

## E-LEARNING CHALLENGES AND INSTRUCTORS' DEMOGRAPHIC PROFILES IN A PUBLIC UNIVERSITY IN YEMEN

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### ABSTRACT

E-Learning systems have become widely spread in most colleges and universities all over the world during the last ten years. The developers of e-learning environment are frequently insisted by researchers to consider demographic differences. Thus, this research aims to examine the pattern between the demographic profiles of the instructors and the challenges of implementing e-learning. The demographic variables that were selected to investigate in this study were gender, age, ICT experience, and teaching and e-learning experience. A total of 107 participants completed the survey-based questionnaire. The paper discussed the results of the pattern between the challenges of implementing e-learning with demographic variables and it was found that the demographic variables play a direct and indirect role on those challenges. The results obtained from this study can help universities and other educational institutions to understand the main obstacles that face the effective implementation of e-learning and how to overcome these barriers. Otherwise, e-learning cannot be implemented successfully.

**Keywords:** e-learning; challenges; university; Yemen.

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## 1. INTRODUCTION

Today's advanced technologies have become an integral part of our daily routine. Technology has grown rapidly particularly in the field of Information and Communication Technology (ICT) whereby new systems and platforms are being constantly introduced for all sectors [1] including higher education; leading to new opportunities and challenges. These developments in ICT technologies are transferring the learning process from traditional environment to an e-learning environment. E-learning is one of the important areas that many developed and developing countries are focused in order to adopt in their education system [2]. E-learning, as one of the tools emerged from information technology, has been integrated into many universities, shifting from the traditional way of education to an electronic environment [3]. It is an entirely a new learning environment where information and communication systems are networked for learning to take place among the students. This has not emerged in one night, but can be considered as a revolutionary process that is started with generation of computers [4].

E-learning is defined as a unifying term used to describe the fields of online learning and teaching, web-based training and technology delivered instruction [5]. E-learning is an innovative approach in delivering electronically mediated and interactive learning environment to anyone, anytime and anyplace via internet and digital technologies in concern with instructional design principles [6]. It stimulates the learning experience through collaboration by enabling the delivery of resource-rich educational content encouraging interaction between instructors and learners [7].

However, teaching and learning in an e-learning environment can present new challenges to instructors and students participating in this online learning environment [8-9]. The literature indicates that these challenges are associated with the instructors' cultural background, their awareness and attitudes towards e-learning; the high cost of technological infrastructure; the often prohibitive cost of educational technologies and the lack of local expertise in curriculum development for e-learning [10-11] which are asserted by previous studies in some developing countries such as Jordan, Pakistan, Ghana, Nigeria, Kenya, etc. [12-16]. In [13] found that instructors' characteristics were among the critical factors affecting the implementation of e-learning and therefore should be taken into consideration when implementing e-learning.

Identifying these challenges in implementing e-learning in higher education may lead to a better understanding of the causes of reluctance to the use of e-learning[17]. Thus, there is a need to examine the demographic information of instructors when addressing the challenges of e-learning implementation. Therefore, this paper studied the challenges of implementing e-learning systems with the demographic variables of the instructors. The main objective of the study was to examine the pattern between the demographic variables and the challenges of implementing e-learning (gender, age, ICT experience and e-learning experience). For this, the demographic data were obtained to examine their association with the four dimensions of e-learning challenges. The structure of the paper is as follows: (i) research methodology of this research is described in section 2, (ii) the findings of the study are presented in Section 3, (iii) discussions of the results and implications are provided in Section 4 and (iv) conclusions are outlined in Section 5.

## 2. METHODOLOGY

A simple descriptive statistics are used to identify any pattern between the challenges of e-learning and the demographic variables. In this study, four demographic variables which include gender, age, ICT experience and e-learning experience were identified. In addition, there are four main variables in this study, which are the challenges of implementing e-learning (Individual challenges, course challenges, contextual challenges and technological challenges). The population comprises of instructors of Hodiedah University, Yemen. Data were collected with the aid of a questionnaire, which was designed and employed for the purpose of the study. The questionnaire consisted of 53 items which were divided into four dimensions to cover all the four challenges. The participants were asked to rate their agreement of each item of the survey on a 4-point Likert Scale (except for the demographic information) where 1= strongly disagree, 2= disagree, 3= agree, 4= strongly agree. A total of 120 sets of questionnaire have been prepared and distributed to respondents. The sample included males (62.6 %) and females (37.4%), junior and senior instructors. Only 107 sets have been successfully collected and analyzed, which constitutes an 89.2% response rate from the survey. The research question of this study was:

**RQ:** Is there a pattern between the challenges of implementing e-learning with the

demographic variables of Gender, Age group, ICT experience and E-learning experience?

### 3. RESULTS AND ANALYSIS

#### 3.1. Description of the Pattern between the Challenges Implementing E-Learning With Gender

Table 1 shows the mean score of all e-learning challenges categories with gender.

**Table 1.** Description of mean score of e-learning challenges with gender

Challenge	Gender	n	Mean	Std. Deviation
Individual Challenges	Male	67	2.13	0.270
	Female	40	2.07	0.311
	Total	107	2.11	0.286
Course Challenges	Male	67	3.16	0.3753
	Female	40	3.07	0.3028
	Total	107	3.12	0.3512
Contextual Challenges	Male	67	3.59	0.3880
	Female	40	3.40	0.4149
	Total	107	3.52	0.4075
Technological Challenges	Male	67	3.54	0.5323
	Female	40	3.34	0.4513
	Total	107	3.47	.51102

As shown in Table 1, for all the four challenges the mean scores for males are higher than females. In other words, male instructors face more challenges than female. However, this implies that males seem to have given more importance to these challenges than females. The results in Table 1 also show that males and females recorded the highest mean score with Contextual Challenge in compare to other challenges. The Contextual Challenge mean scores for male instructors and females are 3.59 and 3.40 respectively. Technological Challenges came in the second place with a mean score 3.54 for males and 3.34 for females. This implies that male instructors faced more contextual and technological challenges than females.

### 3.2. Description of the Pattern Between the Challenges of Implementing E-Learning With Age

Table 2 shows the mean scores of all e-learning challenges with age.

**Table 2.** Description of mean scores of e-learning challenges with age

Categories	Age Group	N	Mean	Std. Deviation
Individual Challenge	25-35	42	2.13	0.249
	36-46	40	2.04	0.317
	47-57	23	2.19	0.280
	More than 57	2	2.33	0.177
	Total	107	2.11	0.286
Course Challenges	25-35	42	3.06	0.253
	36-46	40	3.23	0.427
	47-57	23	3.05	0.344
	More than 57	2	3.07	0.000
	Total	107	3.12	0.351
Contextual Challenges	25-35	42	3.44	0.362
	36-46	40	3.67	0.375
	47-57	23	3.42	0.484
	More than 57	2	3.22	0.157
	Total	107	3.52	0.407
Technological Challenges	25-35	42	3.37	0.512
	36-46	40	3.51	0.542
	47-57	23	3.58	0.454
	More than 57	2	3.25	0.000
	Total	107	3.47	0.511

As shown in Table 2, in term of *Individual Challenges*, those with more than 57 years old group recorded the highest mean score (2.33) but it is still considered a moderate level of individual challenges. This implies that this age group faced more individual challenges than

any other group. For *Course Challenges*, the 36-46 age group recorded the highest mean score (3.23) among all other groups. While in *Contextual Challenges*, all the age groups recorded high scores. However, the 36-46 age group recorded the highest mean score (3.67). Similarly, all the age groups in *Technological Challenges* recorded high scores.

### 3.3. Description of the Pattern Between E-Learning Challenges and ICT Experience

Table 3 shows the mean scores of all e-learning challenges with ICT experience. The results

**Table 3.** Mean scores of e-learning challenges with ICT experience

Challenges	ICT Experience	N	Mean	Std. Deviation
Individual Challenges	Yes	106	2.11	0.246
	No	1	2.65	0
	Total	107	2.11	0.245
Course Challenges	Yes	106	3.12	0.353
	No	1	3.00	0
	Total	107	3.12	0.351
Contextual Challenges	Yes	106	3.52	0.406
	No	1	3.00	0
	Total	107	3.52	0.407
Technological Challenges	Yes	106	3.47	0.511
	No	1	3.00	0
	Total	107	3.47	0.511

revealed that 99 % (106 instructors out of 107) have ICT experience. Although the results showed that majority of the participants have ICT experience, the mean scores for the four challenges are high (between 3.21 to 3.52) except Individual Challenges recorded moderate score (2.11). This indicates that ICT experience alone is not enough to overcome the challenges of implementing e-learning.

### 3.4. Description of the Pattern Between E-Learning Challenges and E-learning Experience

Table 4 shows the mean scores of all e-learning challenges with e-learning experience. The results indicate that the instructors who have experience in e-learning before they started teaching in the university recorded a mean score higher than the instructors who do not have previous experience in e-learning. This implies that from their previous experience, they are already familiar with these challenges and face them. In addition, the mean scores are almost high for all the challenges and ranged from 2.73 to 3.55. As shown, Contextual Challenges recorded the highest mean score 3.55 followed by Technological challenges 3.52, Course Challenges 3.13, and lastly Individual challenges 2.73. However, the mean scores for those without previous experience ranged from 2.55 to 3.50. Contextual Challenges recorded the highest mean score of 3.50 whereas Individual challenges recorded the lowest mean score of 2.55.

**Table 4.** Mean score of e-learning challenges with e-learning experience

Challenges	E-Learning Experience	N	Mean	Std. Deviation
Individual Challenges	Yes	43	2.73	0.218
	No	64	2.55	0.236
	Total	107	2.62	0.245
Course Challenges	Yes	43	3.12	0.341
	No	64	3.13	0.361
	Total	107	3.12	0.351
Contextual Challenges	Yes	43	3.55	0.440
	No	64	3.50	0.386
	Total	107	3.52	0.407
Technological Challenges	Yes	43	3.52	0.497
	No	64	3.43	0.521
	Total	107	3.47	0.511

#### **4. DISCUSSION**

The demographic variables for instructors, which were selected to investigate in this study, were gender, age, ICT experience, and e-learning experience. In term of gender, the findings of the study showed that most of the participants are males. This high rate of male respondents may be due to the number of males in the university compared with the number of females. The findings also showed that most of the participants are from the age group of 25 to 35 years old. It can be concluded from this finding that most of the instructors in the university are young adults. In addition, it showed that younger instructors are more than the older ones. This may due to the policy of the university, which tends to employ new instructors with less than age 35 every year to diversify the instructors between the experience and young. However, the results also indicated that the participants from other age groups of 36 to 46 and 47 to 57 are also high which balanced the results of the study. The age group above 57 is low. This is probably due to the small number of instructors of this age group in the university. Moreover, majority of the participants have ICT skills. The findings showed that 99.1% of the respondents have ICT experience. Moreover, most of them are between high and moderate level of experience. It can be concluded from this finding that the majority of the instructors in the university are skilled and qualified to use computer. This is because of the university policy where computer-related courses are compulsory given to the instructors. However, the findings show that more than half of the participants do not have any e-learning training or any e-learning experience beforehand.

The findings of this study revealed that both male and female instructors showed different views regarding the four challenges of implementing e-learning. Existing research has reported the differences between males and females in their patterns of use of e-learning. The results of this study revealed that females were more likely to implement e-learning approaches in teaching than males. However, females had lower confidence and less experience in the use of computers in teaching. In general, male instructors face challenges more than females in terms of individual, course, contextual and technological challenges. This may be due to male instructors having problems with localization or integration of ICT into teaching and learning. This implies that male instructors have given all the four challenges of e-learning more importance than females. In other words, female reported that



they faced less challenges with regard to the use of technology and this finding is similar to previous studies [18]. It was also found that generally, females are more motivated to teach with technology than males. However, other studies found that males have more confidence to use e-learning and technology [19-22] and they have more experience with computer and e-learning [18, 22].

In term of age, the findings of the study revealed that each age group faces different challenges from the other age group. It was found that those who are more than 57 years old have more individual challenges than other age groups. This is a normal result with regard to their age where most of the older or senior instructors do not have the knowledge, training, or the individual skills to use technology. In fact, instructors who have not been trained to teach in non-traditional classrooms are unfamiliar with interactive and individualized nature of e-learning because they do not have the required skills to confidently create an exciting e-learning environment. This is similar to previous studies [23]. However, the 36-46 years old age group has more course and contextual challenges. This may be due to the fact that this group linked between the experience in technology and teaching. Therefore, this category is more familiar with the challenges that they faced when they attempted design or use e-learning courses and the need for organizational and societal support. This finding is similar to that of [24]. This study asserted that middle-aged people give the great part of their intention for the course design. The 47-57 years old age group has more challenges in term of technology. This result was common for this age group since they do not belong to the generation of technology.

With regard to ICT experience, all but one respondent reported having ICT experiences and high level of technological, contextual and course challenges. This may be due to their insufficient e-learning experience. This result is consistent with the finding of previous study by [25]. This was attributed to inadequate training in e-learning skills among the majority of the instructors. Though most of the participants have basic computer skills, these skills may not be adequate for them to use e-learning in their teaching as well as developing e-learning content. E-learning skills for instructors and relevant e-content are critical components for successful implementation of e-learning. This is because the technical skills that are necessary to implement e-learning are different from standard ICT such as LMS, course design, and use

of blogs, online management, and use of flipped learning. It can be concluded from this finding that instructors need intensive course-based technology training related to e-learning, which can take them beyond the basic computer skills to effectively embed technology into the learning process [14]. In addition, the findings of the study revealed that the participants who have e-learning experience face more challenges in terms of all the four challenges of e-learning. This may be due to the training or exposure, which was conducted using simple examples, but the actual e-learning course offered, is very complex and intricate. The real system and operation in the implementation phase is more demanding and challenges to the instructors. Integrating e-learning process into the university or any organization is not an easy task and requires specialist with various skills to be in the implementation team. An e-learning project should bring together specialist with technical and creative skills. This outcome is in agreement with previous research [26]. It can be said that all participants have faced different levels of e-learning challenges based on their gender, age, their experience in ICT and e-learning experience.

## **5. CONCLUSION**

This paper investigated the pattern between the demographic variables of the instructors and the challenges of implementing e-learning in their institution. The demographic variables that have been selected to investigate instructors' challenges of e-learning were gender, age, ICT experience, and e-learning experience. In general, the results of this study revealed that females were more likely to implement e-learning approaches in teaching than males. In addition, the finding of the study revealed that each age group of instructors faced challenges that are different from the other group. It was also found that, although most of participants had experience in ICT, however, they are facing high technological challenges. Furthermore, it was also found that most of participants did not have experience with e-learning systems and they need more training. Finally, it can be concluded that all the participants have e-learning challenges with regards to individual, Course, contextual, and technology. However, these challenges are at different levels of importance based on the participants' age, gender, ICT experience and e-learning experience.

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