A Model for Professional Competency of Instructors in E-learning Environments Using Meta-Synthesis Method

Mahboubeh Aslami¹
Zohreh Esmaeili²
Bahman Saeidipour³
Mohammad Reza Sarmadi⁴

Abstract

The current study aims to present a comprehensive model for professional competence of instructors in e-learning environments. The research literature confirms that the quality of e-learning courses is highly influenced by competence of instructors, and this study provides the researchers with the opportunity to reach a consensus on a set of competencies necessary for e-instructors; which can lead to a professional development and organizational support for instructors of this domain. Through a systematic review of literature and using qualitative meta-synthesis, 7 dimensions of competency (social, ethical, managerial, personal, technological, pedagogical, and supervisory) and 21 components were extracted from twenty two papers. The content validity of this model was confirmed by five experts; the value of kappa coefficients for reliability of the model was 0.85. This model can act as a basis for planning by educational managers for selection, training, and promotion of e-learning instructors.

Keywords: Instructors' Competency Model, E-learning, Meta-Synthesis.

¹Instructor, Department of Education and Psychology, Payame Noor University (Corresponding Author)
²Assistant Professor, Department of Education and Psychology, Payame Noor University
³Assistant Professor, Department of Education and Psychology, Payame Noor University
⁴Professor, Department of Educational Science and Psychology, Payame Noor University
Introduction
There are different approaches to Higher Education System in e-learning, each one introducing a different dimension of factors that affect learning. One of the major concerns of institutions offering electronic courses is identifying factors that affect e-learning quality. Numerous studies confirm that competency of e-learning instructors holds a special importance regarding the quality of the learning (Bangert, 2008; Cook 2007; Lee & Irby, 2008). However, due to the impressive mutation and fast growth of e-learning, institutions offering electronic courses lack the time to adopt policies and methods, and make sure of the qualifications of the instructors. (Menchaca & Hoffman, 2009). In e-learning environments, integration of training and technology is a necessity and therefore instructors must be trained to make full use of new digital technologies (Kohler et al. 2007). Thus, the instructor bears the heavy responsibility of using technology, establishing communication, sending messages and also facilitating and guiding the activities of learners. Most of electronic instructors don't possess necessary readiness and competency for teaching in these courses and rely on the limited experience that they have gained as students or instructors participating in traditional training courses. These experiences are almost useless in e-learning environments.

Rochford & Richmond (2011), Bolliger & Wasylik (2009), Bates & Watson (2008), and Archer & Garrison (2010) believe that the difference between traditional and e-learning is so broad that necessitates acquiring competence criteria and professional development in line with the new environment; thus, selection and training competent instructors are crucial issues in the process of e-learning. Using an approach based on competency, identification of competencies, and building a model to explain these competencies will lead to an exact definition of a Competent Instructor, and offer courses in accordance with it. The aim of the current study is to present a comprehensive model of competencies of e-instructor in order to enhance the effectiveness of instructors and success of e-learning systems.

Theoretical Background
The Concept of Competency
Competency is a multi-purpose term that is being used with different meanings in different scientific fields. Although it is used differently, in general, it is used to emphasize roles and responsibilities of a job (Mojab et.al. 2011). Now, different meanings of competence will be reviewed in detail. International Board of Standards for Training, Performance and Instruction (IBSTPI) defines a competency as “a knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment” (Darabi, 2006). In addition, competency structure may imply "ability to do something" rather than "ability to display knowledge". In fact, competencies are mostly about functions based on acquisition, integration, and application of skills and knowledge related to an occupation (Spector, 2007). In Varvel's (2007) view, a competent individual is someone who fulfills his duties efficiently, using knowledge, skill, attitude, and abilities consistent with time and needs of a specific field. Competencies are accepted in educational environments, and defining and explaining them in relation to educational fields has come in focus.
Importance of competency of instructors from the viewpoint of e-learning institutions:
Studies show that there is little coordination between institutions offering e-learning and instructors, regarding their competency and responsibilities as e-instructors. Also, there is little agreement as to how define competencies, support them through internship and career development opportunities, and even their use for evaluation of instructors' performance. Because of various social, political, and administrative reasons, universities and instructors express different views about academic quality, instructors' quality of work, and method for evaluation of this quality (Lee & Irby, 2008; Gulink, 2006; Tepel, 2010).

This lack of consensus necessitates the need to identify and agree on competency factors of e-instructors in order to enhance e-learning quality. The method and objective of this study provides a good opportunity to reach a consensus and promote competencies necessary for e-learning instructors, which can be used for professional development and organizational support. Although, there is more agreement on the importance of training and supporting e-learning instructors (Pagliari, Batts, and McFadden, 2009; Puzziferro & Shelton, 2008; Gulink, 2006; Rachford & Richmond, 2011), there are insufficient studies regarding professional development, supporting and evaluation of electronic instructors (Talent & Roner, 2006).

the results of Allen & Seaman (2006) show that 40.7 percent of professors who took part in the survey expressed that teaching an electronic course requires more time and effort. Also, the results of recent studies indicate that 44.6 percent of senior professors confirm that instructors need more qualifications in order to teach an electronic course (Allen & Seaman, 2006).

Who is a competent electronic instructor?
An electronic instructor is someone who is experienced in the context of teaching-learning, and has great technological knowledge. Of course, being a instructor and having advanced technological skills does not necessarily make a competent and proficient electronic instructor. It is very likely that traditional instructors are unfamiliar with the process of electronic teaching. Electronic instructors should be prepared to provide help and guidance, establish an artistic and effective communication with others without face to face interactions. Being a competent e-instructor means having the necessary knowledge and skill in educational technology with a positive view about these tools and technological processes. Therefore, electronic instructors should effectively take advantage of information and communication technologies in all stages of teaching, facilitating, and assessment of learning.
In addition, instructors should improve their electronic management skills, adjust their teaching method to online environments, learn about various discussion management methods, provide the learners with structured and valid online activities, develop teaching materials, and stay in touch with the students to answer their questions and provide feedback on their assignments. As e-learning environments grow and develop, instructors and students need to adjust themselves in order to take full advantage of them. One of the most important characteristics of competent instructors is continuing professional growth (Caliglu, 2015, p. 143). Competent trainers are the key to success of e-learning, and should possess the skills and experiences necessary for successful implementation of this type of combined teaching and learning. In general, competent instructors first act as trainers and then e-trainers.
E-Instructor Competency Models
The goal of a competency model is providing a list of competencies, which are derived from observing satisfactory or exceptional employee performance for a specific occupation (Draganidis&Mantzas, 2006). This list includes the most important competencies that significantly affect the performance (Cochran, 2009). Necessary competencies of electronic instructors are usually presented as competency models. Here is a set of models about competency discussions in terms of different dimensions.

Table 1. Different dimensions of competency models

<table>
<thead>
<tr>
<th>Competency Studies</th>
<th>Emphasized Dimensions</th>
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<tbody>
<tr>
<td>Touch(1994)</td>
<td>Interpersonal communication, planning skills, teamwork skills, writing skills, organizational skills, feedback, knowledge of the distance learning field, basic technology knowledge</td>
</tr>
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<td>Williams(2000)</td>
<td>Communicative, technological, managerial, educational competence</td>
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<tr>
<td>Goodey(2000)</td>
<td>Process facilitator, advisor, assessor, researcher, content facilitator, technologist, designer, and administrator</td>
</tr>
<tr>
<td>Berg(1994)</td>
<td>Pedagogical, social, managerial, technical competence</td>
</tr>
<tr>
<td>Shank(2004)</td>
<td>Administrative, facilitation, technical, evaluation competencies</td>
</tr>
<tr>
<td>Smith (2005)</td>
<td>Pre-training, during-training, and post training competencies</td>
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<tr>
<td>Aydin (2005)</td>
<td>Competency in technology use, communication, time management, electronic teaching, content development</td>
</tr>
<tr>
<td>Darabi (2006)</td>
<td>Logical administration, communicative skills, guidance, course evaluation, learning assessment, creating a friendly environment, facilitating discussion, welcoming critical thinking, appropriate interaction, providing feedback, using valid teaching methods, progress supervision, satisfactory relationships, helping the learner to assimilate, promoting self-guidance and self-regulation, efficient use of technology, improvement of professional knowledge</td>
</tr>
<tr>
<td>Bawan spector and Esiktor (2009)</td>
<td>Professional, educational, social, evaluative, managerial, technical, guidance, counseling, research competencies</td>
</tr>
<tr>
<td>Armaner competency model (2001)</td>
<td>Creating a scientific community, professional growth, logical growth, identifying outstanding innovation services</td>
</tr>
<tr>
<td>Fish and Wickersham (2009)</td>
<td>Communicative, instructional design, evaluation, technical, content facilitator</td>
</tr>
<tr>
<td>Alvareze (2009)</td>
<td>Designer, planning, social, cognitive, technological, managerial</td>
</tr>
<tr>
<td>Pablo (2013)</td>
<td>Pedagogical, evaluation, managerial, technical, guidance, counseling, personal, research</td>
</tr>
<tr>
<td>Varol (2007)</td>
<td>Administrative, personal, technical, instructional design, educational, communicative, social</td>
</tr>
<tr>
<td>Bigtal (2005)</td>
<td>Creating active learning, leadership, management, responsiveness, using multimedia technology, classroom etiquette, technical, policy implementation</td>
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<tr>
<td>Ghush (2010)</td>
<td>Course design, social, instructor (trainer), technical, managerial</td>
</tr>
<tr>
<td>Egan and Akdere (2005)</td>
<td>Communicative and interactive, learning and educational, administrative and managerial, technology competencies</td>
</tr>
<tr>
<td>Leo et al. (2006)</td>
<td>Pedagogical, administrative, social, technical</td>
</tr>
<tr>
<td>ASTD competency</td>
<td>Specialized competencies including: performance improvement, instructional</td>
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Methodology
This is a qualitative study. Literature review indicates that research on instructors' competencies in electronic environment are mostly qualitative, however, no one has presented a comprehensive model for formation of e-instructors' competency model. Therefore, meta-synthesis was deemed to be a suitable method for better formation of previous studies in the context of instructor competency. Catol (2013) believes that meta-synthesis is the process of searching for, combining, and appraising qualitative or quantitative studies in a specific field. Meta-Synthesis aims to integrate the interpretation of findings of the selected research and ultimately draw a comprehensive and interpretive conclusion from them through a structured review of qualitative studies (Zamir, 2006). The researcher aims to present a combined interpretation of findings instead of a comprehensive summary. Providing a systematic attitude for researchers through integration of different qualitative studies, meta-synthesis discovers new metaphors and themes, promotes the current knowledge, and yields a comprehensive view of different subjects. Meta-Synthesis requires the researcher to conduct a deep and precise review and combine the findings of related qualitative studies. Through examination of the findings of the main studies on a subject, researchers create and unveil some words that shed new light on the phenomenon under investigation.

Despite considerable efforts, there are still diverse and ambiguous administrative procedures and steps involved in meta-synthesis approach, and everyone working with this method will acknowledge its complexity and challenges. In this study, the Sandelowski and Barroso's Meta-Synthesis Method (2007) was followed, which includes seven steps:

1. Asking research questions
2. Systematic review of research literature
3. Searching for and selecting appropriate papers
4. Information extraction
5. Analyzing and combining qualitative findings
6. Quality control
7. Presentation of the findings

Thus, the first step in meta-synthesis was designing questions that the researcher needs to answer them in the process of research. The questions of this study are:

1. Identification of dimensions of professional competence of instructors in the e-learning environment
2. Identification of components of every dimension of professional competence in the e-learning environment

The systematic search and selection of suitable papers for the qualitative analysis is explained in the section below.

The statistical population of this study consists of papers published in Scopus, Civilica, SID, IRANDOC, and ISC science direct databases, and also the Google scholar specialized database from 1994 to 2015. The search terms included a combination of competency of online instructors, professional competency of instructors in e-learning environment, competency model for online instructors, components of competency of e-learning instructors, necessary actions of instructors in e-learning environment.

<table>
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<tr>
<th>Row</th>
<th>Competency Dimensions</th>
<th>Components</th>
<th>Resources</th>
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<td></td>
<td></td>
<td>Social facilitation</td>
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<td></td>
<td></td>
<td>Creating an environment for group learning</td>
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<td>2</td>
<td>Ethical dimension</td>
<td>Conflict management</td>
<td>Bawan (2009), Varol (2007)</td>
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<td>Modeling</td>
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<td>Commitment</td>
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<td></td>
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<td>Course management</td>
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<td>Measures for career development</td>
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<td>Technical support</td>
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</table>
Findings
The most prevalent competencies were used to extract models and make a list of models of e-instructor's competency; through a systematic search in various databases, 95 papers were identified, where such parameters as title, abstract, content and quality of the paper were evaluated; finally, 21 papers and reports containing different competency models were selected to be examined for different dimensions of competencies of e-instructors.

Using meta-synthesis, these studies were reviewed continuously in order to extract recurring themes of the paper. In the course of analysis, the researcher looked for subjects that appeared through meta-synthesis, called thematic review. When the themes were identified, a classification was made where related and similar classes were put under the theme that best described them.

In the current study, first all extracted factors were taken as codes (components), then considering the meaning of each code, they were classified under the same concept (dimension) in order to form the research concepts. Based on the analysis, 7 dimensions (social, ethical, managerial, personal, technological, educational, and supervisory) and 21 concepts and codes for instructors’ competency were discovered and labeled. The findings of this step indicated that no such a systematic study had been done before; the final extracted codes related to each dimension and concept alongside their source is presented in table 2.

Table 2. The final professional competency model of instructors in e-learning environment

Validity and Reliability
The content validity of the model was confirmed by 5 e-learning experts and also using components and factors of former models; it is worth noting, no new dimension or component that would compromise the validity of the model was added or deducted at this point. While designing the model, the criteria of previous models were taken as codes, and considering semantic similarity of the codes, they were combined to create new concepts.
The Intercoder Agreement method was used to assess the reliability of the model; to do so, a second researcher should code the text independent from the first one; similarity of the work of both researchers would be the sign of a high reliability. Kappa coefficients were used to measure the agreement between the two coders. The obtained value of the coefficient was 0.85; the value falls between 0.81 and 1, which is indicative of a high agreement.

**Conclusion**

Improvement of teaching and learning in e-learning environments requires a transformation in the teaching process and, subsequently, activities of the instructors. In the virtual environment, the instructor acts more to motivate and guide than to transfer knowledge. It is a necessity to review the competency of e-instructors; these competencies depend to a large extent on the duties of the instructor, the characteristics of the environment where they present those competencies, and the available technology. Consequently, it is necessary to explain and specify the competencies of e-instructors, and the objective of this study is to present a comprehensive model of competencies of e-learning instructors, using meta-synthesis. In order to identify the dimensions and components of competency, the research background was examined thoroughly and 7 dimension and 21 components were identified from 23 papers. Despite the complexities in the way of describing competency and differences between various competency models, there are similarities between them and this model. In the models of William (2000) and Smith (2005) communicative dimension and related components were in focus; also, 10 superior competencies of Egan and Akadere's (2005) model, those identified by Touch (1994 and 2003) and Williams (1994) were focused on technology. Technical, managerial, supervisory, and pedagogical dimensions are common among models including: Ghosh (2010), Bhavan (2009), Aydin (2005), and Goodyear (2000). The pedagogical is the most important dimension in the above models. This study presented a comprehensive conceptual model that, considering its high accuracy provided by meta-synthesis and content analysis, can be used for exploration and explanation of competencies of e-instructors. Some of the dimensions examined in this model such as the ethical dimension, and codes such as management conflicts, modeling, and commitment are specific to this model. Considering its general nature, this model can be used by organizations offering virtual and e-learning courses for selection, evaluation, and training instructors. The results of this study can be used as a guide for future qualitative and quantitative studies. The quantitative development and validation of the proposed model are suggested for further research.
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