

Investigation Of Effect Of E-Learning Readiness Levels Of Academic Staff On Those Of Universities

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Abstract

Many universities today invest in e-learning programmes and train their employees for it. Despite these efforts, universities have not gained satisfactory results from such initiatives. Although there are many reasons for this failure, e-learning readiness is one that stands out. The e-learning readiness of university students has been comprehensively studied, but almost no research has been conducted to investigate that of universities and academic staff. So far, it has been understood that without an appropriate level of e-learning readiness, staff and universities are almost doomed to fail in this endeavour. Therefore, this study aims to examine how e-learning readiness levels of academic staff influences those of universities. A total of 96 academic staff members comprised the participants of this study. Two different scales were used, one of which was developed by the researchers and administered to academic staff to measure the e-learning readiness levels of both academic staff and universities. The results revealed two statistically significant findings. To start with, it was revealed that self-confidence had a positive and statistically significant impact on e-learning in terms of resource support. Moreover, it was seen that educational needs towards e-learning had a negative and statistically significant impact on the same factor. Further findings and implications are also discussed in the paper.

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

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INTRODUCTION

It is well known that e-learning is one of the most common methods of content delivery due to the unique advantages such as ubiquitous learning. Benefits of e-learning are not only for students but also academic staff and institutions. However, those involved in the implementation of e-learning have seen a number of problems arise such as high drop-out rates. (Dray, Lowenthal, Miskiewicz, Ruiz-Primo, & Marczynski, 2011; Park, & Choi, 2009). Although the failures of e-learning could be attributed to numerous related factors, one in particular has become prominent over the course of time. A number of scholars have criticised administrators for initiating e-learning practices without appropriately preparing stakeholders, highlighting the significance of the construct of e-learning readiness (Demir, & Yurdugül, 2015; Hung, Chou, Chen, & Own, 2010).

It is understood from the related literature that e-learning readiness is a relatively new phenomenon when considering the root of e-learning itself. As far as the researchers could ascertain, the very first study that posited the construct of e-learning readiness was conducted by Warner, Christie and Choy (1998). After this paper, the quantity of research focusing on this construct increased, and it began to be constructed from numerous different viewpoints. As for the construct of academic staff members' e-learning readiness, there are a wide range of viewpoints in the related literature as to which component the construct contains (Akaslan, & Law, 2011; Eslaminejad, Masood, & Ngah, 2010; Mercado, 2008). In this study, Akaslan and Law's (2011) viewpoint was generally adopted. Therefore, the following four factors were used to measure (1) self-efficacy of usage towards ICT (Information and Communication Technologies), (2) self-confidence in e-learning, (3) attitude towards e-learning and (4) educational needs towards e-learning. Prior to discussion, the researchers decided it would be beneficial to shed some light on the meanings of the abovementioned factors. First, self-efficacy of usage towards ICT refers to the degree to which one believes in his/her ability to use basic computer programs and internet tools. Second, self-confidence in e-learning refers to one's perception pertaining to having more advanced e-learning-related abilities and knowledge such as using learning/content management systems and software and to create e-learning material. Third, attitude towards e-learning indicates one's reactions towards e-learning, intention to use it and opinion on whether it is beneficial. Last but not least, educational needs towards e-learning readiness relate to one's perception of his/her educational requirements in e-learning along with one's colleagues' needs.

With regard to construct of e-learning readiness for universities, Mercado's (2008) viewpoint was adopted, although several other opinions exist on the matter (Aydın, & Tasci, 2005; Azimi, 2013; Darab, & Montazer, 2011). According to Mercado (2008), the construct of e-learning readiness for universities comprised administrative and resource support factors. As was previously done for the construct of e-learning readiness of academic staff, it is also considered beneficial to clarify the underlying meanings of the related factors. First, the factor of administrative support includes one's perception of the level of commitment by management to implement e-learning, compatibility with the universities' existing regulations, policies and purposes with implementation of e-learning and adequateness of existing in-service training provided by universities. Second, the factor of resource support comprises one's perception regarding adequateness of universities' financial capabilities and their intention to allocate this capability to e-learning, adequateness of their human resources, who can solve the problems that may emerge during the implementation of e-learning and their willingness to direct human resources towards e-learning. Finally, the factor of adequateness of technical infrastructure comprises elements such as necessary hardware, software, learning/content management systems and internet speed and stability.

It is generally reported that there are three groups of stakeholders within the construct of e-learning readiness: students, teachers and institutions (Demir, & Yurdugül, 2015; Mercado, 2008). The researchers determined from the related literature that students' e-learning readiness has been extensively studied, whereas the other two groups remain almost untouched. This situation in Turkey is even more evident; therefore, this study aims to investigate the levels of e-learning readiness of academic staff and universities so as to fill the gap in the literature. In particular, the effect of the e-learning readiness levels of academic staff has on those of universities was examined within the scope of the study.

METHOD

This section presents the methods used for sampling, data collection and data analysis employed herein.

Sampling and Population

The academic staff members comprising the study's participants are employed at the Hacettepe University Faculty of Education. The participants initially comprised 225 academic staff members. Since the population was considerably small, the study aimed to access the entire staff population; however only approximately half could be reached. Therefore, a total of 96 volunteer academic staff members, from a variety of departments at Hacettepe University Faculty of Education, comprised the study sample. A convenient sampling method was employed to collect data. Details of the sample are presented in Table 1.

Table 1. Frequencies and Percentages of the Sample

Variable	Frequencies (f)	Percentages (%)
Gender		
Male	25	26
Female	69	71.9
Title		
Prof.	7	7.3
Asso. Prof	14	14.6
Assi. Prof	6	6.3
Lecturer	12	12.5
Res. Ass.	53	55.2
Field Specialist	1	1
Total	96	100

As can be seen above, the number of female participants is almost three times that of the male participants (Male (f = 25; % = 26); Female (f = 69; % = 71.9)). As far as the title was concerned, the largest title group who participated in the study were research assistants (f = 53; % = 55.2).

Data Collection Tools

Within the scope of this study, two measurement tools were utilised. The first measurement tool was a scale for e-learning readiness of academic staff developed by Demir (2015). This scale comprised 35 items and 4 factors: the self-efficacy of usage towards ICT (5 items), self-confidence in e-learning (10 items), attitude towards e-learning (16 items) and educational needs towards e-learning (4 items). The higher scores obtained from the factors of the scale, all except educational needs towards e-learning, signified greater readiness for e-learning. As for the factor of educational needs towards e-learning, higher scores showed a greater need for e-learning education. The scale was a 7-likert type design. In this scale, alternatives vary between *absolutely disagree* (1) and *absolutely agree* (7). Overall composite reliability of the scale was calculated as 0.97, while composite reliabilities of the factors of self-efficacy of usage towards e-learning, self-confidence in e-learning, attitude towards e-learning and educational needs towards e-learning were calculated as 0.86, 0.90, 0.89 and 0.85, respectively.

Table 2. Translated Sample Items of the Scales

The Scale of E-learning Readiness of Academic Staff	
Factors	Translated Sample Items
Self-Efficacy of Usage towards ICT	I can use computers confidently.
Self-Confidence in E-learning	I have information and ability to prepare e-learning materials.
Attitude towards E-learning	I believe e-learning is essential for the courses I teach
Educational Needs towards E-learning	I need education in the matter of e-learning
The Scale of Universities' E-learning Readiness	
Factors	Translated Sample Items
Administrative Support	Our university provides every kind of support for e-learning
Resource Support	Internet speed and stability at our university are adequate for e-learning

*It should be noted that these items were simply translated into English by researchers and not adapted academically so that some insight into the meanings of factors that they represent for the readers is provided.

The second measurement tool was a scale for universities' e-learning readiness developed within the scope of this study. It incorporated 15 items and 2 factors: administrative (9 items) and resource support (6 items). The design of the scale was the same as that of the first. The higher scores obtained from the factors of the scales mentioned implied higher readiness for e-learning in terms of corresponding factors. Overall composite reliability of the scale was calculated as 0.92, while composite reliabilities of the factors of administrative and resource support were calculated as 0.89 and 0.89, respectively. It should be noted that the e-learning readiness levels of the university were measured on the basis of the academic staff members' perceptions.

When it came to developing the scale for the universities' e-learning readiness, values of RMSEA, NFI, CFI and IFI goodness of fit indices were calculated to be 0.00, 1.00, 1.00 and 1.01, respectively. These values were adequate according to Schermelleh-Engel and Moosbrugger (2003). After proving the factorial validity of the scale, its construct validity was also proved. To do that, average variance extracted (AVE) values were calculated in accordance with the recommendations of Fornell and Larcker (1981). After completing the calculation, it was concluded that recommended conditions were achieved. Thus, divergent and convergent validities of the scale were proved. Table 2 illustrates the translated sample items of the scale together with the scale of academic staff members' e-learning readiness items.

Data Collection Process and Data Analysis

To start with, permission was obtained from the dean's office of Hacettepe University Faculty of Education, which is subsequent to obtaining necessary funding from Hacettepe University Scientific Research Projects Coordination Unit. Researchers then contacted the heads of all departments and divisions and informed them of the project and its data-collection process.

SPSS 17 and Lisrel 8.7 were used for analysing data. Frequencies, percentages, means and standard deviations were reported to present descriptive findings. Structural equation modelling was performed to show the impact the e-learning readiness levels of academic staff had on those of the universities.

FINDINGS

In this section, we report on the findings pertaining to the impact of academic staff members' e-learning readiness levels upon those of the universities. Some descriptive findings regarding academic staff as well as the universities' e-learning readiness levels are presented first. It should be noted that factor means were standardised between 0 and 7 to facilitate interpretation of findings by dividing every factor score by the number of items in the corresponding factor. Table 3 and Figure 1 illustrate factor means and standard deviations of academic staff members' e-learning readiness levels.

Table 3. Factor Means and Standard Deviations of E-learning Readiness Levels of Academic Staff

Factors*	\bar{X}	SD
SEUICT	6.12	0.82
SCEL	4.03	1.44
ATEL	4.86	1.16
ENTEL	5.36	1.39

*SEUICT: Self-Efficacy of usage towards ICT, SCEL: Self-Confidence in E-learning, ATEL: Attitude towards E-learning, ENTEL: Educational Needs towards E-learning.

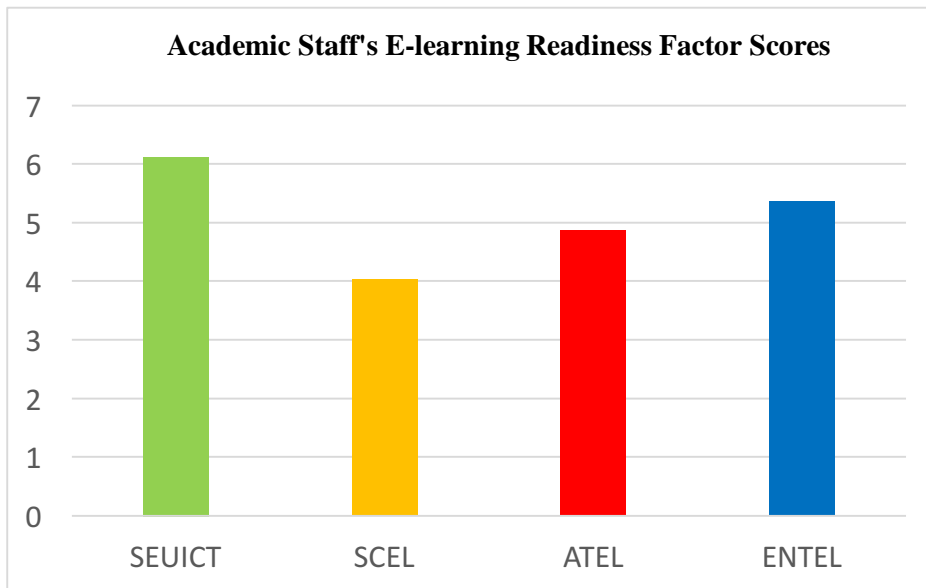


Figure 1. Factor Scores of the Construct of E-learning Readiness of Academic Staff

As shown in Table 3 and Figure 1, the factor score for self-efficacy of usage towards ICT is the highest ($\bar{X} = 6.12$; $SD = 0.82$), whereas that of self-confidence in e-learning is the lowest ($\bar{X} = 4.03$; $SD = 1.44$). Aside from factor means and standard deviations concerning academic staff, those concerning universities' e-learning readiness are reported in Table 4 and Figure 2. These factor scores were also standardised.

Table 4. Factor Means and Standard Deviations of Universities’ E-learning Readiness Levels

Factors	Sub-Factors*	\bar{X}	SD
Administrative Support	Instructional Support	4.59	1.32
	Political Support	4.51	1.12
	Support for Academic Staff	4.02	1.32
Resource Support	Human Resource and Financial Support	3.48	1.78
	Infrastructural Support	3.36	1.43

*Because there are only two factors at the scale of universities’ e-learning readiness, researchers thought that reporting sub-factors would be more beneficial in terms of interpreting the findings.

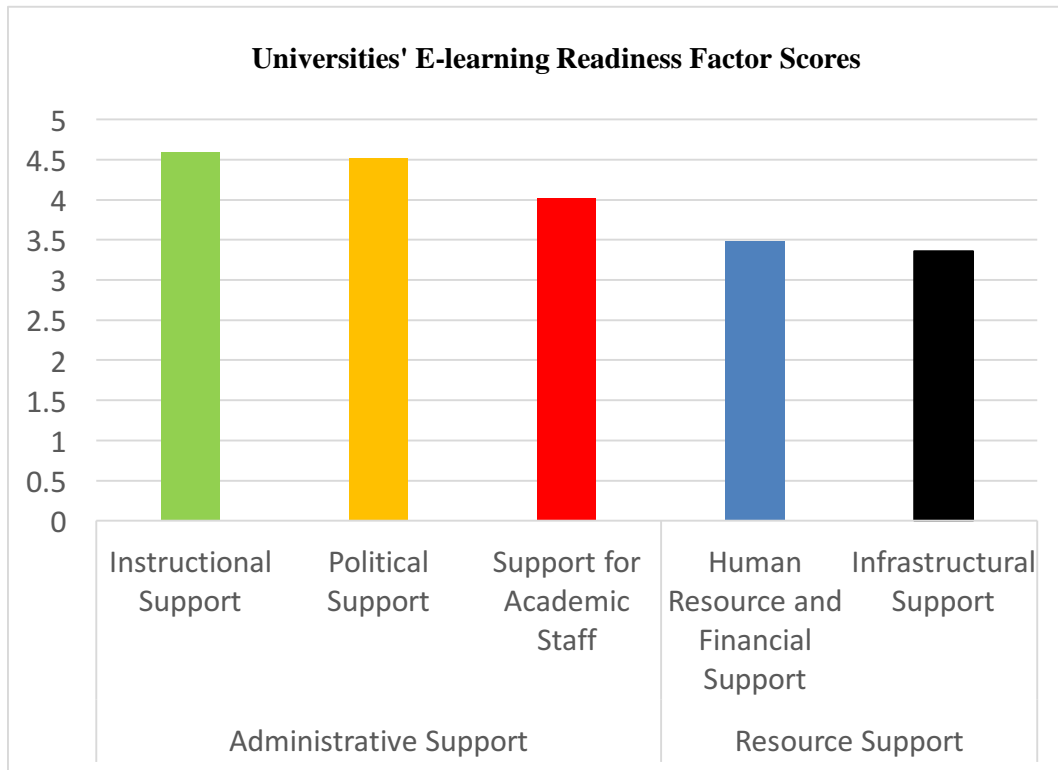


Figure 2. Factor Scores of the Construct of Universities’ E-learning Readiness

As seen in Table 4 and in Figure 2, the factor of administrative support is higher than that of resource support. As for sub-factors, the highest sub-factor is instructional support ($\bar{X} = 4.59$; $SD = 1.32$), while the lowest is infrastructural support ($\bar{X} = 3.36$; $SD = 1.43$).

Subsequent to touching upon certain descriptive findings pertaining to the constructs in question, the impact of academic staff members’ e-learning readiness levels upon those of universities is presented in Figure 3.

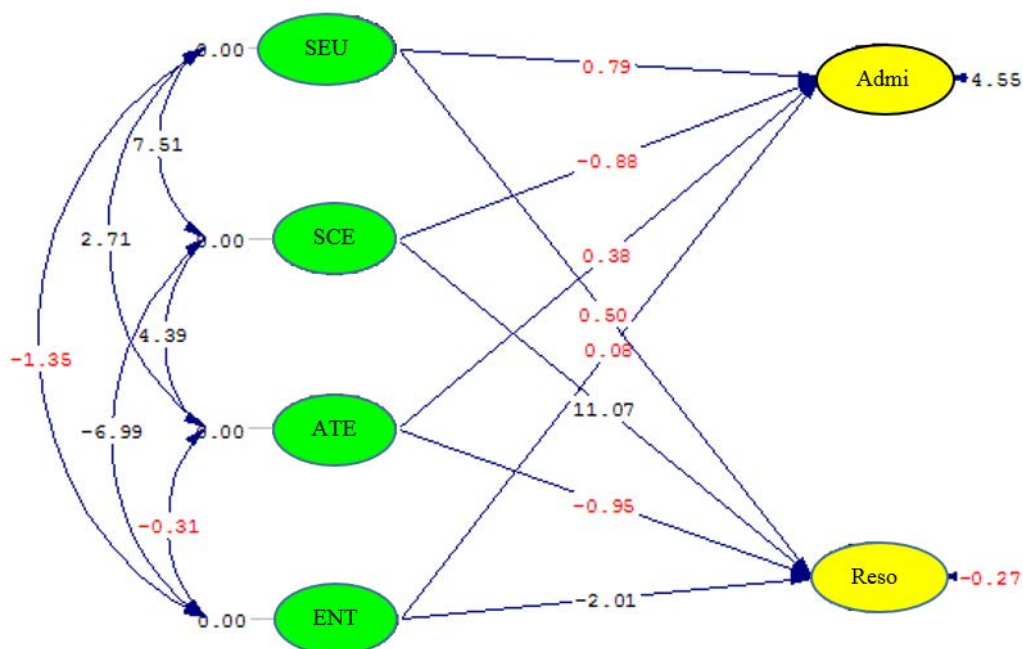


Figure 3. Structural Equation Modelling Regarding the Effect of Academic Staff Members' E-learning Readiness Levels on those of Universities (t values).

As reported in Figure 3, it was found that there were only two statistically significant effects out of eight. These effects of the factor of resource support were significant to those of self-confidence in e-learning ($t = 11.07$) and educational needs towards e-learning ($t = -2.01$). The effect of the self-confidence in e-learning factor on the factor of resource support is positive, whereas the effect of the educational needs factor towards e-learning, on the same factor, is negative.

DISCUSSION AND CONCLUSION

After examining the academic staff members' e-learning readiness levels, it was concluded that the factor of self-efficacy of usage towards ICT has the greatest score, whereas that of self-confidence in e-learning has the least. In a recent study conducted at the faculty of literature by Moftakhari (2013), unlike the current study, it was revealed that the factor of educational needs towards e-learning was the highest, whereas, likewise to the current study, self-confidence in e-learning was the lowest. In another study, Akaslan and Law (2011) inferred that the factor scores of academic staff, for the factor of educational needs towards e-learning, were higher than expected. However, Machoda (2007) ascertained that academic staff face certain problems pertaining to their technical proficiencies. As far as the factor of self-confidence in e-learning is concerned, Akaslan and Law (2011) posited that like the factor of educational needs towards e-learning, academic staff members' scores for the factor of self-confidence in e-learning were higher than expected. Furthermore, Akaslan and Law (2011) concluded that academic staff believed although e-learning can improve the quality of theoretical sections of the courses, it cannot do the same for practical sections. Similarly, Salar (2013) came to the conclusion that one-third of academic staff believed e-learning was ineffective, while the rest believed it was either partially effective or effective. Lastly, certain studies in the related literature assert that academic staff need education towards e-learning (Moftakhari, 2013). This would support the fact that education is one of the most significant steps for enhancing the e-learning readiness levels of staff (Agboola, 2006).

As for the factor of administrative support, Akaslan and Law (2011) expressed that academic staff believed managers supported e-learning readiness, whereas Machado (2007) and Moftakhari (2013) posited that the assistance required could not be obtained from management. Moreover, Akaslan and Law (2011) and Göktaş,

Yıldırım and Yıldırım (2008) inferred that academic staff need in-service training about ICT and e-learning. With regard to factor of resource support, Göktaş et al. (2008) proposed that universities' technical support units for e-learning should be strengthened. Furthermore, in relation to the infrastructure support sub-factor, many studies determined that universities had insufficient infrastructural support (Akaslan, & Law, 2011; Göktaş et al., 2008; Moftakhari, 2013; Ncube, Dube, & Ngulube, 2014; Salar, 2013).

It should be noted that two of the construct factors for academic staff members' e-learning readiness have a significant influence on the resource support factor in the construct of universities' e-learning readiness. These are the factors of self-confidence in e-learning and educational needs towards e-learning. Regarding self-confidence in e-learning, it was observed that the higher the confidence of academic staff, the more positive is their perception of universities' resources support. This perception may emanate from a greater ability in e-learning, considering the fact that owing to their self-confidence, academic staff may be accessing off-university resources. Therefore, if their need for resources is being met, they could be led to think that resources provided by the university are sufficient. Moreover, with respect to the factor of educational needs towards e-learning, it was ascertained that the greater the need academic staff had for education, the lower their perception was of universities' resource support. This may stem from the fact that, as the educational needs of academic staff increase, their need for material and assistance may well be higher. This would lead to the belief that resource support of universities is insufficient.

To overview the findings of the current study in light of the related literature, it is clear that academic staff need in-service training about e-learning, given their scores for the factors of self-confidence in e-learning and universities' support for staff are slightly higher than expected. It was also determined that the factor of infrastructure support was the lowest of all, it is, in fact, even lower than the expected mean rank value of 3.5. The same goes for the factor of human resource and financial support in universities.

Another point that needs to be emphasized is that stakeholders of academic staff and universities are two inseparable parts of the construct of e-learning readiness. Hence, if one aims to study the e-learning readiness level of any stakeholder, it needs to also consider the other stakeholder. This inference can be comprehended better if six insignificant findings (though insignificant, they still have some impact) along with two significant ones are considered.

IMPLICATIONS

It would be advantageous to arrange in-service courses that include instructions on how to use tools for applying and maintaining e-learning initiatives, such as content or learning management systems, software, online forums and library systems. Universities should also direct more of their technical staff toward supporting the implementation of e-learning. If required, universities should employ more technical staff to support academic staff in case technical problems arise. Above all, universities should allocate more funding for e-learning initiatives. An increased budget can be used to enhance the e-learning-related infrastructure such as computers, internet stability and speed and learning or content management systems.

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