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Orginal Article

E-LEARNING: EXPLORING THE FACTORS INFLUENCING FACULTY READINESS DURING COVID -19 PANDEMIC FOR ONLINE TEACHING

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ABSTRACT

Objectives: *The study aimed to assess the e- learning readiness amongst faculty members in the discipline of Medicine, Dentistry, & Allied*

Materials and Methods: *The present descriptive cross-sectional study was carried out to analyze faculty readiness for online teaching of the University from May 2020- July 2021. The ethical approval was obtained from the ethical committee of the University. Faculty members from Dental College, Medical University and Allied Departments were selected with the census sampling method and sample obtained was 222. An online survey method was selected for data collection and pre structured validated questionnaire "Students' E-learning Readiness Scale" developed by Watkins et al was used. Subject expert validated the questionnaire.*

Results: *The overall mean score ranged from 2.11 – 3.12, indicated that experience of online readiness for the faculty members was found to be low. The highest mean score of 3.12 was reported from the faculty members of the Dental College followed by Faculty of Medical College (mean score= 2.94) and Allied (mean score=2.72) regarding readiness for online discussions.*

Conclusion: *The overall readiness is found to be low and this is common for all faculties of all levels. The faculty from Dental College was found to be ready for conducting online lectures as compared to the faculty from Medical and Allied Departments of the University. It should be mandatory that Medical Education Department of the university to conduct more series of workshops for the faculty so that they feel motivated to conduct online teaching.*

Key words: *Covid-19, Medical education, Faculty dental, Pandemics, Online learning*

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INTRODUCTION

COVID-19 has recently been described as a global pandemic by the World Health Organization. With the rapid rise in the number of cases and lack of therapeutic options no available for COVID-19, social distancing is considered important in reducing the virus transmission[1,2]. This challenge is seriously faced by universities in Pakistan because they put hundreds of students, scholars, and faculty together every day to disseminate information and are thus exceptionally vulnerable to this disease[3]. Recognizing the academic loss, the Commission for Higher Education recommended that education should be continued through online courses and

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lectures[4]. The Higher Education Commission (HEC) has issued directives to higher education institutions in compliance with the orders issued by the Federal Government of Pakistan to start planning for distance learning (DL) modes, reschedule ongoing examinations and assist their students online regularly until the COVID19 crisis remains unchanged[5]. UNESCO figures indicate that more than 90% of the world's students do not currently attend schools in the response to the pandemic, with more than 1.5 billion learners affected[2]. However within these extraordinary times, one common trend is the rise in academic activities utilizing e- learning across the world allowing a rapid transition from location-based classes to virtual online learning systems[6].

The digitalization of education systems at every level has allowed incorporating a new teaching learning system called e-learning[7]. E-learning is defined as the use of electronic media, educational technology and information and communication technologies in education. E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming[6]. E-learning has emerged as an essential instructional tool that provided the teachers a new instrument to expand the learning opportunities and increase learning outcomes[8]. Six different criteria have been complied as components that constitute readiness for e-learning[9]. These components are: computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-learning, control of learners, e-learning motivation[10]. Pakistan is trying to implement ICT in education at all stages like the trend in other countries but efforts remain less effective due to lack of fully installed technology[11]. A study from Khyber Pakhtunkhwa reported good technology access, online skills, and preparedness for online discussions amongst faculty members[12].

The Rationale of the study was to assess the e-learning readiness of the faculty members in Covid-19 pandemic when all educational institutes were closed and face to face learning was shifted to e- learning. Therefore, the study aimed to assess the e- learning readiness amongst faculty members in the discipline of Medicine, Dentistry, & Allied.

MATERIALS AND METHODS

The present descriptive cross-sectional study was carried out to analyze faculty readiness for online teaching of the University from May 2021-July 2021. The ethical approval was obtained from the ethical committee of the University. (BDC/ERB/2021/004). The population included was faculty members of Medical University. Faculty members from the Dental College, Medical College, and Allied Departments were selected with the census sampling method and sample obtained was 222. Considering the Covid- 19 pandemic situation and closure of educational institutes, online survey method was selected for data collection. A pre structured validated questionnaire "Students' E- learning Readiness Scale" developed by Watkins et al[8] was used. Subject expert validated the questionnaire. A pilot study was conducted on 30 participants and reliability values were found to be Cronbach's alpha value of 0.948. According to the Alpha Cronbach Reliability Classification Index, these values are classified as acceptable and therefore no changes were made to all items[13]. The Questionnaire comprised of 27 items to assess participants online readiness. These items were further subdivided into six subscales: access to technology (3 items), online skills (7 items), motivation (4 items), online audio/ video preferences (4 items), online readiness (4 items) and the importance of e- learning to participants (5 items). A five- point Likert scale ranging from 1-Completely agree, 2-Completely disagree, 3- Not sure, 4- Strongly agree, 5- Strongly disagree was used.

Data were coded and entered and analyzed through SPSS version 22[14].Descriptive statistics were recorded in terms of percentages and frequencies for categorical data and means and standard deviation for continuous data. The mean of each sub scale was calculated by using the compute variable function in SPSS to form a scale variable. Mean value more than 3 indicates good readiness and mean value equal to or less than 3 indicates that participants inappropriate online readiness. The categorical outcomes were analyzed by Chi-square tests, and the continuous outcomes were analyzed by independent t- test and ANOVA. P-value less 0.05 was considered significant. A one-way multivariate analysis of variances (ANOVA) was done to find the significant differences between demographic variables and e- learning subscales.

RESULT

The purpose of the study was to assess the readiness of e- learning amongst the faculty members of

University. A structured online questionnaire was sent to faculty members of Dental College (n= 82), Medical College (n=84) and Allied (n=56). Table 1 shows Demographic characteristics of the faculty members. Out of total 222 faculty members, males were 112 and 110 females. Most of the faculty members were found to be in the 25-34 years age group (n= 96).

Results of the table 2 showed means and standard deviation for e- readiness of the faculty members. The overall mean score ranged from 2.11 – 3.12, indicated that experience of online readiness for the faculty members was found to be low. The highest mean score of 3.12 was reported from the faculty members of the Dental College followed by Faculty of Medical College (mean score= 2.94) and Allied (mean score=2.72) regarding readiness for online discussions.

However mean scores for technology access, online skills and relationships, motivation, importance of e learning was found to be less than readiness for online discussions and online audio/ video preferences. When comparing gender, males reported a mean score of 2.97 and females 2.93 regarding readiness for online discussions.

DISCUSSION

The success of e- learning depends primarily on the trust and willingness of students as well as teachers towards e-learning[15]. The faculty's resistant cultural norms and customs towards e-learning is identified as a barrier to student engagement with technology-based education[16]. It has also been known that changes and innovations in medical education are putting extra pressure on already overworked faculty[17].

The current study assessed the readiness for e-learning amongst faculty of the medical, dental, pharmaceutical, and nursing faculty of a private university. Results showed that overall readiness of faculty from Dental College was above average (mean score 3) and Faculty of Medical College and Allied reported below average readiness (mean score 2). Sethi and colleagues in a study reported good readiness of faculty on all subscales. The results in the current study are found to be low because of lack of motivation, preparedness was low. It is suggested to have more training sessions along with sensitization and awareness sessions. Training workshops in use of online applications and software, effective teaching skills, online course development and constructing lesson plans[18].

Recent advances in technology enable faculty members to consider new ways of planning, arranging, providing, and reviewing online teaching courses and learning materials[19,20]. Regarding technology access, the current study showed an average mean score of 2.62 for dental faculty, 2.73 for medical faculty and 2.49 for Allied faculty, which is below average. Different studies conducted by Contreras et al[21]Martin et al[22] Sethi et al[18] Asiry,[23] Goodwin[24] and Eslaminejad et al[25] have shown good readiness for faculty (mean score above 4).

Table 1: Demographics

Characteristics		Dentistry (n = 82)	Medicine (n=84)	Allied (n= 56)
Gender	Male	44(39.3%)	50(44.6%)	18(16.1%)
	Female	38(34.5%)	34(30.9%)	38(34.5%)
Age	<25 years	1(14.3%)	3(42.9%)	3(42.9%)
	25-34 years	52(54.2%)	14(14.6%)	30(31.3%)
	35-44 years	15(28.8%)	22(42.3%)	15(28.8%)
	45-54 years	13(31%)	25(59.5%)	4(9.5%)
	55-64 years	0(0.0%)	17(81%)	4(19%)
	>65 years	1(25%)	3(75%)	0(0.0) %)
Designation	Lecturer	40(47.6%)	15(17.9%)	29(34.5%)
	Senior lecturer/registrar	13(54.2%)	8(33.3%)	3(12.5%)
	Assistant Professor	18(28.1%)	31(48.4%)	15(23.4%)
	Associate Professor	7(31.8%)	10(45.5%)	5(22.7%)
	Professor	4(14.3%)	20(71.4%)	4(14.3%)

Technical aids also have a significant effect on the e-readiness of the instructor[25]. The result of the research findings showed that educators are more familiar with technology (computers, internet, and media tools), the more they are able to teach in an online world. The teachers ability to access the internet and a dedicated network connection, their ability to use important computing resources are technological skills[26]. The technical access of the faculty reported in the present study was below 3. Contreras J et al[21] reported that the faculty had good access to technology. The main reason why faculty oppose using e-learning materials in university are the lack of awareness and skills and negative attitudes about the use of technology[27].

The success of e- learning depends not only upon the schools and universities, but also on the faculty who are involved in teaching these courses. However, few studies reported what motivates or demotivates the faculty who teaches online courses beyond the awareness of their principal motivation to help others achieve an education[28]. The current study reported lack of faculty motivation. Sethi A et al[18] reported that faculty was found to be more motivated than students. Contreras J et al[21] reported that faculty was found to be motivated. Factors that demotivate

Table 2: Readiness for e-learning

Subscales		N	Mean (SD)	p-value
Technology access	Male	112	2.63(1.24)	0.968
	Female	110	2.63(1.18)	
	Dentistry	82	2.62(1.13)	0.530
	Medicine	84	2.73(1.29)	
	Allied	56	2.49(1.20)	
Online skills and relationships	Male	112	2.44(1.14)	0.583
	Female	110	2.52(1.03)	
	Dentistry	82	2.57(1.06)	*0.011
	Medicine	84	2.65(1.15)	
	Allied	56	2.11(0.95)	
Motivation	Male	112	2.78(1.06)	0.569
	Female	110	2.70(0.97)	
	Dentistry	82	2.81(1.03)	0.552
	Medicine	84	2.76(1.06)	
	Allied	56	2.62(0.93)	
Online audio/video Preferences	Male	112	2.92(1.31)	0.292
	Female	110	2.74(1.27)	
	Dentistry	82	3.05(1.21)	0.114
	Medicine	84	2.75(1.35)	
	Allied	56	2.62(1.29)	
Readiness for online discussions	Male	112	2.97(1.02)	0.731
	Female	110	2.93(0.96)	
	Dentistry	82	3.12(0.92)	0.073
	Medicine	84	2.94(1.05)	
	Allied	56	2.72(0.95)	
Importance of e-learning to participants' success	Male	112	2.71(1.10)	0.467
	Female	110	2.60(1.12)	
	Dentistry	82	2.74(1.18)	0.183
	Medicine	84	2.73(1.09)	
	Allied	56	2.42(1.01)	

*statistically significant

the workload of the faculty such as increased time for online classes, lack of training and technological updates influence motivation of the faculty[29].

A preference for video-based learning is a rising reality for both entertainment and academic purposes[7]. A recent Report regarding social-media use in the United States showed that approximately 75% of US adults and 94% of adults aged 18 to 24 used YouTube on a regular basis, an exponential increase from the past[30]. Faculty responses indicated a desire for video-based discussions, video- conferencing and student-generated videos[31]. The present study demonstrated good readiness for online video/ audio preferences of faculty. Similar results were reported by Sethi A et al[18] and Contreras J et al[21].

An online discussion forum provides opportunities for free discussion as well as record of ideas and communication and observation for everyone[32]. The present study reported strong readiness for online discussions of dental faculty while Medicine and Allied faculty reported low readiness for online discussions.

In the present research, gender differences were also reported. The females and male participants reported similar readiness for e-learning on various subscales. This suggests that learning environment for females in Pakistan has improved substantially in recent times. They are at par with males in their online learning abilities. These findings are different from other studies by Sethi et al[18], Malik et al[33], Arenas-Gaitan et al[34], Lu and Chiou[35] Wei and Johnes[36] and Ong and Lai[37], suggested that males prefer and value using e-learning platforms more than females. This study will also give direction to the professional development of faculty and students to prepare them for online teaching and blended learning. More research work is required to explore the causes of low readiness, effects of training and workshops to improve readiness and preparedness are also recommended.

LIMITATIONS

One limitation of this study is convenience sampling. Although it's a strength that multiple institutions were involved like medicine, dentistry, pharmaceutical sciences, and nursing, but more multi centered studies will produce more data and will give a more in-depth knowledge. The findings of this study are not generalizable, but they are from only one private university. Self-reporting and finding are also another concern of this study.

CONCLUSION

The overall readiness is found to be low and this is common for all faculties of all levels. The faculty from Dental College was found to be ready for conducting online lectures as compared to the faculty from Medical and Allied Departments of the University. It should be mandatory that Medical Education Department of the university to conduct more series of workshops for the faculty so that they feel motivated to conduct online teaching.

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CONFLICT OF INTEREST
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	AW, AS, RH
Acquisition, Analysis or Interpretation of Data:	AW, AS, MAH
Manuscript Writing & Approval:	AW, AS, SNA, MAH

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.