competence comprises six aspects including knowledge and culture, technical and technological consideration, practical, behavioral and social consideration, supervision and planning, teaching methods and instructional design. However, the present study points to the important competencies of MOOC instructors (knowledge, attitude, skills and personality), providing a more comprehensive account of these competencies. Media Competency Model for instructors (38) covers the three stages of practice, advanced professional training, and continuous training. These stages develop with different competencies, beginning with the theoretical aspects of online learning. They include technical competencies and practical aspects of teaching. Our findings show that this model does not account for inclusive competencies of a capable MOOC instructor.

The model presented by ASTD (39) describes the latest teaching skills and professional development. Foundational competencies (i.e., business skills, global mindset, industry knowledge, interpersonal skills, personal skills and technology literacy) and specific role competencies (i.e., change management, performance improvement, instructional design, learning technologies, evaluating learning impact, managing learning programs, integrated talent management, coaching, knowledge management, and training delivery) are the two main categories of this model. This model too failed to achieve comprehensiveness as it ignored instructors' personal traits and learning context.

While all of the above factors have certainly played an important role in a competencies model for MOOC instructors, many of them are not comprehensive enough to address all aspects of such a model. Therefore, a competencies model must take account of different features of MOOCs, including the large number of participants, diversity in content, learner attraction skills, multicultural topics, course structure, complexity of assessment and poor support. Instructors' qualifications are one of the factors influencing the quality of education. Anjos Silva (40) maintains that the instructors' competencies are one of the most important issues related to the quality of their instruction in universities. Having considered the components of previous models, this study attempted to provide a comprehensive model for the competencies of instructors in MOOCs based on the available literature. This model is presented as a potential curriculum for MOOC instructors in academic environments, economic institutions and business enterprises. The competencies identified in this study can be used in career development programs and in selecting qualified MOOCs instructors. Moreover, they can provide a comprehensive perspective on what should be achieved from a course. This systematic model helps educators to develop a curriculum with predictable results. One of the limitations of the present study was the small number of international articles on instructors' competencies in MOOCs. Therefore, the researchers searched each of the variables of the present study in valid databases separately. Finally, given that there has been very little research on the subject, there is still room to investigate topics such as the competencies of learners and the competencies of curriculums in future studies.

Ethical Declarations

The present study was a part of a research project approved by University of Hormozgan (Bandar Abbas, Iran). No ethical issues were found.

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