

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/220374121>

Measuring Readiness for e-Learning: Reflections from an Emerging Country.

Article in *Educational Technology & Society* · January 2005

Source: DBLP

CITATIONS

205

READS

2,313

2 authors:



Cengiz Hakan Aydin
Anadolu University

44 PUBLICATIONS 616 CITATIONS

[SEE PROFILE](#)



Deniz Tasci
Anadolu University

21 PUBLICATIONS 245 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Higher education Online: MOOCs the European way (HOME) [View project](#)

Measuring Readiness for e-Learning: Reflections from an Emerging Country

Cengiz Hakan Aydın

Assistant Professor
Anadolu University, School of Communication Sciences
Eskisehir 26470 Turkey
Tel: +90-222-335-0580 ext 2531
chaydin@anadolu.edu.tr

Deniz Tasci

Associate Professor
Anadolu University, School of Communication Sciences
Eskisehir 26470 Turkey
Tel: +90-222-335-0580 ext 2532
dtasci@anadolu.edu.tr

ABSTRACT

In order to benefit from e-learning, companies should conduct considerable up-front analysis to assess their readiness. There are a number of instruments in the market that can be used for assessing readiness for e-learning. However, almost all of these instruments are developed to be used in countries that have a mature field of human resources development. So, these instruments consist of terms, phrases, and applications that are meaningless for many companies in especially emerging countries where human resources development field has just shown an improvement. This article includes the description of a survey instrument that has been developed to assess e-learning readiness of companies in these kinds of countries and the results of a study that examines organizational readiness of companies for e-learning in Turkey. The study reveals that companies surveyed are overall ready for e-learning but they need to improve need to improve themselves, particularly in the area of human resources, in order to be able to successfully implement e-learning. Although this instrument has been developed according to the cultural characteristics of Turkish companies it can easily be adapted to be used by companies of other emerging countries.

Keywords

e-Learning, Readiness for e-learning, Emerging countries, Measuring readiness

Introduction

e-Learning, defined as instructional content or learning experiences delivered or enabled by electronic technology (The Commission on Technology and Adult Learning, 2001), particularly computer networks and standalone computers, is one of the main innovations that is increasingly diffusing in corporate settings. According to the International Data Corporation (IDC), the global market for e-learning will grow to reach \$23B by 2004 (cited in Barron, 2002). Gartner Group estimates that 42 percent of all business e-learning initiatives in the U.S. will be directed at consumers by 2003, up from 7 percent in 2002 (cited in Shea-Shultz & Fogarty, 2002). Echoing this prediction, Gilbert and Jones (2001) state that in 2003, e-learning will comprise around 40 percent of all corporate training delivery methods. The e-learning market numbers in Europe also show constant growth. According to recent studies, the European e-learning market has grown around 120% in 2002, and continues to grow, although it slowed in 2002 compared with 2001 (Massy et al., 2002). The corporate e-learning market in Asia/Pacific countries is expected to be worth almost \$233 million by 2005, growing 25 percent. However, some decreases in this growth figure are expected in the Asia/Pacific region due to the influence of their softening economy (Sim, 2001). These growth figures reveal that the number of e-learning initiatives in corporate training settings is steadily increasing.

There are several reasons behind this increase in e-learning implementations. One of the most significant reasons is related to the cost of training. The literature is filled with reports about how much money companies saved by implementing e-learning. As an example, Shea-Shultz and Fogarty (2002) cite that IBM's e-learning initiative Basic Blue helped the company save \$16 million in 2000 and PricewaterhouseCoopers reduced the cost of training for per person by approximately 87 percent through its e-learning initiative. The same authors state that "E-learning is saving 33 to 50 percent from the cost of training while cutting 50 percent off the time invested and allowing better results." In addition to cost benefits, organizations prefer e-learning for its promises to: increase employee retention; rapidly develop, deploy and update courses; provide effective training, available anytime

and anywhere (Minton, 2000); boost worker productivity; broaden training opportunities; stay competitive; improve motivation and morale; and implement strategic initiatives (Bork, 2002).

In addition to the benefits of implementing e-learning, experts such as Anderson (2002), Bean (2003), Chapnick (2000), Clark and Mayer (2003), Gold et al. (2001) warn managers to be careful in the process of adopting e-learning for their organizations. They point out that adapting e-learning without careful planning most likely ends with cost overruns, unappealing training products, and failure. They also state that like any other major innovation, e-learning strategies require considerable up-front analysis, development time, money, technological infrastructure and leadership support to be successful. Thus, managers should assess their companies' readiness for e-learning before adopting this innovation.

The literature on organizational readiness for e-learning provides managers questions, guidelines, strategies, models and instruments for assessing the readiness of their companies for e-learning. Haney (2002), for example, suggests that managers should ask themselves 70 questions for assessing their organizational readiness. She classifies these questions into 7 categories: (1) Human resources; (2) learning management system; (3) learners; (4) content; (5) information technology; (6) finance; and (7) vendor. Haney's instrument is sort of a checklist that requires managers to choose levels of importance for each of the questions. A manager should decide whether the question is "not very", "moderate" or "very" important for her/his company. However, the questions under the last three categories, which are information technology, finance, and vendor, have already been checked as "very" important because Haney believes that these items should always be considered as very important in any e-learning assessment process.

Likewise, Chapnick (2000) has developed an instrument for assessing organizational readiness for e-learning. She considers her instrument as an e-learning needs assessment model and she states that the model helps to answer three main questions, (1) 'Can we do this?', (2) 'If we can do this, how ... are we going to do it?', and (3) 'What are the outcomes and how do we measure them?'. Chapnick claims that there are several factors that must be considered to assess readiness. She lists 66 factors in question format and groups them into 8 categories: (1) Psychological; (2) sociological; (3) environmental; (4) human resources; (5) financial readiness; (6) technological skill (aptitude); (7) equipment; (8) content readiness. In a different way than prior researcher, Chapnick provides multiple choices for each question and expects managers to select only one response that represents the situation of their respective companies. Each response has a point value indicated in parenthesis at the end of each choice. The managers are expected to add up the points for each section after responding to all the questions in the section. In addition, the managers are asked to combine the points for each section to find out the cumulative score. According to Chapnick's model, the lower the grade the users get the more ready their companies are for e-learning. The model helps managers not only assess on what level their companies are ready for e-learning, but also reveals in what areas their companies need improvement and in which areas it is successful.

Although the above e-learning readiness instruments are often cited in the literature, similar ones can also be found, such as Anderson (2002), Rosenberg (2000), Broadbent (2001), Milton (2002), so forth. Any of these instruments may seem to be used by any company to assess its readiness for e-learning. According to the results of the analyses, companies can decide to implement e-learning or determine the areas in which they need to improve in order to be able to execute a successful e-learning initiative.

However, Rogers (2003) points out that every system (i.e., organization, culture, country, individual) has its own norms that can be effective in diffusing an innovation in its system. From this perspective, it can be said that these instruments may not work for organizations of other countries. The human resources development field in many of the emerging countries as well as some developed ones has only recently shown advancement, and as a result, most of the terms and strategies for implementation that are widely used in western companies have not been adopted as yet.

The e-learning readiness assessment instruments readily available in the field generally ask questions that include some terms and implementations that are not known or are not being used by many human resources departments. Learning style, for example, is a term that has only recently caught the attention of human resources departments of the companies. Indeed, the literature in emerging countries such as Turkey on determining employees' learning styles is almost non-existent. Using an e-learning readiness assessment tool, a question concerning the learning styles of a company's employees may not have an answer. Moreover, users (managers) may not understand, or even misunderstand, the question because they do not have a context in which to place it. Almost all the available assessment instruments contain items related to learning style or similar terms/implementations that may influence effectiveness of the assessment processes and results.

Therefore, the results of the assessment may very well be invalid for respondents from other countries than western. Studies on impact of culture and context in e-learning (e.g., Gunawardena, *et al*, 2001; Le Boterf, 1994; McIsaac, 2002) can also be shown as a base for this observation.

Consequently, there are several unanswered questions in the field of e-learning literature including: “How can companies in emerging countries assess their organizational readiness for e-learning?” and “What are the factors that must be taken into consideration when assessing the organizational readiness of companies in these countries?”

In this article, the researchers tried to answer these questions. They have first identified factors that can be used to assess the institutional readiness for e-learning. Later, they used these factors to develop a survey instrument and administered it to the companies in Turkey to assess their e-learning readiness. This article intended to reveal the results of this study.

Context

Despite its advantages, e-learning in Turkey is still in its infancy stages. Although there is not any statistical data on the size of the market, e-learning providers such as Hakkı Sevand (cited in BTVizyon, 2002) and Zafer Küçükateş (cited in Telepatı, 2003) think it is overall around \$1 billion. According to Kavrakoglu (March 2002), the supply side of the e-learning market is characterized by a few local players that have either some sort of collaboration with western (U.S. and European) training vendors or a solid background in providing face-to-face training and/or technology infrastructure. A few early adopters form the demand side of the market. Motives such as initial costs, infrastructure requirements, and uncertainty about the functionality as well as past unsuccessful experiences about use of technology for education ground a challenge for Turkish managers about implementing e-learning in their organizations. However, Kavrakoglu believes that companies will soon adopt e-learning easily because technological innovations have been easily transferred and adopted by companies in the country, and Turkey has a population that is relatively younger, more dynamic, and open to innovations.

Purpose

The main purpose of the article is to report the results of a study that intended to answer the question: “Are the companies in Turkey ready for e-learning?” The study examines the e-learning readiness of the first 100 companies listed in the 2001 Turkey’s Top 500 Major Industrial Enterprises List of the Istanbul Chamber of Industry (ICI, 2002).

The research questions of the study have been formulated as:

1. How do managers of the Turkish companies perceive their organizational readiness for e-learning?
2. Do managers’ demographic characteristics (gender, age, education, and computer experience) differentiate their perception of organizational readiness for e-learning?

Methodology

The data collection method used for this study was a survey designed to seek input from managers (or employees) who are able to judge their companies’ readiness for e-learning. Following are the information about the participants and the survey instrument used in the study.

Participants

The top 100 companies of Turkey –according to sales from production- were selected for the study. The participating companies were determined by using the Istanbul Chamber of Industry’s (ICI) 500 Major Industrial Enterprises of Turkey 2001 List. ICI is one of the oldest (founded in 1952) and the largest (has more than 10,000 members) chamber of industry in Turkey. The chamber issues a list of major enterprises and firms in Turkey almost every year. The companies were listed according to their sales based on production in year 2001 (ICI, 2002). The researchers agreed not to publish the names of the participating companies.

The directors of the human resources departments in these companies were chosen as the respondents who can provide data about their companies' readiness for e-learning. With this in mind, a survey instrument was mailed to each of those directors. However, some companies have a personnel department, others a training department, and some have no special department at all. For those companies, the instrument was sent to directors of the personnel or training departments, or the managers who were involved in managing human resources in their companies. Also, a letter requesting help in forwarding the survey instrument to the right person, if necessary, was also inserted into the envelope.

Although it cannot be claimed that the respondents of this study represent all companies in Turkey, this section of the study provides some indication about the status of human resource development in the country. For instance, the study revealed that majority of the managers or experts working in human resources departments of the companies in Turkey are male (%76) and older than 35 years old (Table 1). Most of respondents (%34) were either the head of or experts in their respective human resources departments. Only %10 was working in personnel while %8 was in education departments. Seven (%14) respondents were either presidents or vice-presidents of their companies, while 4 (%8) were from the information technologies departments. The other respondents were from varying departments, including information technology, accounting, and communications.

Table 1. The respondents' age distribution

Age Range	Frequency	Percent
24 and younger	3	6
25-34	12	24
35-44	18	36
45-54	16	32
55 and older	1	2
<i>TOTAL</i>	<i>50</i>	<i>100</i>

More than half of the respondents (%56) reported that they were very good at computer usage, while only 1 (%2) indicated that s/he was just a beginner. Similarly, only one of the respondents held a secondary education degree while 41 (%82) have undergraduate and 8 (%16) graduate degrees.

Instrumentation

A two-section survey entitled, "e-Learning Readiness Survey" (e-LRS), has been developed to assess the e-learning readiness of companies in Turkey. The first section consisted of 10 items to gather data about demographic characteristics, such as gender, age, education level, position in the company, and computer experience of the manager (or employee) who takes the survey. The second section included 30 items to assess respondents' self-report perceptions of their companies' readiness for e-learning.

DeVellis (2003) indicates that the first step in the development of an instrument is clearly determining what it is the researcher wants to measure. The variables –or factors- that the researchers of this study want to measure are identified after detailed analyses of the available e-learning readiness assessment instruments, combined with the cultural characteristics of companies in Turkey and personal experiences of the researchers. As a result, four major factors that can help organizations measure how ready they are for e-learning have been determined. Everett M. Rogers' diffusion of innovation theory provides a theoretical background for these factors. The factors are titled as: (1) technology; (2) innovation; (3) people; and (4) self-development. In addition to these factors, it has been suggested that each factor might have three different constructs: (1) resources; (2) skills; and (3) attitudes. These constructs are quite similar to Guglielmino and Guglielmino's (2003) factors. According to Guglielmino and Guglielmino, technical readiness and readiness for self-directed learning are the two major components necessary for successful e-learning to occur and these components can be examined under knowledge, attitudes, skills, habits categories. In the current study, Guglielmino and Guglielmino's knowledge considered under skills and habits regarded under attitudes. These two categories along with resources are called as constructs.

Each construct of a factor should be taken into consideration during the assessment process as much as possible. The reason behind this suggestion is that an organization, for example, might have enough resources for

adopting e-learning; but, if the organization lacks the skills that are necessary to use those resources, the result might be failure. Similarly, another organization might have both the resources and skills to implement e-learning yet have a common negative attitude toward technology, with the outcome the same as the previous example.

Technology is one of the factors that can be effectively used to adapt a technological innovation in an organization (Rogers, 2003). According to Rogers, technology has two components: hardware and software. Hardware is the part of technology that includes the physical components, while software is the part that consists of the information aspects that help to use it to perform certain tasks. He also mentions that a technology may only involve software and not any hardware, at all, citing examples such as a political philosophy, a religious idea, and a new event.

A company that wants to adopt e-learning should have at least the minimum hardware requirements and the software required to use that hardware. The hardware part of e-learning includes the physical equipment that must be able to supply e-learning (e.g., servers and networks) along with equipment for end-users to be able to access the services. Without appropriate equipment and easy access, it is quite hard, if not impossible, to implement any e-learning (Oliver & Towers, 2000). However, as Broadbent (2001) states, e-learning does not require a huge infrastructure. Even a well working Internet connection and supplying enough computers for end-users would be sufficient for an effective e-learning project.

Any assessment instrument should include identification of the hardware available in a company. Thus, the instrument used in this study asks managers about the hardware capabilities of their companies, in particular the questions relating to hardware focus on easy access to computers and the Internet/Intranet. Yet, having easy access to hardware is not enough. Rogers (2003) notes that easy to understand innovations are adopted more rapidly than ones that require the adopter to develop new skills and understandings. Similarly, employees should also have basic computer and Internet skills to get benefit of e-learning. Accordingly, the instrument also involves questions about employees' computer and Internet skills.

Additionally, a research study conducted by Rosen and Weils (1998) shows that around 58-65 percent of any organization's employees is generally uncomfortable with new technology and is even technophobic to some degree. According to Rosen and Weil (1998, p.1) "If employers don't take into consideration that there will be company resisters and technophobes for whom they have done nothing to help, then they're going to suffer reduced worker productivity, lower job satisfaction, their profits and their efficiency are going to decrease companywise, and there will be more mistakes and errors with higher employee absenteeism". An e-learning initiative may suffer due to technophobia, as well. Consequently, identification of employees' attitudes toward use of technology is also taken into account in the process of developing the e-learning assessment instrument. This consideration is not only limited to employees but also covers identification of managers' attitudes, as well.

Innovation as a factor mainly involves examination of past experiences. According to Rogers (2003), past experiences in a system about an innovation may also affect the adoption of a new one. Likewise, past experiences of employees, as well as managers, about an innovation in any or similar previous management procedures in a company may be influential on results of an e-learning initiative. Total quality management (TQM) is one of the innovations that have been introduced to the companies all around the world recently. Some of the companies have been able to easily adopt TQM, while others are still struggling. Information on acceptance or rejection of this innovation in a company might be used as a predictor of readiness for e-learning. For this reason, several questions about the acceptance of TQM among employees, managers, and human resources department staff are included in the readiness instrument. Another question considered under innovation factor is barriers to implementation. Internal or external, legal and/or politic barriers might influence the applicability of e-learning. Managers should always take into account any barriers they may face in implementation when planning for e-learning in their organizations..

The *people* factor deals with the characteristics of all human resources of a company. Literature (e.g. Gilley, Egglund & Maycunich, 2002; Jacobs & Washington, 2003; Swanson, 2001) reveals that the more skilled organization's human resources the more likely the organization is to be successful. Also, Rogers (2003) cites that individuals who have a level of higher education are more likely to adopt an innovation than others. Hence, education levels of employees can be used as one of the predictors of e-learning readiness. Furthermore, Rogers expresses that "earlier adopters have greater knowledge of innovation than do later adopters". In the light of above generalizations, it can be claimed that companies with more skilled human resources personnel have a better chance to succeed at e-learning. Literature in change management bears this out, confirming that the existence of a champion, in other words someone who has the knowledge, skills, responsibility and authority to

lead the organization toward adaptations of an innovation, is positively related to adoption of an innovation (e.g. Carnell & Shank, 2003; Koska, 1992). Moreover, since most of the companies are purchasing e-learning solutions from outside resources, existence of enough e-learning vendors and/or consultants can be considered as another predictor of whether or not e-learning will be adopted rapidly. The proposed instrument asks managers the average educational level of their employees, whether their companies have skilled human resources – or personnel or training- department specialist, and a champion (leader), and whether there are enough e-learning vendors and external e-learning experts.

Self-development is the last factor identified for use in assessing the organizational readiness of companies for e-learning. Diffusion of innovation theory also shows that companies those are open to organizational and individual development, those actively seek for information about innovations to improve themselves, and those have higher self-efficacy beliefs for the achievement can adopt innovations earlier than others (Rogers, 2003). This implies that companies that are willing to establish a budget for organizational and individual development initiatives, whose managers believe in the power of self-development, and whose employees have positive attitudes toward developing themselves can adopt innovations such as e-learning easier than others who lack these essential characteristics. To enable the researcher and manager to determine whether or not these characteristics are present, there are questions about self-development resources and attitudes in the instrument.

In addition, Brown (2001) notes that learners who are new to online learning tend to spend more time becoming familiar with the technology, understanding the new approaches to teaching and learning online, and familiarizing themselves with the processes. In majority of the emerging countries, employees, especially those working in private companies, generally spend most of day in the workplace doing daily procedures (the average is around 10-12 hours, including travel time although the legal average is 7.5 hours). Additionally, family relations are still very important in those countries such as Turkey (Hofstede, 2001). As a result, the majority of employees spend their spare time with their families – not only spouses and children, but also parents and other relatives. Although most e-learning projects provide flexible learning occasions, time management skills might be an issue for successful e-learning implementations. To meet this criterion, the instrument asks users if the employees are able to manage their spare time in order to find occasions in the day for completing e-learning assignments.

In summary, a company may assess its readiness for e-learning by analyzing the resources it possesses, and the skills and attitudes of its employees, as well as managers. These resources, skills, and attitudes are related to technology, innovation, people, and self-development factors. Table 1 shows the factors and constructs identified as crucial to assess e-learning readiness of companies in Turkey. The numbers in parentheses are the number of the items included in the instrument. Although these factors are determined according to cultural characteristics of Turkish companies, they can be used to assess the institutional readiness of companies in others –especially in emerging countries.

The table (Table 2) helped the researchers of this study generate a list of 83 items to be included in the e-LRS. A group of experts who have been offering training and consultation to various organizations in Turkey, especially in the fields of research, communications, marketing and strategic management, have examined the comprehension and applicability of the items. After a series of brain-storming meetings with these experts, the researchers constructed 30 major items to include in the second section of the instrument.

Table 2. The factors and constructs identified to assess e-learning readiness of companies

	Resources	Skills	Attitudes
Technology	Access to computers and Internet (2, 3, 4)	Ability to use computers and Internet (5, 6, 7)	Positive attitude toward use of technology (8, 9, 13, 16, 17)
Innovation	Barriers (28)	Ability to adopt innovations (26)	Openness to innovations (10, 15)
People	<ul style="list-style-type: none"> ➤ Educated employees (1) ➤ Experienced HR specialists (21) ➤ An e-learning champion (22) ➤ Vendors and external parties (25) 	Ability to learn via/with technology (23, 24)	
Self-Development	Budget (18, 19)	Ability to manage time (12)	Belief in self-development (11, 14, 20, 27, 29, 30)

The items were first formed as a five-point Likert-scale (ranging from "strongly disagree" to "strongly agree"). However, after the expert group's examination and discussions, another version of the instrument was developed in which items were transferred to question format with five alternatives for each question provided to the participants, similar to Chapnick's model (2000). For a number of the questions the following alternatives are presented: "None", "Just a few", "Half", "Almost all", and "All". These alternatives were placed in a way that responses could easily be coded into a five-point Likert-type where 1 indicated the lowest readiness while 5 the highest.

Additionally, a cover sheet that comprised definitions of e-learning, the directions, a description of the study, and an introduction to the researchers has been added to the instrument.

After these steps were completed, two versions of the instrument were introduced to a small group (6 persons) of high and mid level managers working in large scale private companies located in Eskisehir, the city where the researchers live and work. The participants were asked to evaluate the comprehension of the questions and alternatives, as well as their preferences of the versions (questions and alternatives version versus items and a 1-5 scale version). All managers mentioned the ease of responding to the questions and alternatives version. As a result, the questions and alternatives version of the instrument was used in the study.

Moreover, a discussion about the format of the instrument (paper-pencil versus online) was also held with the experts. Due to lack of Internet access among some companies a paper-pencil format was offered and accepted.

In order to help the managers (users of the instrument) of the companies surveyed an assessment model must be generated. As it has been mentioned before, the alternatives were designed in a way that provides easy coding and assessment for the users. The alternatives can easily be coded as 1, 2, 3, 4, and 5, as in a five-point Likert-type scale. Therefore, the 3.41 mean score can be identified as the expected level of readiness with the item, while other responses enable organizations to show higher or lower levels of readiness. The 3.41 mean average was determined after identifying the critical level: 4 intervals/5 categories = 0.8. As a result of this analysis, the levels of readiness were determined as depicted in Figure 1.

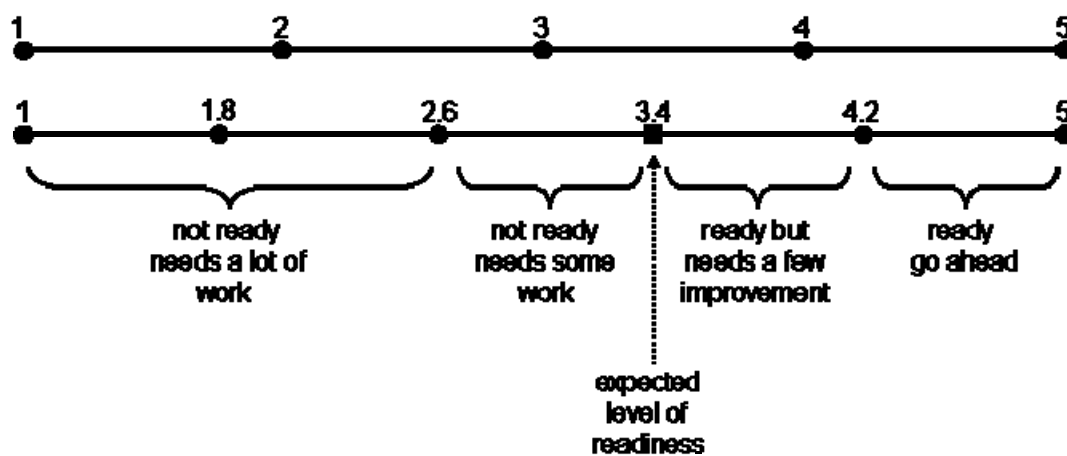


Figure 1. Assessment model of the e-LRS

Procedure

After having the survey instrument ready, the researchers of this study mailed it to the managers in the top 100 companies of Turkey at the 15th of March 2003. The managers were asked to send it back before 15th of May 2003. In other words, the study took place during March 15 – May 15, 2003. At the end of deadline 50 out of the top 100 companies responded to the survey.

Results and Discussions

The reporting of results and discussion is organized into three sections. The first section discusses the reliability of the survey instrument. The second section reports results for the first research question, "How do managers of the Turkish companies perceive their organizational readiness for e-learning?"; while the third section

summarizes results for the second research question, “Do managers’ demographic characteristics (gender, age, education, and computer experience) differentiate their perception of organizational readiness for e-learning?”

Reliability of Analysis of the Survey Instrument

Examination of the experts who have been providing training and consulting to the Turkish companies, literature and theoretical constructs, and the field test with the high and mid level managers of the companies located in Eskisehir were used to determine the content and construct validity of the survey instrument.

According to Cronbach’s Alpha analysis, the reliability of instrument was found overall to be quite high (0.92). Results of the analyses for each factor can be found in Tables 3-5. As can be observed from these tables, scales related to technology, people and self-innovation factors were quite reliable when compared to the innovation factor scale (0.45).

Managers’ Perception of Their Companies’ Readiness for e-Learning

The first research question concerned how the participant managers of the Turkish companies perceived their organizational readiness for e-learning. In order to decide whether or not companies in Turkey are ready for e-learning, the participants’ self reports were used.

Table 3 illustrates the overall mean score of the participants’ responses and the mean scores of items related to each factor. From the table it can be observed that the overall mean score is higher than the expected level of readiness ($M_o=3.69 > M_{elr}=3.41$). Based on this result, it can be inferred that companies in Turkey, within the limits of the companies surveyed, are overall ready for e-learning, although they need a few improvements.

Table 3. Statistics for each factor

Factor	N	M	SD
Technology	50	3.99	.61
Innovation	50	4.02	.54
People	50	3.07	.78
Self-Development	50	3.69	.63
<i>Overall</i>	<i>50</i>	<i>3.69</i>	<i>.53</i>

Mean scores for the factors can be used to identify the areas of improvement in the participant companies. First of all, the mean score for people, the only factor whose mean score is lower than the expected readiness level ($M_p=3.07 < M_{elr}=3.41$), shows that there is a lack of human resources in the companies. So, they definitely should improve their human resources.

Table 4. Statistics for the items related to people factor

Items	People	No of Items	N	M	SD	CA
Q1	What is the average education level of your employees?	6	50	2.60	.61	.79
Q21	Do you have experienced human resources, or personal, or training department that organize and evaluate trainings and help your employees about career development?			3.72	1.03	
Q22	Is there an employee (a e-learning champion) who can facilitate the acceptance and implementation of e-learning initiative in your company?			3.30	1.34	
Q23	Are majority of your employees experienced about technology-based/or assisted training (e.g. computer-based training, multimedia-based learning, video cassettes, etc)?			2.92	1.03	
Q24	Are majority of your human resources (or personnel			2.76	1.19	

	or training) department personnel experienced about technology-based/or assisted training (e.g. computer-based training, multimedia-based learning, video cassettes, etc)?					
Q25	Are there enough external e-learning vendors or specialists such as content experts, project managers, graphic artists, instructional designers, computer programmers that will help you to implement an e-learning project?			3.12	1.30	

Table 4 displays mean scores for the questions associated with the people factor. According to this table, companies in Turkey do not have enough employees and human resources personnel who are experienced in technology based training ($M_{Q23}=2.92$; $M_{Q24}=2.76 < M_{elr} =3.41$). Also, they have an e-learning champion shortage ($M_{Q22}=3.30 < M_{elr} =3.41$). The literature in change management confirms that past experiences and the existence of a champion can be influential as to whether or not an innovation is adopted. Therefore, it may be logical for companies in Turkey to start with simple technology-based trainings such as using video or computer-based instruction programs, and also to try to find someone who has the knowledge, skills, responsibility and authority to lead the organization toward adapting e-learning from inside or outside resources. In addition, the mean score for Question 25 is also lower than the expected level of readiness ($M_{Q25}=3.12 < M_{elr} =3.41$). This result can be interpreted one of two ways- either there are not enough e-learning vendors and/or consultants in Turkey, or companies are not aware of the external resources available to them.

Table 5. Statistics for the items related to self-development factor

Items	Self-Development	No of Items	N	M	SD	CA
Q11	Are your employees voluntarily joining the trainings?	9	50	4.14	.70	.84
Q12	Do you think your employees are able to spend a few time (15, 30 or 60 minutes) for improving themselves during any part of the day (morning, afternoon, evening, or night)?			3.56	.86	
Q14	Do your high and mid level managers believe that self-development of employees may strengthen the position of the company in the market?			4.28	.67	
Q18	Is it possible to create a budget for implementing e-learning in your company?			3.42	1.07	
Q19	Have you ever discussed that e-learning might be able to help the company achieve current or future goals and a budget should be arranged for an e-learning initiative?			2.92	1.44	
Q20	Do you think the organization of your company is appropriate for e-learning?			3.68	1.02	
Q27	Do the majority of your employees in human resources (or personnel or training) department believe that training may strengthen the position of the company in the market?			4.22	.93	
Q29	According to your instincts, do you think your company is ready for e-learning?			3.64	.85	
Q30	According to your instincts, do you think your employees are ready for e-learning?			3.34	.80	

Another area of improvement relates to the self-development factor. Its mean score, although higher than expected level of readiness, was the second lowest score among the factors. Table 5 provided the questions regarding this factor. As can be seen from this table, except the questions 19 and 30, the mean scores of all the questions were higher than the expected level of readiness. Question 19 ($M_{Q19}=2.92 < M_{elr} =3.41$) was related to discussing adopting e-learning and establishing a budget for it. This can be related to the results of the questions 22, 23 and 24. If the participant companies had experienced human resources departments and an early adopter (a champion) they could begin to think about implementing e-learning. Discussion about how e-learning can be beneficial for an organization can be regarded as a good starting point for adopting successful e-learning.

Question 30 ($M_{Q30}=3.34 < M_{elr}=3.41$) was about the participant managers' self-efficacy beliefs for their employees' readiness for e-learning. This can also be related to the lack of experienced human resources. The participant managers have expressed that their companies were overall ready for e-learning in the Question 29; but, the results for the Question 30 show that they did not feel that their employees were ready.

Table 6. Statistics for the items related to technology factor

Items	Technology	No of Items	N	M	SD	CA
Q2	Do your employees have access to computers to be able use individually at work?	11	50	3.88	.98	.89
Q3	Do your employees have access to Internet and/or Intranet at work?			3.64	1.05	
Q4	Do you think your employees are able to access Internet and/or Intranet outside the workplace (from home, Cafe, etc.)?			3.32	1.04	
Q5	Do your employees posses the basic computer skills (such as keyboarding, using mouse, creating, saving, editing files, etc.)?			4.08	.85	
Q6	Do your employees posses the basic Internet skills (such as e-mail, chat, list serve, surf, etc.)?			3.68	.99	
Q7	Are your employees able to read and learn, or follow the direction on a computer screen to accomplish a task?			4.02	.91	
Q8	Are the majority of your employees willingly using technology (computers) in routine/daily tasks?			4.18	.72	
Q9	Did the majority of your employees accept any technological innovation (e.g. start using digital documents instead of hard copies) in routine/daily tasks?			4.08	1.12	
Q13	Do your high and mid level managers think positively toward the technological interventions in daily/routine tasks?			4.38	.57	
Q16	Has any change that required the use of technology in daily/routine task been accepted by the majority of high and mid level managers?			4.18	.56	
Q17	How would you call your company in terms of investing on technology according to past experiences?			4.50	.65	

Additionally, Table 6 illustrates that the managers also think that their employees are not able to access Internet and/or Intranet outside the workplace, such as home or Cyber Café ($M_{Q4}=3.32 < M_{elr}=3.41$). One of the important benefits of e-learning is its capability of providing flexible training time and place. Access to computers and Internet might be challenging for an e-learning initiative. Bearing this in mind, e-learning adopters should take into consideration this critical issue and, perhaps at the beginning, offer varying access opportunities for their employees, such as encouraging them to use the computers at their workplaces during after hours or allowing them to borrow the company's computers during training.

Table 7. Statistics for the items related to innovation factor

Items	Innovation	No of Items	N	M	SD	CA
Q10	Did the majority of your employees accept any organizational change or any change in a daily task occurred in your company (e.g. start implementing total quality management, etc.)?	4	50	4.02	.71	.45
Q15	Has any organizational change (e.g. total quality management) been accepted by the majority of high and mid level managers?			3.90	.95	
Q26	Has your human resources (or personnel or training) department adapted the past changes easily?			3.96	.81	

Q28	Are there any internal or external politic or legal issues that might be barrier to the adoption of an innovation (such as e-learning)?			4.25	.72	
-----	---	--	--	------	-----	--

Nonetheless, Table 7 shows that respondent managers perceive their companies' levels of adapting innovations quite high.

Table 8. Statistics for resources, skills, and attitudes

Construct	N	M	SD
Resources	50	3.412	.64
Skills	50	3.56	.62
Attitudes	50	4.04	.53

Table 8 illustrates the mean scores of participants' responses for resources, skills, and attitudes that exist in their companies. The results reveal that companies are barely over the expected level of readiness in terms of resources they have ($M_r=3.412 < M_{er}=3.410$). As illustrated in Table 2, questions numbered 1, 2, 3, 4, 18, 19, 21, 22, 25, and 28 are considered under the resources category. Tables 3-7 shows that half of these questions (1, 4, 19, 22, and 25) have lower mean scores than the expected level of readiness ($M_{er}=3.41$). Among this half majority are related to the people, or human resources. This analysis also shows that the companies in Turkey need more educated employees, e-learning champions, and outside vendors, and resources.

Table 8 also indicates that companies are ready for e-learning in terms of skills but need to improve themselves in the area of human resources. As can be observed in tables 4-7, Questions 23 and 24 are the only items that have lower scores than the expected level of readiness and are related to people, or the human resources factor.

In addition, the results indicate that companies in Turkey are almost completely ready for e-learning in terms of attitudes. In this category, only the mean score for Question 30 (Table 5), concerning the participant managers' beliefs about readiness of their employees for e-learning, is lower than the expected level of readiness.

Briefly, the results of this study reveal that the participant companies in Turkey are, overall, ready for e-learning, but they need to improve their human resources in order to launch effective, efficient, and attractive e-learning projects.

The lack of effective human resources departments can easily be associated with the current status of human resources educational programs in Turkey. Currently, there is no program focusing on human resources development in Turkey. Until 2001, there was a unique program called the Educational Communications and Planning in School of Communication Sciences of the Anadolu University. The program concentrated on adult education and included three emphasis areas, one of which was human resources development. Most of its graduates were employed in human resources departments of private and public sector companies. According to legislative changes, the program administrators had to change its name and the curriculum. Its emphasis shifted to communication studies. However, several selective courses on human resources development have been kept in the curriculum. In addition, other programs in Turkey, such as those in business management and industrial engineering, include courses on human resources development. Similarly, some graduate level programs in education deal with adult education and in-service training.

Human resources development is considered to be under the management and industrial engineering fields as most companies employ graduates of these programs. According to the data gathered in this study, for example, only 1 participant has a degree in education while 14 have in business management and finance, 15 in engineering, and 13 in varying fields such as law, pharmacy, and statistics (7 participants did not responded to this question).

Relationship between Managers' Demographic Characteristics and Their Perception of Readiness

The second question of the study examines the *differences* that occur in the overall score for e-learning readiness due to *respondent managers' demographic characteristics* such as gender, age, education level, and computer experience. An independent sample t-test analysis has been conducted to see if *gender* makes any difference in

the participant managers' perception about their companies' readiness for e-learning. The results of this analysis are summarized in Table 9. According to the results, although females' mean score is ($M_f=3.81$) higher than males' score ($M_m=3.69$), the difference between female and male scores is not statistically significant.

Table 9. t-test results for gender

Gender	N	M	SD	Df	Sig. (2-Tailed)
Female	12	3.81	.39	48	.50
Male	38	3.69	.58		

A series of one-way between-groups analyses of variance (ANOVA) were performed to observe if the overall responses of the participant managers differ according to their age groups, education levels and computer experiences. There was no significant effect of the age groups, education levels, and computer experiences on overall scores.

Conclusions and Recommendations

This descriptive study using survey data indicates that the companies surveyed, are, overall, ready for e-learning, but they need to improve themselves, particularly in the area of human resources, in order to be able to successfully implement e-learning. Moreover, the study confirmed that the personal characteristics (gender, age, education level, and computer experience) of the participant managers have no effect on their overall perception for the organizational readiness.

According to Rogers (2003), an early adopter's existence, past experiences and education level may be influential on the adoption of an innovation. It stands to reason that, at least in the short run, companies in Turkey should try to find people who are experienced in e-learning and then support them in their efforts to diffuse the innovation in their organizations. Moreover, Turkish companies should start using at least basic technologies, such as videocassettes, for training so that their employees and human resources department staff can have experience in learning from/with technology. It is also recommended that companies should try to employ people who have more years of formal education, and encourage and provide opportunity to their current employees for further education. In the long run, companies should collaborate with higher education institutions to develop specialized human resources development degree and certificate programs, with the end result that they will have more experienced and capable human resources departments. This type of collaboration may also result in building a scientific body of knowledge that would guide human resources development in Turkey.

On the other hand, the researchers do not claim that the factors and the questions used in this survey instrument are ultimate factors and questions for assessing e-learning in an organization. More factors and questions can easily be added or subtracted (i.e., the researchers first came up with 83 questions and later decreased those to 30). However, the questions provided in this instrument represent some of the significant issues organizations face when adopting e-learning as found in other instruments in the literature. Managers of Turkish companies as well as manager in different countries can, therefore, regard this survey instrument as a starting point for discussing the effectiveness of e-learning in their organization and the improvements needed to launch and maintain a successful e-learning initiative.

The researchers also believe that conducting the survey instrument with more than one manager of a company might provide more reliable and verifiable data on its e-learning readiness since this assessment model relies on the self-reported perceptions of users. For instance, it can be carried out with managers and employees from different departments; and then, the results of these assessments can be analyzed. Such a use of the survey instrument might result in more accurate insights about important issues regarding a company's readiness.

It is also suggested by the researchers that several methods can be employed to assess the reliability and validity of this survey instrument. For instance, the researchers are in the process of conducting a case study with one of the companies who participated in the survey. The researchers expect to gather qualitative and quantitative data on the factors identified for the assessment of organizational readiness for e-learning. Additionally, a factor analysis of the survey instrument might also be beneficial if the required participant size can be achieved.

References

- Anderson, T. (2002). Is e-learning right for your organization? *Learning Circuits: ASTD's Online Magazine All About E-Learning*, Retrieved July 25, 2005, from, <http://www.learningcircuits.org/2002/jan2002/anderson.html>.
- Barron, T. (2002). Evolving business models in e-learning: Summary white paper. *A Learning on Demand (LoD) Report*, Retrieved on retrieved July 25, 2005, from, <http://www.sric-bi.com/LoD/summaries/EvolvBizModelsSum.pdf>.
- Bean, M. (2003). Are you ready for e-learning? Assessing e-learning readiness. *MediaPro Newsletter: Tips and tricks of the trade*, Retrieved July 25, 2005, from, <http://www.mediapro.com/html/resources/news1-vol5-01.htm>.
- Bonk, C. J. (2002). *Online training in an online world*, Bloomington, IN: CourseShare.com.
- Brown, R. E. (2001). The process of community-building in distance learning classes. *Asynchronous Learning Network*, 5 (2), Retrieved July 25, 2005, from, http://www.aln.org/publications/jaln/v5n2/v5n2_brown.asp.
- BTVizyon (2002). Interview with Hakki Sevand. *BTVizyon*, Retrieved July 25, 2005, from, http://www.btvizyon.com.tr/viz_dergi_dosya.phtml?konu_dosya_nox=151&kulakcik_nox=3.
- Broadbent, B. (2001). *Tips to help decide if your organization is ready for e-learning*, Retrieved July 25, 2005, from, <http://icde.net/en/arshive/articles/012.htm>.
- Carnell, M., & Shank, S. (2003). *The champion's role in successful six sigma deployments*, Retrieved July 25, 2005, from, <http://www.isixsigma.com/library/content/c020422a.asp>.
- Chapnick, S. (2000). Are you ready for e-learning? *Learning Circuits: ASTD's Online Magazine All About E-Learning*, Retrieved July 25, 2005, from, <http://www.learningcircuits.org/2000/nov2000/Chapnick.htm>.
- Clark, R. C., & Mayer, R. E. (2003). *e-Learning and the science of instruction: Proven guidelines for customers and designers of multimedia learning*, San Francisco, CA: Pfeiffer.
- Commission on Technology and Adult Learning (2001). *A vision of e-learning for America's workforce*, Retrieved on July 25, 2005, from, <http://www.nga.org/cda/files/ELEARNINGREPORT.pdf>.
- DeVellis, R. F. (2003). *Scale development: Theory and application* (2nd Ed.), Applied Social Research Methods Series, 26, Thousand Oaks, CA: Sage.
- Gilley, J. W., Egglund, S. A., & Gilley, A. M. (2002). *Principles of human resource development* (2nd Ed.), Cambridge, MA: Perseus.
- Gold, A., Malhotra, A., & Segars, A. H. (2001) Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18 (1), 185-214.
- Gilbert, S., & Jones, S.(2001). E-learning is e-normous: Training over the Internet has become the fastest growing workplace performance improvement tool and utilities are using it in several ways. *Electric Perspectives*, 26 (3), 66-82.
- Guglielmino, P. J., & Guglielmino, L. M. (2003). Are your learners ready for e-learning? In G. M. Piskurich (Ed.), *The AMA handbook of e-learning: Effective design, implementation, and technology solutions*, New York: AMACOM, 87-98.
- Gunawardena, C. N., Nolla, A. C., Wilson, P. L., Lopez-Islas, J. R., Ramirez-Angel, N., & Megchun-Alpizar, M. (2001). A cross-cultural study of group process and development in online conferences. *Distance Education*, 22 (1), 85-121.
- Haney, D. (2002). Assessing organizational readiness for e-learning: 70 questions to ask. *Performance Improvement*, 41 (4), 8-13.

- Hofstede, G. (2001). *Cultural consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd Ed.), Thousand Oaks, CA: Sage.
- ICI (2002). *500 Major Industrial Enterprises of Turkey 2001*, Retrieved July 25, 2005, from, <http://www.iso.org.tr>.
- Jacobs, R. L., & Washington, C. (2003). Employee development and organizational performance: a review of literature and directions for future research. *Human Resource Development International*, 6 (3), 343-354.
- Kavrakoglu, I. (March 2002). Türkiye'de e-learning [e-Learning in Turkey], *Globus*, 3 (3), 86-87.
- Khan, B. H. (2001). *Web-based training*, Englewood Cliffs, NJ: Educational Technology.
- Koska, M. T. (1992). CEOs say hospitals must learn from each other for TQM success. *Hospitals*, 66 (12), 42-45.
- Le Boterf, G. (1994). *De la competence, essai sur un attracteur etrange*, Paris: Les editions d'organisation.
- Massy, J., Harrison, T., & Ward, T. (2002). *The European e-learning market: Summary report 2002*, Retrieved July 25, 2005, from, <http://www.elearningage.co.uk/docs/Report2Summary.pdf>.
- McIsaac, M. S. (2002). The Internet, culture and community building. In D. Murphy, N. Shin & W. Zhang (Eds.), *Advancing Online Learning in Asia*, Hong Kong: The Open University of Hong Kong, 16-25.
- Minton, M. C. (2000). Is your organization ready for e-learning? Seven key questions you need to answer. *Communication Project Magazine*, 3 (1), Retrieved July 25, 2005, from, <http://www.comproj.com/Minton.htm>.
- Oliver, R., & Towers, S. (2000). *Up time: Information communication technology: Literacy and access for tertiary students in Australia*, Canberra: Department of Education, Training and Youth Affairs.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th Ed.), New York, NY: Free.
- Rosen, L. D., & Weil, M. M. (1998). How user psychology makes technology projects fail. *HDSaware!* Retrieved July 25, 2005, from, http://www.azcreative.com/proto2/archived/vol1/columns/weil-rosen0998_1.html.
- Rosenberg, M. J. (2000). *The e-learning readiness survey: 20 key strategic questions you and your organization must answer about the sustainability of your e-learning efforts*, Retrieved July 25, 2005, from, http://www.ucalgary.ca/~srmccaus/eLearning_Survey.pdf.
- Shea-Shultz, H., & Fogarty, J. (2002) *Online learning today: Strategies that work*, San Francisco, CA: Berrett-Koehler.
- Sim, C. (2001). eLearning in the Asia/Pacific: Barriers and accelerators. *Report number AP-AP22901H*, Singapore: International Data Cooperation (IDC).
- Swanson, R. A. (2001). *Foundations of human resource development*, San Francisco, CA: Berrett-Koehler.
- Telepati (2003). Türkiye'nin geleceği e-egitimde [the future of Turkey is in e-education], *Telepati 91*, Retrieved July 25, 2005, from, <http://www.telepati.com/nisan03/konu23.htm>.