

E-Learning Readiness in Medicine: Turkish Family Medicine (FM) Physicians Case

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ABSTRACT

This research investigates e-learning readiness level of family medicine physicians (FM) in Turkey. The study measures the level of e-learning readiness of Turkish FM physicians by an online e-learning readiness survey. According to results five areas are ready at Turkish FM physicians but need a few improvements: *equipment/infrastructure, online learning style readiness, technological skills readiness, cultural readiness, financial readiness*. Three areas are not ready and need some work to improve their readiness: *Human resource readiness, attitude readiness, and environmental readiness*. Finally, the outcomes of e-learning readiness indicate that the Turkish Family Medicine Physicians are ready for adopting e-learning. The overall results show that the e-learning readiness level at Turkish FM physicians has been 68,28 %, and ready but needs a few improvements for e-learning.

Keywords: E-Learning Readiness, Medical Education, Family Medicine Physicians, Readiness Level.

INTRODUCTION

Working conditions and office hours are intense for family medicine (FM) physicians in Turkey. By March 2014 that there have been more than 21000 family medicine physicians in Turkey, with more than 3,500 patients per physician. How can training effectively occur when physicians leave their medical center or facility? Under this conditions family medicine physicians may not find opportunities for traditional courses but can attend e-learning courses. Since much of the knowledge acquisition occurs outside of working hours, e-learning is a supportive tool in continuing medical education.

The research aims to investigate e-learning readiness for proposing a successful e-learning design for family medicine (FM) physicians in Turkey. Subsequently, it addresses requirements to implement a successful e-learning system. The research focused on e-learning readiness by a devised survey instrument from previous studies for the research context; assessing family medicine (FM) physicians e-learning readiness; and identifying factors that need to propose a successful e-learning design.

LITERATURE REVIEW

Health professionals have to update their knowledge in medical sciences, technologies and techniques. This is called continuing professional education (CPE) or continuing medical education (CME). CME is an indispensable part of the working life of physicians and health professionals (Fordis, King, & Ballantyne, 2005).

The use of e-learning enables medical students to engage with high quality teachers and doctors around the world in both real time and at asynchronous learning events (Edward et al., 2006). In medical education, content can be delivered either synchronously or asynchronously. Synchronous delivery refers to real-time, instructor-led e-learning, where all learners receive information simultaneously and communicate directly with other learners. With asynchronous delivery, the transmission and receipt of information do not occur simultaneously. The learners are responsible for pacing their own self-instruction and learning. The instructor and learners communicate using e-mail or feedback technologies, but not in real time. Synchronous content delivery is hard to achieve in medical education without some preconditions needed such as high speed Internet connections, free access to computers and high computer skills of students and teachers (Masic, 2008).

The e-learning readiness dimensions

A number of instruments have been developed to assess e-learning readiness. Aydin and Tasci (2005) developed an E-Learning Readiness Survey (ELRS) to assess how managers perceive their institution's readiness for e-learning in Turkey and to investigate whether managers' demographic characteristics (gender, age, education, and computer experience) differentiate their perception of institutional readiness for e-learning. The study revealed that although the companies surveyed were ready for e-learning overall, to successfully implement e-learning they needed to improve their human resources. The results confirmed that gender, age, education level, and computer experience had no effect on participants' overall perception of institutional readiness.

Abas, Kaur, and Harun (2004) developed an "E-Learning Readiness (ELR)" instrument to assess e-learning

readiness in Malaysia. The study confirmed that enablers and receivers were less ready than policy makers and providers. Financial assistance was required to improve the infrastructure in Malaysia and enablers and receivers need content, technical, and environmental improvements. Tertiary Students' Readiness For Online Learning (TSROL) was developed by Pillay, Irving, and Tones (2007). With this study, *learner preferences*, *technical skills* and *computer self-efficacy* be improved by adopting a more multidimensional interpretation of the *learning preferences* and *attitudes towards computers*. Sadik (2007) developed an instrument to measure individual readiness to develop and implement e-learning (IRDI-EL). The study revealed that competencies, experience and attitudes affect faculty's individual readiness to successfully develop and implement e-learning approaches. The E-Learning Readiness Self-Assessment (ELRSA) was developed by Watkins, Leigh, and Triner (2004) to assess the readiness of individual learners who have no previous e-learning experience. The researchers claimed *technology access; online skills and relationships; motivation; online audio/video; Internet discussions; and importance to your success* were reliable from the perspective of learners.

In this study, the e-learning readiness dimensions have been grouped into eight dimensions based on previous researches. The dimensions are as follows:

- **Technological skills readiness:** It refers to the observable and measurable technical competencies involving users' capabilities with computers and the Internet.
- **Online learning style readiness:** It is defined as the readiness of the learner or trainee in terms of time commitment to e-learning, discipline and interest in e-learning and the perception of the status of qualifications obtained via e-learning.
- **Equipment/infrastructure readiness:** This dimension is defined as the right equipment/infrastructure readiness, provision of technical support, e-learning content delivery, and a LMS adopted by the organizations.
- **Attitude readiness:** User attitudes are factors that influence the use of technology. Attitude readiness in this study involves confidence, enjoyment, importance, motivation, self-development, and anxiety.
- **Human resources readiness:** It is the availability and design of the human support system.
- **Environmental readiness:** It involves the readiness of the institution as a whole in terms of government policy, the role of mass media, and intellectual property regulations.
- **Cultural readiness:** It is the use of e-learning in terms of Internet use and networked technologies to disseminate information, communication, interaction and teaching.
- **Financial readiness:** This concept refers to whether a learner/trainee or an institution is financially ready for e-learning programs.

METHOD

The research employed a quantitative method based on survey. Data was collected through an e-learning readiness survey. To measure e-learning readiness, the study proposes eight dimensions of readiness drawn from the literature review: (1) *technological skills readiness*; (2) *online learning style readiness*; (3) *equipment /infrastructure readiness*; (4) *attitude readiness*; (5) *human resource readiness*; (6) *environmental readiness*; (7) *cultural readiness*; and (8) *financial readiness*. The questionnaire was divided into three sections: A, B, and C. Section A: Demographic – contains five questions to collect demographic characteristics from the individuals including age, gender, education level, the institution they belong to, and their position in the institution. Section B: Communication issues – contains four questions to collect individuals' communication and internet access information. Section C: E-learning readiness dimensions.

RESULTS

Online survey was administered to the physicians of Turkish FM. Online survey was administered to the physicians of Turkish FM and a total of 1172 family physicians, 71.8% of the men and 28.2% women, attended to survey 87.8% physicians are married. This section addresses the level of readiness for Family Medicine Physicians in Turkey in each dimension, and identifies critical factors that need to be considered in order to implement successful e-learning framework.

The assessment of readiness in this study was developed based on a process used by Aydin and Tasci (2005). A five-point Likert scale in which each answer was coded into 1, 2, 3, 4, and 5 therefore the critical level was 0.8 (4 intervals divided by 5 categories) considering 66,64 (3.4) as the expected level of readiness. Table 1 presents the percentages of e-learning readiness for implementing Family Medicine Physicians in Turkey. The level of readiness in each dimension was assessed individually. Three areas are not ready and need some work to improve their readiness: *Human resource readiness, attitude readiness, and environmental readiness*.

Table I. E-learning readiness of Turkish FM Physicians

Equipment/infrastructure readiness	% 77,64
Online learning style readiness	% 75,13
Technological skills readiness	% 74,47
Cultural readiness	% 73,81
Financial readiness	% 73,26
Human resource readiness	% 65,86
Attitude readiness	% 64,22
Environmental readiness	% 52,6
Overall Readiness	% 68,28

Technological skills readiness: Technological skills readiness refers to observable and measurable technical competencies. Previous studies indicate that this dimension is very important for adopting e-learning (Abas, Kaur, & Karun, 2004; Aydin & Tasci, 2005; Chapnick, 2000; Pillay et al., 2007; Sadik, 2007; Watkins et al., 2004). The results show that the level of technological skills readiness at Turkish FM was ready at 74,47%, and ready but needs a few improvements for readiness.

Online learning style readiness: Online learning style readiness involves learners' readiness in terms of time commitment to e-learning, discipline and interest in e-learning, and perception of the status of qualifications obtained via e-learning. Previous studies considered this dimension to be important (Pillay et al., 2007; Watkins et al., 2004). The results show that the level of online learning style readiness at Turkish FM was ready at 75,13%, and ready but needs a few improvements for readiness.

Equipment /Infrastructure readiness: Infrastructure/equipment readiness refers to the provision of technical support, e-learning content delivery, broadband facilities, and a Learning Management System (LMS) by the institutions who adopt the systems. Connectivity and physical communications infrastructure are the foundation of electronic-readiness for family medicine (EIU & IBM, 2008). The results show that the level of infrastructure/equipment readiness at Turkish FM was ready at 77,64%, and ready but needs a few improvements for readiness.

Attitude readiness: Attitude readiness involves confidence, enjoyment, importance, motivation, self development, and anxiety. Attitude readiness ranked at 64,22%, indicating that it is not ready but needs some work and improvements. Previous studies noted that attitude directly affects individual readiness for e-learning (Aydin & Tasci, 2005; Pillay et al., 2007; Sadik, 2007; Watkin et al., 2004).

Human resource readiness: Human resources readiness is the availability and design of the human support system including management (having a vision/mission or formulated policies related to the provision of e-learning and the institutional recognition of qualifications obtained via e-learning) and personnel. The results show that the level of human resources readiness at Turkish FM was ready at 65,86%, and not ready needs some work for readiness. This dimension is vital (Abas, Kaur, & Karun, 2004; Aydin & Tasci, 2005; Sadik, 2007).

Environmental readiness: Environmental readiness refers to the level of readiness of a society/nation for e-learning as perceived by stakeholders (policy makers, providers, enablers, and learners/trainees) from within and outside the institution, and involves the readiness of the institution as a whole in terms of government policy, the role of mass media, and intellectual property regulations. The results show that the level of environmental readiness at Turkish FM was ready at 52,6%, and not ready and needs some work for readiness.

Cultural readiness: Cultural readiness refers to acceptance of Internet use and network technologies as a mode for information dissemination, communication, interaction, and teaching; and the readiness for making e-learning a way of life in their institution. Culture towards significantly affects implementation. The results show

that the level of cultural readiness at Turkish FM was ready at 73,81%, and ready but needs a few improvements for readiness.

Financial readiness: Financial readiness refers to the ability to afford the required equipment and facilities for e-learning implementation as perceived by policy makers, enablers, and learners/trainees. The level of readiness on financial readiness was a low 73,26% indicating that it was moderately ready and people can afford and ready but needs a few improvements for readiness.

CONCLUSION

The level of readiness in each dimension was assessed individually. According to results five areas have been seen that are ready but need a few improvements. These areas are equipment/infrastructure readiness, Online learning style readiness, Technological skills readiness, cultural readiness, and Financial readiness. Three areas are not ready and need some work to improve. These areas are Human resource readiness, Attitude readiness, and Environmental readiness. The results show that the level readiness at Turkish FM was ready at 68,28 %, and ready but needs a few improvements for e-learning readiness. With this study, the e-learning readiness requirements were updated and implemented for family medicine physicians comprehensively.

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REFERENCES

- Abas, Z.W., Kaur, K. &Harun, H. (2004). E-learning Readiness in Malaysia 2004. A Join Study by the Ministry of Energy, Water and Communications Malaysia and Open University Malaysia
- Aydin, C.H. &Tasci, D. (2005). Measuring readiness for e-learning: Reflections from an emerging country. *Educational Technology & Society*, 8(4), 244-257.
- Chapnick, S. (2000). Are you ready for e-learning? *Learning Circuits: ASTD's Online Magazine All About ELearning*. Retrieved September 23,2014 from <http://www.learningcircuits.org/2000/nov2000/Chapnick.htm>
- Edward, H.,&Shortliffe, E.,&Leslie, E.,&Perreault,E.(2006). Medical informatics computer application in health care andnbiomedicine. Springer, 3rd edition, 623-4.
- Economist Intelligence Unit Limited & IBM Corporation. (2008). E-readiness rankings 2008: Maintaining momentum. Retrieved October 10, 2014 from http://a330.g.akamai.net/7/330/25828/20080331202303graphics.eiu.com/upload/i_bm_ereadiness_2008.pdf
- Fordis, M., King J,E., Ballantyne, C.,M (2005). Comparison of the instructional efficacy of Internet-based CME with liveinteractive CME workshops: a randomized controlled trial. *J Am Med Assoc* 2005; 294:1043–1051.
- Masic I. (2008).E-Learning as New Method of Medical Education. *Acta Inform Med*. 2008;16(2):102–117.
- Pillay, H., Irving, K., & Tones, M. (2007). Validation of the diagnostic tool for assessing tertiary students' readiness for online learning. *Higher Education Research & Development*, 26(2), 217-234.
- Sadik, A. (2007). The readiness of faculty members to develop and implement ELearning: The case of an Egyptian university. *International Journal of ELearning*, 6(3), 433-453.
- Watkins, R., Leigh, D., &Triner, D. (2004). Assessing readiness for e-learning. *Performance Improvement Quarterly*, 17(4), 66-79.