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Assessing E-learning Readiness of Instructors in Turkey

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ABSTRACT

As more and more universities worldwide have been offering e-learning environments for their course and program delivery, researches in e-learning subjects are interested to examine whether instructors are ready for the new e-learning environment. E-learning readiness (e-readiness) is a critical component in evaluating the effectiveness of online course delivery at the institutional and the instructor level. E-readiness is already well covered in the literature and several models are suggested. This study aims to measure e-learning readiness of instructors in Turkey. Based on the existing e-learning readiness assessment models in literature, the authors designed e-learning readiness measurement instrument. This research study adopted a survey method to conduct the study of e-learning readiness of instructors in various universities in Turkey. A questionnaire was sent to 144 instructors during January 2014 – March 2014. All items were measured on a five-point Likert scale, with 5 as strongly agree and 1 as strongly disagree. 144 were completed and returned are found valid. Descriptive statistics, one-way analysis of variance (ANOVA), Independent-Samples T Test, and multinomial logistic regression will be applied to analyze the data. Data has been collected from 144 instructors across several universities in Turkey using a questionnaire survey instrument. The preliminary findings suggest that although instructors have been using electronic gadgets for their day-to-day activities and have been comfortable in using technology, however, they have a lack of awareness in using various technology tools that can help the instructor improve engagement and learning. Although universities have made investments in e-learning environment of one or the other kinds, however, majority of instructors are still at the initial stage of employing e-learning in their daily teaching and learning activities. The instructors also lack the requisite formal training for e-learning thus affecting their e-readiness. It seems that universities needs to invest more in training instructors on a continuous basis so that instructors are well versed with state-of-art instructional tools to bring pedagogical innovations in their e-learning instructions. The low e-readiness of instructors in Turkey could impact the quality of delivery of online programs.

Keywords: E-learning, e-learning readiness, e-readiness, instructors, learning style.

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1. Introduction

Today it can be clearly seen that there is a high demand for e-learning from different sectors such as education, health, finance, etc. According to Docebo (2014), the worldwide market for self-paced e-learning reached $35,6 billion in 2011 and related to compound annual growth rate revenues should reach some $51,5 billion by 2016. From learners and organizations (both educational institutions and other organizations in public and private sector) perspective, basically there are three reasons for preferring e-learning: Time, cost and effort saving. Moreover, e-learning differs from traditional environment because ICT is being used as tools to support the learning process (Wan, Wang, & Haggerty, 2008). Table 1 shows Economist Intelligent Unit e-readiness rankings and scores of some countries according to 2009 (Unit, 2009). Criteria of the ranking model are categorized by six main categories (Percentages indicate their weights in overall score):

1. Connectivity and technology infrastructure (20%)
2. Business environment (15%)
3. Social and cultural environment (15%)
4. Legal environment (10%)
5. Government policy and vision (15%)
6. Consumer and business adoption (25%)

Although the rank of Turkey is same for both 2008 and 2009, 2009 score of Turkey is less than 2008. Denmark, Sweden and Netherland take place on the top of the table and the least score belongs to Azerbaijan.

Table 1: Economist Intelligent Unit e-readiness rankings and scores (Unit, 2009)

2009 rank (of 70)	2008 rank	Country	2009 score (of 10)	2008 score
1	5	Denmark	8,87	8,83
2	3	Sweden	8,67	8,86
3	7	Netherlands	8,64	8,85
43	43	Turkey	5,34	5,64
69	66	Kazakhstan	3,31	3,89
70	69	Azerbaijan	2,97	3,29

Especially in higher education e-learning is little bit more critical than others, because essential responsibility of a university is education. Furthermore, on one hand there are so many universities (approximate number of universities is 200 only in Turkey) and on the other hand every university, every academic and administrative staff of the university and finally every student of the university has a different profile and background. Adapting e-learning is not easy enough and it is clear to see that there is not any standard rule to be successful in this process. Therefore, not only implementing e-learning but also determining whether the organization is ready or not for e-learning is an important research area for all organizations.

Readiness for e-learning is defined as "*mental or physical preparedness for that organization for some e-Learning experience or action*" (Akaslan & Law, 2011; Lopes, 2007). Another e-learning readiness definition according to Lopes (2007) is "*the ability of an organization or individual to take advantage of e-learning*". To determine e-learning readiness of a university, academic staff and students should be considered first. In this regard, the goal of the study is assessing e-learning readiness of instructors in Turkey. First research background is examined. Then, details of e-learning readiness measurement instrument which is based on the existing e-learning readiness assessment models in literature is developed. Data is collected with an online questionnaire from 144 instructors. Descriptive statistics, one-way analysis of variance (ANOVA), Independent-Samples T Test, and multinomial logistic regression will be applied to analyze the data. Results and findings are shared at the end of the study.

2. Research Background

In literature many of the studies collected data with a questionnaire and tried to create a model for assessment of e-learning readiness. Participants of the questionnaires are usually academic stuff/teachers/instructors, students/learners, administrative stuff and managers. Generally studies tried to reflect the general situation in a country, a university or a company. Main purpose of this study is determine whether instructors is ready or not for e-learning. So priority is given to studies which takes opinions of academic stuff/teachers/instructors.

A questionnaire has prepared by So & Swatman (2006) to evaluate the e-learning readiness in schools of Hong Kong. Their results show that schools in Hong Kong are at the beginning point of using e-learning for daily teaching and learning activities. Agboola (2006) has conducted "E-Learning Readiness Survey" questionnaire and collected data from Deans or Heads of department in each Kulliyyah of International Islamic University Malaysia. His results show that only gender, e-learning confidence and e-learning training (with the highest beta value) predictors are statistically significant. According to study (Sadik, 2007) which tries to find out the readiness of academic staff at South Valley University in Egypt in order to develop and implement e-learning in their teaching, most of the survey participants feel themselves not enough and not much experienced for e-learning. Çobanoğlu, Ateş, İliç, & Yılmaz (2009) have tried to investigate prospective computer teachers' perceptions on e-learning. Keramati, Afshari-Mofrad, & Kamrani (2011) have obtained data from high school teachers in Tehran. At the end of their survey, it's found that organizational readiness factors have the most important effect on e-learning outcomes. Soydal, Alır, & Ünal (2011) have examined e-learning readiness of academic stuff in Hacettepe University Faculty of Letters. For this purpose a questionnaire is conducted. Findings show that title is a significant factor for e-learning readiness and also in general, the staff does not seem to be ready for the e-learning environment.

E-learning readiness for 100 companies is examined by (Aydın & Tasci, 2005). One of their results indicates that companies are ready for e-learning however they need self-improvement especially in human resources to implement e-learning successfully. Saekow & Samson (2011)

has collected data from executives, deans and technicians and their results shows that e-learning adoption in Thailand needs support from both the public and private sectors to be successful. To measure readiness of an e-learner, Watkins, Leigh, & Triner (2004) defined an instrument with cooperation of volunteer participants from the U.S. Coast Guard. The following skills are stated as a need to assess readiness for e-learning by (Haney, 2002):

- orchestrating change management,
- examining multiple aspects of a situation,
- generating cost-benefit analyses for alternative solutions, and
- identifying political problems are all part of our skill set.

3. Research Methodology

This section is consisted of two sub-sections. Information of data collection and reliability analysis are given in this section.

3.1. Data Collection

Data is gathered with a questionnaire which has 26 questions from instructors by using Google Forms during January 2014 – March 2014. 144 respondents answer research questionnaire. The sample consists of instructors at Okan University, Akdeniz University and mostly Istanbul University in Turkey. 20 items were measured on a five-point Likert scale (1=Strongly Disagree to 5= Strongly Agree) (Table 4). Demographic characteristics of participants such as age, gender, title, university are also collected. Data analysis is performed with IBM SPSS Statistics 22.

3.2. Reliability Analysis

For reliability analysis of the questionnaire, Cronbach's alpha is calculated. At first 20 Likert scaled questions are analyzed and Cronbach's alpha is obtained equal to 0,805 and all questions have an alpha value greater than 0,7. However, Cronbach's Alpha if Item Deleted column is examined and two of questions (Q14 and Q18) are removed because their Cronbach's Alpha values were greater than 0,805. Finally reliability

test is repeated with remaining 18 Likert scaled questions and final Cronbach's Alpha is found equal to 0,826 (Table 2) and it is obvious that the questionnaire is quite reliable.

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
,826	18

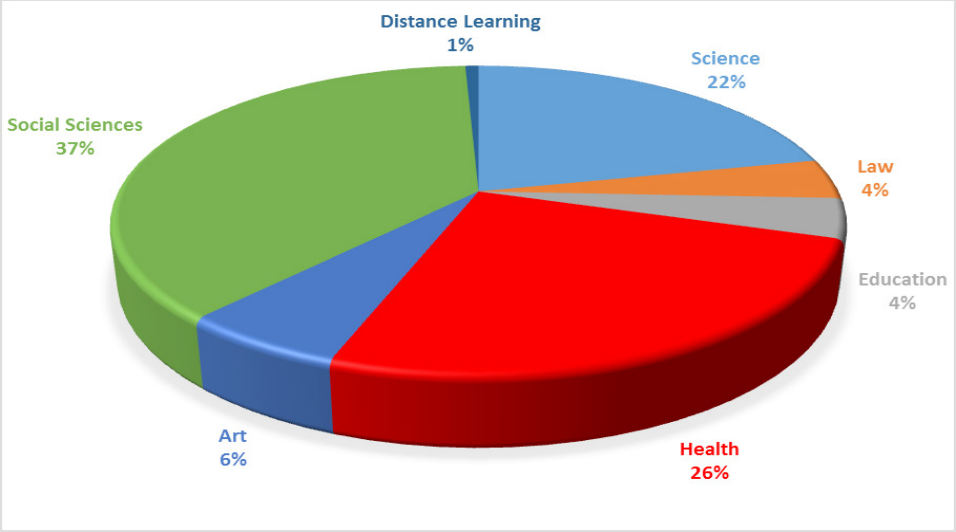
The result for demographic profile by the respondent comprises that 46,53% are male (67 participants) and 53,47% are female (77 participants). Table 3 shows title distribution of participants.

Table 3: Title distribution of instructors

Title	Count	Percentage
Research Assistant	27	18,75
Assoc.Prof.	25	17,36
Lecturer	13	9,03
Teaching Assistant	22	15,28
Prof.	33	22,92
Assist. Prof.	24	16,67
Total:	**144**	**100**

University, faculty and department information are collected and instructors are divided into 7 groups: Education, Science, Health, Law, Art, Social Sciences, and Distance Learning.

Figure 1: Main research groups of instructors



20 questions which are asked to instructors to assess their e-learning readiness and approximate percentages of responses are given in below (Table 4).

Table 4: 20 questions of the questionnaire

Questions		Percentage (%)				
		Strongly Disagree	**Disagree**	**Have No Idea**	**Agree**	**Strongly Agree**
Q1	I am good at using computer/internet	2,08	5,56	2,78	35,42	54,17
Q2	I use my smart phone to communicate with my students outside classroom	21,53	22,92	2,78	26,39	26,39
Q3	I use social media for my courses	11,81	18,75	9,72	39,58	20,14
Q4	I have students which live in different cities/countries	17,36	17,36	10,42	29,17	25,69
Q5	I answer student questions by e-mail	7,64	5,56	1,39	27,78	57,64
Q6	I have joined a video conference before	29,86	21,53	9,72	15,97	22,92
Q7	I have attended a smart board course as learner	47,22	22,22	8,33	12,50	9,72
Q8	I have used smart board before	47,92	23,61	9,72	6,94	11,81
Q9	I have attended an online course before as learner	29,86	17,36	6,94	15,97	29,86
Q10	My university has required IT infrastructure for e-learning	7,64	17,36	38,89	20,83	15,28
Q11	My university has enough budget for e-learning	4,86	11,11	51,39	16,67	15,97
Q12	I want to share my lecture notes electronically	9,03	15,28	11,11	35,42	29,17
Q13	I prefer online exams because they are time saver and secure	17,36	22,22	27,78	20,83	11,81
Q14	E-learning course content has difference with face to face course content	4,17	10,42	17,36	34,03	34,03
Q15	E-learning is better than face to face learning	34,72	34,72	20,83	6,25	3,47
Q16	My courses are appropriate for e-learning	14,58	23,61	26,39	22,92	12,50
Q17	My students have enough IT skills for e-learning	9,03	15,97	48,61	19,44	6,94
Q18	My students prefer e-learning instead of face to face learning	15,97	21,53	43,06	12,50	6,94
Q19	I have a good e-learning background	16,67	29,17	25,00	18,75	10,42
Q20	I am ready to integrate my courses to e-learning	17,36	20,83	22,22	26,39	13,19

The multinomial logistic regression is used to determine the effect of sex and *attending an online course before as learner* (Q9) (independent

variables) on *being ready to integrate their courses to e-learning* (Q20) (dependent variable). In this study, there are two statistically significant relationships:

- Between sex and "being ready to integrate my courses to e-learning" (0,009 < 0,05),
- Between *attending an online course before as learner* (Q9) and *being ready to integrate my courses to e-learning* (0,002 < 0,05) (Table 5).

Sex plays a statistically significant role in differentiating:

- strongly disagree group from the strongly agree (reference) group (0,002 < 0,05),
- disagree group from the strongly agree (reference) group (0,019 < 0,05),
- having no idea group from the strongly agree (reference) group (0,002 < 0,05),
- agree group from the strongly agree (reference) group (0,006 < 0,05) (Table 6).

Attending an online course before as learner plays a statistically significant role in differentiating the groups which is shown on Table 6. Survey respondents who were male were less likely to be in the group of survey respondents who is strongly disagree with Q9 (*I have attended an online course before as learner*) on Q20 (*I am ready to integrate my courses to e-learning*), rather than the group of survey respondents who is strongly agree on Q20. Survey respondents who were male were 88,5% less likely (0,094 – 1,0 = -0,006) to be in the group of survey respondents who is strongly disagree on Q20.

Table 5: Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	Df	Sig.
Intercept	96,563[a]	,000	0	.
Sex	110,108	13,545	4	,009
Q9	133,622	37,059	16	,002

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.
This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 6: Parameter Estimates

Q20[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Strongly Disagree	Intercept	-,317	,776	,167	1	,682			
	[Sex=Male]	-2,366	,755	9,812	1	,002	,094	,021	,412
	[Sex=Female]	0[b]	.	.	0	.	.	.	.
	[Q9=Strongly Disagree]	3,136	1,063	8,703	1	,003	23,006	2,865	184,762
	[Q9=Disagree]	3,935	1,275	9,520	1	,002	51,146	4,201	622,755
	[Q9=No idea]	3,199	1,384	5,341	1	,021	24,502	1,626	369,277
	[Q9=Agree]	3,266	1,084	9,076	1	,003	26,215	3,131	219,501
	[Q9=Strongly Agree]	0[b]	.	.	0	.	.	.	.

Disagree	Intercept	,593	,629	,891	1	,345			
	[Sex=Male]	-1,711	,731	5,480	1	,019	,181	,043	,757
	[Sex=Female]	0[b]	.	.	0	.	.	.	.
	[Q9=Strongly Disagree]	,489	1,116	,192	1	,661	1,631	,183	14,522
	[Q9=Disagree]	2,947	1,158	6,478	1	,011	19,042	1,969	184,149
	[Q9=No idea]	,801	1,507	,283	1	,595	2,228	,116	42,749
	[Q9=Agree]	1,153	1,042	1,224	1	,269	3,167	,411	24,399
	[Q9=Strongly Agree]	0[b]	.	.	0	.	.	.	.
No idea	Intercept	,168	,685	,060	1	,807			
	[Sex=Male]	-2,256	,741	9,274	1	,002	,105	,025	,448
	[Sex=Female]	0[b]	.	.	0	.	.	.	.
	[Q9=Strongly Disagree]	2,500	1,001	6,244	1	,012	12,189	1,715	86,644
	[Q9=Disagree]	3,892	1,200	10,521	1	,001	49,003	4,665	514,690
	[Q9=No idea]	2,656	1,328	3,998	1	,046	14,233	1,054	192,260
	[Q9=Agree]	1,882	1,103	2,912	1	,088	6,563	,756	56,972
	[Q9=Strongly Agree]	0[b]	.	.	0	.	.	.	.
Agree	Intercept	1,021	,592	2,980	1	,084			
	[Sex=Male]	-1,890	,693	7,435	1	,006	,151	,039	,588
	[Sex=Female]	0[b]	.	.	0	.	.	.	.
	[Q9=Strongly Disagree]	,827	,986	,704	1	,402	2,287	,331	15,813
	[Q9=Disagree]	2,707	1,142	5,621	1	,018	14,980	1,599	140,365
	[Q9=No idea]	1,183	1,323	,799	1	,371	3,263	,244	43,625
	[Q9=Agree]	1,813	,924	3,851	1	,050	6,130	1,002	37,491
	[Q9=Strongly Agree]	0[b]	.	.	0	.	.	.	.

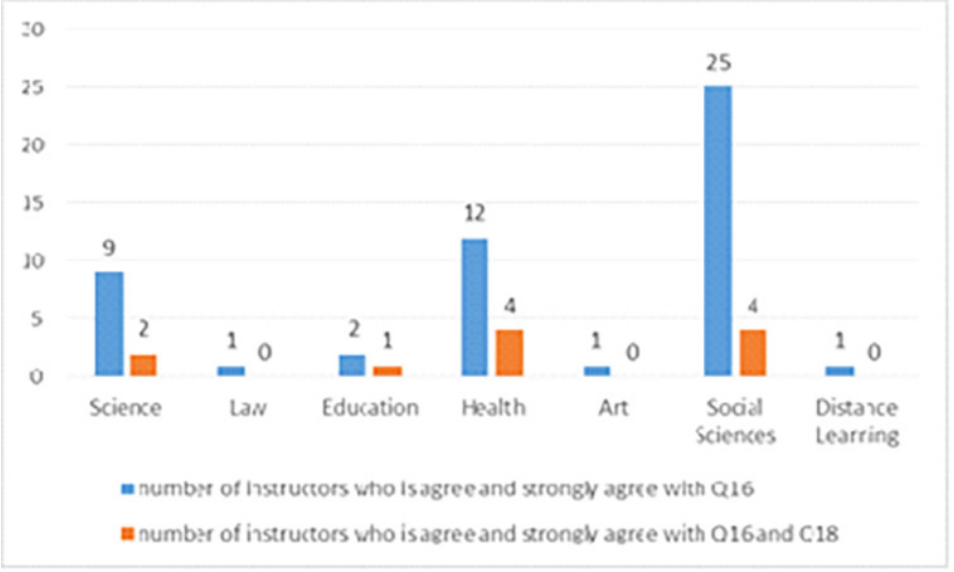
a. The reference category is: Strongly Agree.

b. This parameter is set to zero because it is redundant.

Also you can see the distribution of participants who is agree and strongly agree only Q16 (*My courses are appropriate for e-learning*) (Figure 2, blue bar) and both Q16 and Q18 (*My students prefer e-learning*

instead of face to face learning) (Figure 2, orange bar) according to their research areas (Figure 2).

Figure 2: Analysis of Q16 and Q18 with research area



On one hand, there is no statistically significance between age and questions from Q1 to Q20 according to ANOVA. Namely, there is no relation between age and questions from Q1 to Q20. On the other hand, as Table 8 shows the results of the Independent-Samples T Test which compares sex and Q19 (*I have a good e-learning background*), there is obvious to see that in both *Equal variances assumed* and *Equal variances not assumed* cases the Sig. (2-tailed) < 0,05. Therefore, female and male instructors think different about having a good e-learning background. Also if we look at Table 7 we can say that male instructors have better e-learning background than female instructors.

Table 7: Group Statistics

	sex	N	Mean	Std. Deviation	Std. Error Mean
Q19	Male	67	3,07	1,341	,164
	Female	77	2,51	1,071	,122

Table 8: Independent-Samples T Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Q19	Equal variances assumed	4,902	,028	2,824	142	,005	,568	,201	,170	,966
	Equal variances not assumed			2,781	125,959	,006	,568	,204	,164	,972

4. Discussion and Conclusion

The main purpose of this study is measuring e-learning readiness of instructors in Turkey. Based on the existing e-learning readiness assessment models in literature, the authors designed e-learning readiness measurement instrument. This research study adopted a survey method to conduct the study of e-learning readiness of instructors in various universities in Turkey.

As responses of Q1 (*I am good at using computer/internet*), Q2 (*I use my smart phone to communicate with my students outside classroom*) and Q3 (*I use social media for my courses*) show us that 54 instructors (37,5%) have been using electronic gadgets for their day-to-day activities and have been comfortable in using technology. Number of instructors who is agree and strongly agree with Q10 (*My university has required IT infrastructure for e-learning*) is 52 (36,11%). Moreover, only 53,85% of them feel themselves ready to integrate their courses to e-learning. In this regard

we can say that when the instructors are aware of IT infrastructure of their universities, they think they can adapt their courses to the e-learning, too. It may give them confidence.

46 instructors (69,7%), who is disagree and strongly disagree with Q19 (*I have a good e-learning background*), *aware of the difference between e-learning course content and face to face course content* (Q14). This finding is a surprising result, because if the instructor has not enough knowledge about e-learning, it is expected that the instructor cannot be aware of the difference between e-learning and face to face learning course content.

The instructors also lack the requisite formal training for e-learning thus affecting their e-readiness. It seems that universities needs to invest more in training instructors on a continuous basis so that instructors are well versed with state-of-art instructional tools to bring pedagogical innovations in their e-learning instructions. The low e-readiness of instructors in Turkey could impact the quality of delivery of online programs.

Number of participants who agree and strongly agree with Q6 (*I have joined a video conference before*), Q8 (*I have used smart board before*) and Q9 (*I have attended an online course before as learner*) is 13 (1,4%) in total. Instructors have a lack of awareness in using various technology tools that can help the instructor improve engagement and learning. Although universities have made investments in e-learning environment of one or the other kinds, however, majority of instructors are still at the initial stage of employing e-learning in their daily teaching and learning activities.

Furthermore, male instructors who have joined a video conference before attended a smart board course as learner and have used smart board before double female instructors. Therefore this finding supports result of our Independent-Sample T Test which states that male instructors have better e-learning background than female instructors.

Findings suggest that although instructors have been using electronic gadgets for their day-to-day activities and have been comfortable in using technology, however, they have a lack of awareness in using various technology tools that can help the instructor improve engagement and learning. Although universities have made investments in e-learning environment of one or the other kinds, however, majority of instructors are

still at the initial stage of employing e-learning in their daily teaching and learning activities. The instructors also lack the requisite formal training for e-learning thus affecting their e-readiness. It seems that universities needs to invest more in training instructors on a continuous basis so that instructors are well versed with state-of-art instructional tools to bring pedagogical innovations in their e-learning instructions. The low e-readiness of instructors in Turkey could impact the quality of delivery of online programs.

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