

# Investigation of e-learning readiness levels of university students studying in different departments

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## ABSTRACT

The primary purpose of this study is to determine the extent of students' readiness on e-learning and to determine the significant difference on their e-learning readiness to the profile of students of different departments. The population of the study was comprised of three hundred seventy-two students with a total age average of  $21.57 \pm 2.50$ ; 160 men, 212 women (N = 372) from University's Sport Sciences, History, Literature, and English Language and Literature faculties were selected randomly to participate in the study. Participants were surveyed using the researcher-made demographic questionnaire and the adapted 'The Scale of E-Learning Readiness' instrument developed by Yurdugül and Demir (2017). According to the findings, a significant difference was found within the 'Computer Self-Efficacy', 'Online Communication Self-Efficacy', and 'Learner Control' the Tukey HSD multiple comparison tests was further conducted to determine between which groups/department is the source of the significant differences, which was caused by the English Language and Literature departments. In the study, it was concluded that students who are studying in English Language and Literature department students have higher levels of e-learning readiness compared to other department students since they utilize e-learning modalities compared to the other students from other departments.

**Keywords:** E-learning, readiness, online learning, computer, Internet.

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## INTRODUCTION

With the proliferation of the Internet, the importance and uses of technology have increased all over the world. There have been some developments in the field of education that is paralleled to the development of internet and computer technologies caused by evolving technologies and trends in education that can take place over the Internet (Driscoll, 2002). Khan (2005) observed that explosive growth in Information Technology (IT) and new developments in learning science provides opportunities to create well designed, learner-centered, meaningful distributed and facilitated e-learning environments. Consequently, e-learning has emerged as a tool to improve the access, affordability as well as availability of education to the masses. However, the issues concerning the e-learning readiness of the different stakeholder needs to be studied so that it can be implemented successfully in higher education institutions

(Navani and Ansari, 2020). Nowadays, e-learning has become an accepted educational paradigm across universities worldwide (OECD, 2005). Liaw et al. (2007) observed that the trend of using e-learning as learning and/or teaching tool is now rapidly expanding into education sector.

The concept of e-learning is derived from a form of distance education is defined as training through the use of electronic vehicles and became a critical sector today. By using the Internet, multimedia together with computer communication Technologies, it can achieve the learning objectives set by the curriculum (Pillay et al., 2007). E-Learning has emerged as the new paradigm of modern education, combining online components with the conventional face to face components. It is now an alternative mode of teaching and learning in higher education in the country (Navani and Ansari, 2019).

Further, Anohina (2005) stated that e-learning is a subset of distance education, technology-based learning and resource-based learning. According to Anohina, e-learning is internet-based learning which includes web-based learning and online learning. In the e-learning, it uses internet / intranet (local network) or via a computer network, which is realized by the individual's self-learning. It benefits the learner since its access to the information is not limited to the time, the place thus, by using this technology, the learners can communicate with other learners and their teachers simultaneously or asynchronously. The e-learning environment is full of visual and auditory tools provided by computer technology, thereby eliminating socio-economic barriers and providing individuals with the opportunity to benefit from the advantage of lifelong education.

Due to Coronavirus (Covid-19), which appeared in the early days of 2020, it brought a global pandemic that caused chaotic changes in the educational institutions worldwide. Following the announcement of the pandemic by WHO, many educational institutions around the world started using the distance education method. This period indicated the importance of e-learning worldwide to humanity and made it necessary to evaluate the approach of teachers and students to this method. It was observed that e-learning stands out as one of the main methods, not as an alternative to educational activities and even as an alternative learning modalities in the new world order. E-learning generally enables the learner to decide their learning time, to participate in the educational activities from wherever he/she has access to the system, to learn as much content as possible at any time and speed of the student, to regain access to content and information, to communicate with the instructors freely and to save costs (Nedeva and Dimeva, 2010). However, Navani and Ansari (2017) emphasised that e-learning readiness of different stakeholders needs to be ascertained before implementing e-learning strategies to enhance learning outcomes and expand the access to education services. Considering these features, it can be said that readiness for e-learning has become an important issue for people today and in the future.

When mentioned about e-learning readiness, it is also necessary to mention self-efficacy, readiness, e-readiness. It is the individual's perception of whether his/her talent and potential will turn into behaviour in achieving a specific goal (Bandura, 1997). While Thorndike (1935) defines readiness as the nervous system is ready to learn, Borotis and Poulymenakou, (2004) defined psychomotor, cognitive, social, and affective readiness for the individual to perform an activity. E-Readiness can be also defined as the readiness on the use of resources that can be obtained online (Choucri et al., 2003). Thus, being ready for e-learning is the ability of the individual to take advantage of e-learning (Rohayani, 2015).

Components that constitute readiness for e-learning were compiled as six different factors, by Yurdugül and Demir (2017) citing Hung et al. (2010). These components are: computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-learning, learner control, motivation for e-learning.

Gürcan (2005) defines computer self-efficacy as an individual's perception of the ability to use computer skills in practice. In other words; it is the judgment of the individual towards the use of computers (Demir, 2015). It is said that those individuals with a high perception of this kind of self-efficacy are more enthusiastic and have higher levels of expectation in participating in the activities that is carried out via computer (Usluel and Seferoğlu, 2003). The perceptions of individuals with high computer self-efficacy towards computer use in educational activities will be at a different level as compared to those with low levels. For example, in carrying out an assignment, we can talk about the relationship between the use of computers and technologies and the individual's subjective perception in developing an information process about the individual's area of interest. The use of such systems in education, different affects the individuals whether they have computers or not, and the opportunities provided by the educational institutions in using computer technology in teaching-learning process play an essential role in the development of individual's perception on computer self-efficacy therefore, it can be stated that the individual's perception of computer self-efficacy affects their readiness on e-learning.

Self-learning is defined as the process that the individual manages, determines his/her learning needs, takes the initiative towards his goals, and evaluates the resources he will need in this process individually (Knowles, 1975). Self-learning enables the learner to actively participate throughout the process, taking individual responsibility, and managing the learning and evaluation process (Russell et al., 2007). To address the self-learning phenomenon in e-learning teachers must be involved in the process of determining the learning needs of the learners by taking individual responsibility, creating motivation for this, that will provide more productive environment for learning. Therefore, the access to academic content with open access on the Internet makes access to information much faster considering previous periods.

Internet self-efficacy can be defined as individuals' perceptions and beliefs about internet usage skills that they have for their intended purpose in the internet environment (Tsai and Tsai, 2003). Studies show that internet self-efficacy is an essential variable on the success of accessing and learning information in online environments (Miltiadou and Savenye, 2003; Joo et al., 2000).

Online communication self-efficacy can be defined as the capability of the individual's skills to communicate

with other connected people on the network. The absence of face-to-face communication in online learning processes reveals the necessity of different communication skills. In the online environment, communication is essential in terms of the active participation of the learner and the experience gained. At this point, it can be said that the online communication self-efficacy is vital for the individuals participating in the learning process not to have any limitations in the learning process (de Bruyn, 2004; Yurdugül and Sırakaya, 2013).

The decision-making of the learners themselves is expressed as learner control (Shyu and Brown, 1992). Online learning environments offer individuals the opportunity to choose information, offering a more flexible and individualized learning process. According to Hung and Yuen (2010), online students who create and apply their learning methods can demonstrate better learning performance (Lawless and Brown, 1997; Lin and Hsieh, 2001).

Navani and Ansari (2016), while studying e-learning readiness of Univesity faculty in India, conceptualized e-learning readiness as the ability (competency) of the learners in a given context. Therefore, analyzing the e-learning readiness of the university students is important so that they can easily adapt to the teaching approaches and modalities that is brought about by the changing facade of teaching-learning caused by COVID-19 pandemic. Thus, the primary purpose of this study is to determine to what extent students are ready for this innovative change and to determine which group or department of student is more ready for the e-learning.

## METHODOLOGY

In this study, the survey model was used. The essence of survey method can be explained as “questioning individuals on a topic or topics and then describing their responses” (Jackson, 2011). The population of the study

was comprised of three hundred seventy-two students with a total age average of  $21.57 \pm 2.50$ ; 160 men, 212 women ( $N = 372$ ) from University's Sport Sciences, History, Literature, and English Language and Literature faculties were selected randomly to participate in the study. Random sampling method is a sampling method that shows a situation where every member in the universe has the chance to be selected equally and independently (Altunışık et al., 2012). Participants responded to the questionnaire which also included 'the Scale of E-Learning Readiness' developed by Yurdugül and Demir (2017). The scale consists of 33 items and six sub-dimensions. The form, which has a 7-point Likert Type scale structure, has been scored from 1 to 7, increasingly to the words "It is not suitable for me" and "It is completely suitable for me". The sub-dimensions of the scale consisted of six components, viz. 'Computer Self-Efficacy', 'Internet Self-Efficacy', 'Online Communication Self-Efficacy', 'Self-Learning', 'Learner Control' and 'Motivation for E-learning'.

## FINDINGS

In this section, information about the findings obtained in the research is given. Descriptive statistics related to the scores obtained from 'The Scale of E-Learning Readiness' are shown in Table 1.

According to Table 1, 160 of the participants are male and 212 are female. 105 of the participants study at the Faculty of Sports Sciences, 96 at the Faculty of History, 86 at the Faculty of Literature, 74 at the English Language and Literature Faculty.

A careful perusal of Table 2 reveals that the highest average in the scale scores is obtained in the sub-dimension of 'Internet Self-Efficacy' and the lowest average in the Motivation Dimension for E-Learning. When the scores of other sub-dimensions are examined, it can be seen that all sub-dimension scores have a higher average score than the average (3.5).

**Table 1.** Participants demographic characteristics.

Participants	f	%
Man	160	43
Woman	212	57
Total	372	100
Sport Science Students	105	28.2
History Students	96	25.8
Literature Students	86	23.1
English Language and Literature Students	85	22.8
1st Grade Students	74	19.9
2nd Grade Students	53	14.2
3rd Grade Students	121	32.5
4th Grade Students	124	33.4

**Table 2.** The scale of e-learning readiness descriptive statistics.

Scale of online learning readiness	N	$\bar{x}$	SD
Computer self-efficacy	372	4.6194	1.518
Internet self-efficacy		6.0739	1.156
Online communication self-efficacy		5.5704	1.383
Self-learning		5.3787	1.182
Learner control		5.5363	1.350
Motivation for e-learning		4.3679	1.865

According to the findings in Table 3, "Computer Self-Efficacy" ( $F(3-368) = 8.012, p = .000, p < .005$ ), "Internet Self-Efficacy" ( $F(3-368) = 8.729, p = .000, p < .005$ ), "Online Communication Self-Efficacy" ( $F(3-368) = 6.780, p = .000, p < .005$ ), and "Learner Control" ( $F(3-368) = 6.666, p = .000, p < .005$ ), a significant difference was found between the sub-dimensions. According to the Tukey HSD multiple comparison tests conducted to determine between which groups there are significant differences, it is concluded that the differences are between the English Language and Literature department and other departments.

## DISCUSSION

In this study, the differences in the level of readiness of e-learning readiness of university students studying in different departments by departments were investigated. Within the scope of this study, the e-learning readiness structure is considered as six components. In this context, the scale structure developed by Yurdugül and Demir (2017) supports this situation. These components are: computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-learning, learner control, and motivation for e-learning.

In light of the results obtained, it is observed that students' readiness levels are determined higher than the average scale score in all sub-dimensions. The average age of the participants can explain this situation is  $21.57 \pm 2.50$ . It can be said that the participant group has grown in a generation that has a close relationship with technology and positively affects their perceptions and attitudes towards e-learning. Besides, when the scale sub-dimension scores are examined, it is observed that the sub-dimensions are "Internet Self-Efficacy" and the lowest score is "Motivation for E-Learning". Similar results were achieved in the study by Yurdugül and Demir (2017), in which the teacher candidates' levels of readiness for e-learning were found similar, the researchers explained that this was facilitated by internet access from mobile. That interest and emotional deficiency towards e-learning might decrease motivation. The data obtained in the research are similar to the results mentioned.

According to the results obtained in the study, there is

a significant difference in the 'Internet Self-Efficacy', 'Computer Self-Efficacy', 'Online Self-Efficacy', and 'Learner Control' sub-dimensions according to the students studying in the English Language and Literature department. The result has been reached.

Self-efficacy is an individual's belief in how adequately he/she can learn a subject or achieve a job (Bandura, 1997). Internet is a technology that has emerged as a result of the need of people to store, share and easily reach the increasingly produced information (Berkem et al., 2001; Teke and Özkılıç, 2016). Internet self-efficacy is defined as the self-assessment of the individual's ability to carry out and organize the activities that he has to do over the Internet (Kuo et al., 2014). It can be said that self-efficacy is one of the variables explaining success in internet-based education (Joo et al., 2000). Researchers state that students' technical skills, including computer and Internet, are related to student performance in web-based learning environments (Peng et al., 2006). Nowadays, it is known that as the sources of information increase and diversify and that it includes the basic computer use skills of literacy (Yenice et al., 2003). The use of computers in daily life and the education process is increasing day by day. In the process of becoming an information society, information technologies that affect the whole of the country have become indispensable in terms of teaching in this direction (Seferoğlu and Koçak, 2003; Tekerek et al., 2012). Computer self-efficacy was defined as the "individual's judgment about using computers" (Karsten and Roth, 1998; Akkoyunlu and Kurbanoğlu, 2003). In studies conducted, it is stated that computer self-efficacy belief is an important variable in computer use (Aşkar and Umay 2001; Işıksal and Aşkar, 2003). Research shows that individuals with firm self-efficacy beliefs are more willing to use computers and participate in applications using computers; and they have higher levels of expectation in computer studies (Tekerek et al., 2012). Avila and Lavadia (2019) concluded that podcast supported education can be used as an effective method in academic success. This result expresses the importance of e-learning. In this context, it can be said that the English language and literature students' perceptions about their ability to use the Internet and computer technologies are higher than in other departments.

Integration of Information and Communication

**Table 3.** Comparison of scale scores between groups.

Subdimension point	Department	n	$\bar{x}$	SS	Source of variance	Total of squares	Sd	Sum of squares	Test value	p	Post hoc
Computer self-efficacy	Sport Science <sup>(1)</sup>	105	4.47	1.554	Between Groups	52.457	3	17.486	8.012 <sup>a</sup>	.000	1-4 <sup>b</sup> 2-4 <sup>b</sup> 3-4 <sup>b</sup>
	History <sup>(2)</sup>	96	4.42	1.453	Within Groups	803.164	368	2.183			
	Literature <sup>(3)</sup>	85	5.29	1.363	Total	855.621	371				
	English Language and Literature <sup>(4)</sup>	86	4.33	1.515							
Internet self-efficacy	Sport Science <sup>(1)</sup>	105	5.95	1.274	Between Groups	32.990	3	10.997	8.729 <sup>a</sup>	.000	1-4 <sup>b</sup> 2-4 <sup>b</sup>
	History <sup>(2)</sup>	96	5.76	1.226	Within Groups	463.602	368	1.260			
	Literature <sup>(3)</sup>	85	6.58	.698	Total	496.592	371				
	English Language and Literature <sup>(4)</sup>	86	6.06	1.146							
Online communication self-efficacy	Sport Science <sup>(1)</sup>	105	5.52	1.429	Between Groups	37.180	3	12.393	6.780 <sup>a</sup>	.000	2-4 <sup>b</sup>
	History <sup>(2)</sup>	96	5.22	1.417	Within Groups	672.695	368	1.828			
	Literature <sup>(3)</sup>	85	6.10	1.212	Total	709.875	371				
	English Language and Literature <sup>(4)</sup>	86	5.46	1.310							
Self-learning	Sport Science <sup>(1)</sup>	105	5.22	1.207	Between Groups	10.971	3	3.657	2.648 <sup>a</sup>	.049	-
	History <sup>(2)</sup>	96	5.27	1.161	Within Groups	508.228	368	1.381			
	Literature <sup>(3)</sup>	85	5.67	1.166	Total	519.198	371				
	English Language and Literature <sup>(4)</sup>	86	5.38	1.157							
Learner control	Sport Science <sup>(1)</sup>	105	5.29	1.447	Between Groups	34.892	3	11.631	6.666 <sup>a</sup>	.000	1-4 <sup>b</sup> 2-4 <sup>b</sup>
	History <sup>(2)</sup>	96	5.30	1.303	Within Groups	642.118	368	1.745			
	Literature <sup>(3)</sup>	85	6.05	1.091	Total	677.010	371				
	English Language and Literature <sup>(4)</sup>	86	5.57	1.386							
Motivation for e-learning	Sport Science <sup>(1)</sup>	105	4.32	1.668	Between Groups	12.746	3	4.249	1.223 <sup>a</sup>	.301	-
	History <sup>(2)</sup>	96	4.29	1.641	Within Groups	1278.334	368	3.474			
	Literature <sup>(3)</sup>	85	4.69	2.383	Total	1291.079	371				
	English Language and Literature <sup>(4)</sup>	86	4.17	1.724							

a. One-Way Variance Test (ANOVA) b. Tukey Post Hoc Test \* Significant p-value at 0.05 level.

Technologies (ICTs) in education sector has completely changed the dynamics of teaching and learning process; and has undeniable impact on

learning outcomes. Consequently, e-learning has emerged as an important educational tool to improve the learning outcome as well as expand

the learning opportunities (Navani and Ansari, 2016). With the introduction of information and communication technologies into the learning

environment, education has become a digital phenomenon where learning-teaching activities are supported by computers (Richardson and Swan, 2003; İlhan and Çetin, 2013). One of the concepts that entered the field of education to explain this digital phenomenon is online communication self-efficacy. Online communication self-efficacy is similarly the students' perceptions of understanding the communication pattern specific to online environments. Self-learning includes determining students' own working methods, goals and resources, and self-evaluation (Yurdugül and Demir, 2017). In light of the information, it can be said that the English language and literature students use communication tools such as in-class chat or e-mail better than the students of the History department for situations such as asking questions, obtaining information, and contributing to the course in online lessons held simultaneously.

Learner control refers to the student's decision on when and in what order to study a learning material. Finally, motivation for e-learning involves students' willingness and interest in learning through the e-learning method (Hung et al., 2010; Yurdugül and Demir, 2017). According to Cook (2001) learner control gives the learners the competencies and opportunities that will be directly effective in determining the decisions related to the teaching process (Mahiroğlu and Coşar, 2008). In line with the information in the literature stream, it can be said that the students of the English language and literature are more successful in their decisions regarding their personal and educational life than the students of history and sports science.

There are also studies in the literature that gives different results from the findings obtained from this study. In a study, Öktem (2020) did not find any difference according to the department variable. Likewise, Demir (2013) and Adnan and Boz-Yaman (2017) did not find any difference according to the department variable.

## Conclusion

In the study, it was concluded that students who are studying in English Language and Literature department students have higher levels of e-learning readiness compared to other department students due to their demographic characteristics and their usual exposure to online activities. With such, e-learning strategies and technologies can be used to support the blended learning, flexible and distance learning options of the universities that is brought about by the Covid-19 pandemic. With such, this study will provide meaningful insights to the many universities around the world on how they will offer their activities through distance education. Thus, it is recommended to repeat this study with a similar sample group in the post-pandemic process and replicate it in other universities and group of students.

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