

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

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Abstract: This research investigates e-learning readiness of family medicine physicians in Turkey. The study measures the level of e-learning readiness of Turkish FM physicians. A cross-sectional survey was delivered online. Overall, to implement successful e-learning framework family medicine physicians in Turkey the results show that overall five areas are ready at Turkish FM 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*. According to outcomes of e-learning readiness survey Turkish Family Medicine Physicians' e-learning readiness indicate that the physicians are for adopting e-learning. The results show that the level readiness at Turkish FM was ready at 68,28 %, and ready but needs a few improvements for readiness.

Keywords: E-learning readiness, medical education, family medicine physicians.

INTRODUCTION

For family medicine (FM) physicians in Turkey, working conditions and office hours are intense. The Minister of Health of Turkey announced by March 2014 that there are 21,300 family medicine physicians in Turkey, with more than 3,500 patients per physician, a very large number. How can training effectively occur when physicians leave their medical center or facility? Heavy workloads mean that family medicine physicians may not be able to find opportunities to take traditional continuing education courses but e-learning provides them with an opportunity to learn anytime and anywhere. Since much 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 intends to determine factors that need to be addressed in order to implement successful e-learning in this context. The proposed research focused on: reviewing and adapting a survey instrument from previous studies; executing a comprehensive e-learning readiness instrument 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 need to regularly update their knowledge of changes and advances in medical sciences, technologies and techniques. This activity is often called continuing professional education (CPE) or continuing medical education (CME). CME is usually acknowledged as 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.

An E-Learning Readiness (ELR) instrument was developed by Abas, Kaur, and Harun (2004) to assess e-learning readiness in Malaysia. The study revealed that enablers and receivers were less ready than policy makers and providers. The study confirmed that although there was a large amount of resources for management and technical facilities, more financial assistance was still needed to improve the infrastructure in Malaysia. Enablers and receivers also needed to improve their readiness in three areas: content, technical, and environmental.

An instrument to examine Tertiary Students' Readiness For Online Learning (TSROL) was developed by Pillay, Irving, and Tones (2007). Three key points were identified: (1) the *learner preferences* subscale required revision as it had poor reliability and validity; (2) older students had lower *technical skills* and *computer self-efficacy* than younger students; and (3) TSROL can 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 aimed to determine the state of readiness of academic staff at South Valley University in Egypt to implement e-learning strategies in their teaching; and how support systems and procedures for staff could be further developed, enabling the most effective and appropriate use of learning technologies and enhancing the student and staff experience. 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 in an online learning environment. The instrument had six self-assessment categories: *technology access*; *online skills and relationships*; *motivation*; *online audio/video*; *Internet discussions*; and *importance to your success*. The researchers claimed that the six scales were reliable; however they only measure readiness from the perspective of learners.

The instruments for assessing e-learning readiness were mainly formulated for institutions that were already familiar with e-learning. Furthermore, this study identified eight main dimensions to measure e-learning readiness that had been found in previous researches. This study regroups these dimensions into a more concise set of dimensions to assess e-learning readiness. After assessing e-learning readiness, it proposes an e-learning framework based on e-learning readiness survey and educators interview results.

In our study, the e-learning readiness dimensions were grouped into eight dimensions based on previous researches. The dimensions are defined as follows:

Technological skills readiness: Technological skills readiness refers to the observable and measurable technical competencies involving users' capabilities with computers and the Internet

Online learning style readiness: Users' online learning style readiness 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, broadband facilities, and a Learning Management System(LMS) by the organizations which adopt the systems.

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: Human resources readiness is the availability and design of the human support system.

Environmental readiness: Environmental readiness 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: Cultural readiness is the enculturation 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.

METHODOLOGY

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*; (2) *online learning style*; (3) *equipment /infrastructure*; (4) *attitude*; (5) *human resource*; (6) *environmental*; (7) *cultural*; and (8) *financial*. 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 – contains eight variables of e-learning readiness dimensions. A five-point *Likert* scale was used to ask about opinions.

The results from the regression analysis will indicate the level of e-learning readiness of family medicine physicians. The results will be compared with assessment model of Aydin and Tasci's (2005), which was used to determine the expected level of e-learning readiness.

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 presents the quantitative data analysis. It evaluates each dimension of readiness for Family Medicine Physicians in Turkey. This section also 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). Aydin and Tasci (2005, p. 250) added this critical level iteratively from the lowest category "1" until reaching the highest point "5"; accordingly five intervals of readiness were obtained and they considered 68,28 (3.4) as the expected level of readiness.

Table1 presents the percentages of e-learning readiness for implementing Family Medicine Physicians in Turkey. The level of readiness in each dimension was assessed individually. Each percentage of readiness was calculated by using this formula as presented in Table 1,

Three areas are not ready and need some work to improve their readiness: *Human resource readiness, attitude readiness, and environmental readiness.*

Table 1. Overall 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

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. Figure x presents the summary of *technological skills readiness*

Online learning style readiness

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. Figure x presents the summary of *online learning style readiness*.

Infrastructure/equipment readiness

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. Figure x presents the summary of *infrastructure/equipment readiness*.

Attitude readiness

Attitude readiness ranked at 64,22%, indicating that it is not ready but needs some work and improvements.

Human resource readiness

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.

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. This dimension is vital for Turkish family medicine and urgently must be improved.

Cultural readiness

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

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

As a result the e-Learning context, advancement in network technologies, e-learning technologies, and content development has facilitated multiple content presentations, personalization and e-learning. 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.

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