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19. Effect of Age, Gender and Discipline on E-Learning Readiness of Faculty Members of Higher Education Institutions

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Abstract

The COVID-19 pandemic is redefining the practices of higher education in an unprecedented way. E-learning can guarantee the right to higher education during the pandemic to the students of higher education and hence its adoptionin teaching learning is now inevitable.The readiness of higher education faculty members towards E-learning is explored in this paper. The paper also presents about the impact of demographic factors (Age, Gender and Discipline) as predictors variables and the influence of their interaction on the criterion variable i.e., E-learning readiness. A self-developed inventory was used to collect the data about E-learning readiness of faculty members.Seven research hypotheseswere framed and tested using 4 X 2 X 3 Factorial Design ANOVA. The findings revealed that there is a need to improve the E-learning readiness of faculty members of higher education. Also, it was discovered that there is no significant difference in the mean scores of E-learning readiness of faculty members with respect to their Age, Gender and Discipline to which they belong. Further it is also observed that the second order interaction effect among the Age, Gender and Discipline has a significant influence on E-learning readiness of faculty members of higher education.

Keywords: E-learning readiness, higher education, faculty members, age, gender, discipline

Introduction

The COVID-19 pandemic, divided the activities all over the world into two parts i.e. “before COVID-19” and “after COVID-19”. Education in general and higher education in particular is no exception to this. The pandemic has made it or rather forced the higher education system to explore more and more ways to integrate the digital platforms into educational practices to guarantee the right to higher education during the pandemic. Whether one accepts or not, teaching is moving online in an untested and unprecedented scale (Burgess and Sievertsen, 2020) and the use of E-learning practices has become the need of the hour not only in the distance education system but even in the traditional system.With this pandemic, the higher education system as a whole is entering into a new era. Undoubtedly, COVID-19 has impact (immediate, short term and

long term) on various stakeholders of higher education i.e. students, teachers, administrators etc. and the biggest impact on the teachers all over the world is the continuity of teaching activity using a virtual platforms like E-learning. (UNESCO, 2020).In practice, the ability of teachers to continue teaching using this modality largely depends on various factors like their experience, skills, attitude and the subject they teach. The subject disciplines which have the responsibility to develop professional competences through practice can face a big challenge in integrating E-learningthan those disciplines which can suffice through theoretical knowledge. Teachers, who already entered into higher education system with significant experiences in the use of technology in education, may not have great difficulty in ensuring the continuity of education. However, a biggest challenge would be to such teachers who lack these experiences. Thus, this demand for digital transformation makes it more important to study the readiness of stakeholders to use E-learning practices from various demographic dimensions like their age, discipline to which they belongs etc.(Naresh, et al., Reddy and Pricilda, 2016;Owate, et al., 2017; Ng, 2012;Basol, et al., 2018) and other dimensions like their technological readiness, pedagogical readiness, attitude, resource readiness etc(Parlakkilic, 2015; Azimi, 2013;Oketch et al. 2014;Nwagwu, 2019; Eslaminejad et al., 2010). In this paper, an attempt is made to study about the E-learning readiness of higher education faculty members especially from the point of view of their Age, Gender, and Discipline.

E-learning and E-learning readiness

The definition of E-learning has evolved and is evolving over time. It can be defined as an approach/method/platform which uses the electronic technologies intentionally to create and present learning experiences to enhance the knowledge and performance of a learner (Horton,2006; Rosenberg, 2001; Clark and Mayer, 2003; Naidu, 2006; Chadha &Nafay, 2003 ;Khan, 2005; Panda & Mishra, 2007; Roffe, 2002). Thus,to adopt or acceptE-learning as an approach/method/platform of teaching is a paradigm shift for all the stakeholders of higher education who are accustomed to the traditional practices of teaching learning (Kaufman, et al., 2002). If well designed and managed, E-learning can gain easy acceptance among various stakeholders of higher education (Hijazi et al., 2003).Just like all other educational endeavors, even in the E-learning platform, it is the teacher who has to take a lead and play an important role (Selim, 2007; Motaghian,et al., 2013, Wang & Wang, 2009). Not only initial acceptance of E-learning but its sustainable use determines the success of E-learning practices (Lee, 2010; Naresh,

et al., 2016) and many studies have shown that one of the most important factor that determines the success of E-learning is the teacher (Yuen & Ma, 2008; Soong et al. 2001; Volery & Lord, 2000; Govindsamy, 2002; Baylor & Ritchie, 2002). Hence, the first priority for success of E-learning practices is to prepare the teachers for itso that it will help in nurturing grassroot ideas from faculty members rather than imposing a top to down pedagogical approach(Saekow and Samson, 2011).E-learning readiness can be defined as the extent of mental& physical preparedness or the capacity to pursue the opportunities provided by E-learning. It includes several aspects like technological skills, online learning style, equipment/ infrastructure, attitude, human resources, financial etc. (Mutiaradevi.R, 2009; Parlakkiliç, Alaattin, 2015; Borotis, S., &Poulymenakou, 2004, Kaur & Abas, 2004;Schreurs, et al., 2008). With this theoretical framework, the present cross sectional study i.e., "Effect of Age, Gender and Discipline on E-learning readiness" was undertaken.

Objectives of the study

a) To study the profile and E-learning readiness of higher education faculty members.

b) To study the influence of age on the E-learning readiness of higher education faculty members.

c) To study the influence of gender on the E-learning readiness of higher education faculty members.

d) To study the influence of discipline on the E-learning readiness of higher education faculty members.

e) To study the influence of interaction between Age and Gender on the E-learning readiness of higher education faculty members.

f) To study the influence of interaction between Age and Discipline on the E-learning readiness of higher education faculty members.

g) To study the influence of interaction between Gender and Discipline on the E-learning readiness of higher education faculty members.

h) To study the influence of interaction among Age, Gender and Discipline on the E-learning readiness of higher education faculty members.

For these objectives, the Null Hypotheses formulated were:

$H_0$1:There is no significant influence of Age on E-learning readiness of higher education faculty members.

$H_0$2 : There is no significant influence of Gender on E-learning readiness of higher education faculty members.

$H_0$3:There is no significant influence of Discipline on E-learning readiness of higher education faculty members.

$H_0$4:There is no significant influence of interaction between Age and Gender on E-learning readiness of higher education faculty members.

$H_0$5: There is no significant influence of interaction between Age and Discipline on E-learning readiness of higher education faculty members.

$H_0$6: There is no significant influence of interaction between Gender and Discipline on E-learning readiness of higher education faculty members.

$H_0$7:There is no significant influence of interaction among Age, Gender and Discipline on E-learning readiness of higher education faculty members.

Data and Method

In the present study an attempt was made to assess the E-learning readiness of higher education faculty members and hence a cross sectional survey design was adopted.

Sample

Out of the total 154 higher education institutions/colleges listed in All India Survey of Higher Education (AISHE), 2018-19, 60 colleges/institutions were selected randomly and from those 60 institutions, the tool was distributed randomly to around 800 faculty members. The selected institutions belong to various disciplines like commerce, medical, arts, pharmacy, technical, teacher education, physiotherapy, management, nursing, dental, computer application, engineering and technology, science etc. and faculty members fall under various designations like Director, principal, lecturer, reader, professor, assistant professor, tutor, visiting faculty, part time faculty etc. Out of the 800 faculty members to whom the tool was distributed, 421 faculty members filled up the tool and hence, they constitute the sample of the study.

Tool for data collection

An inventory was constructed to collect the data for the current study. A thorough review of literature helped to identify the possible statements to be included in the inventory. After making the corrections as per the suggestions given by the experts who were requested to validate the inventory, the final tool consisted of total 62 items including 10 negative statements. All the items in the tool were measured on five point likert scale. Thus the inventory had total four sections

excluding a section on demographic information. Section (1) consisted of items to assess technological readiness of faculty members. Section (2) consisted of items to assess pedagogical readiness of faculty members. Section (3) consisted of items to assess the resource readiness (split into two sub sections) of faculty members. Section (4) consisted of items which assessed the attitude of higher education faculties towards E-learning. Section (5) consisted of items to gather data regarding the demographic characteristics of respondents like discipline, designation, gender, age, their highest education level, teaching experience and their sources of learning. The inventory had a Cronbach-alpha coefficient of 0.89 indicating high level of internal consistency of the statements.

Analysis of data

Percentage, frequency and other descriptive statistics were used to study the profile and E-learning readiness of faculty members of higher education and presented through figure 1 and table 1. Further, to study the influence of Age, Gender and Discipline and their various interactions on E-learning readiness of higher education faculty members and to test the corresponding null Hypothesis inferential statistics were used.The data was analyzed with the help of 4 X 2 X 3 Factorial Design ANOVA using SPSS and the results are given in tables 2 and 3 and figures 2, 3, 4 and 5. A p-value of 0.05 was considered as significant for all the ANOVA tests.

Results

Demographic profile of the faculty members

The profile of the faculty members who participated in the survey is presented in figure 1. Around 45% of female and 55% of male faculty members participated in the study. The youngest faculty member who participated in the study was 21 years and the oldest was 60 years.

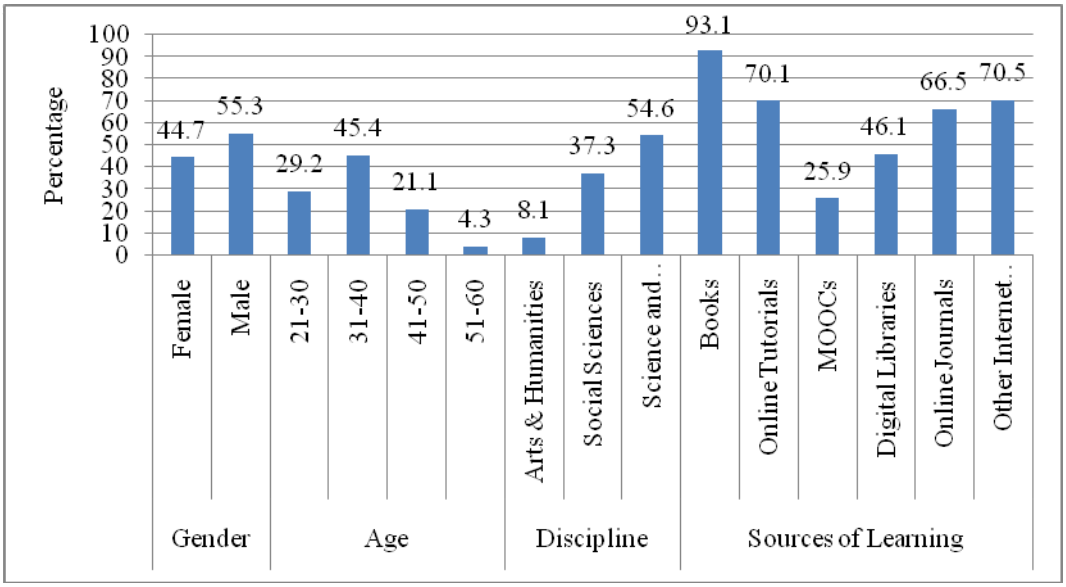


Figure 1: Profile of the faculty members (n= 421)

Around 85% of the faculty members belong to the age group of 21 to 40 years of age. All the faculty members who participated in the study were classified into three major disciplines i.e. Social Science; Art and Humanities; Science and Technology. Majority of the faculty members who participated in the study (81%) belong to Social Science and Science & Technology disciplines and a very few (8%) of the faculty members belong to Arts and Humanities discipline. Books are the major source of learning for around 93% of faculty members. Online tutorials and other internet resources are the sources of learning for around 70% of faculty members. Around 46% of faculty members use digital libraries as a source of their learning. However, a very less (26%) of faculty members use MOOCs as their source of learning.

E-learning readiness

In the present survey study, E-learning readiness is the criterion variable and Age, Gender and Discipline of faculty members are the predictor variables. The predictor variable Age had four levels of age groups i.e. 21-30 years, 31-40 years, 41-50 years, 51-60 years. Female and male were two levels of Gender variable and Social Sciences, Arts & Humanities and Science & Technology were three levels ofsubject Discipline. From table 1, it can be interpreted that the overall mean score of E-learning readiness of faculty members of higher education institutions is 229.83. The overall mean score of female faculty members is 227.69 and of male faculty members is 231.46. The E-learning readiness tool used for data collection consisted of 62 items

(divided into 4 sections- technological readiness, pedagogical readiness, resource readiness and attitude) measured on likert scale of 1 to 5 and hence, the minimum E-learning readiness score can be 62 and the maximum score could be 310. From the table, it is clear that the minimum score of E-learning readinessobtained is 163 and the maximum is 301 that resulted in a range of 138. The range showed the heterogeneity in the group in terms of their E-learning readiness and also indicates that the scale is able to differentiate the individual differences in the group. Further, Around 48% of the faculty members are above the mean score on E-learning readiness and 52% of them are below the mean score of E-learning readiness. From table 1 it can also be observed that the mean and median score on E-learning readiness are 229.83 and 229 respectively. It shows that there is no much difference between the mean and median score which reflects the normal distribution of the scores.

Table 1:Descriptive statistics summary of E-learning readiness score of faculty members of higher education institutions

		Statistic
E-learning Readiness	Mean	229.83
	Median	229.00
	Std. Deviation	26.519
	Minimum	163
	Maximum	301
	Range	138
	Interquartile Range	38
	Skewness	.063
	Kurtosis	-.303
Percentile	25	211.00
	50	229.00
	75	248.50

Source: Research Data

The E-learningreadiness score of 25% of the faculty members is below 211 and of around 50% of the faculty members is above the mean score. Nearly, 50% of the faculty members'E-learning readiness score is below the mean score. The standard deviation (26.519) and the skewness of E-learning readiness (.063)indicate that the score is distributed symmetrically.Further, from the values of mean score and standard deviation, it can be concluded that 95% of the faculty members E-learning readiness score lie between 177 and 283 points while 68% of faculty members score lie between 203 and 256.

Interaction effects

To study the influence of Age, Gender and Discipline and their various interactions on E-learning Readiness of faculty members, there were four levels of age groups i.e. 21-30 years, 31-40 years, 41-50 years, 51-60 years. Gender was divided into two levels i.e., Female and male. The subject Disciplines were grouped as Social Sciences, Arts &Humanities and Science & Technology. Thus, to test the hypothesis $H_0$1 to $H_0$7, the data were analyzed with the help of 4 X 2 X 3 Factorial Design ANOVA and presented in table 2.

Influence of Age on the E-learning readiness of higher education faculty members

The p-value for Age (0.626) is greater than 0.05 level of significance and hence it is not significant (Vide Table 2). It thus reflects that the mean scores of E-learning readiness of faculty members in age groups of 21-30 years, 31-40 years, 41-50 years, 51-60 years did not differ significantly. So there was no significant influence of Age on E-learning readiness of faculty members. The Null Hypothesis ($H_0$1) i.e., there is no significant influence of Age on the E-learning readiness of higher education faculty members is not rejected. It may, therefore, be said that E-learning readiness was found to be independent of Age of faculty members.

Table 2: Summary of 4 X 2 X 3 Factorial Design ANOVA on E-learning Readiness of faculty members

Dependent Variable:E-learning Readiness						
Source	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Remarks*
Age (A)	1228.574	3	409.525	.583	.626	Not significant
Gender (B)	239.158	1	239.158	.341	.560	Not significant
Discipline (C)	403.370	2	201.685	.287	.751	Not significant

A X B	1678.101	3	559.367	.797	.496	Not significant
A X C	1888.643	6	314.774	.448	.846	Not significant
B X C	699.117	2	349.558	.498	.608	Not significant
A X B X C	7026.749	4	1756.687	2.502	.042	P<0.05

Source: Research Data

Influence of Gender on the E-learning readiness of higher education faculty members

The p-value for Gender (0.560)is greater than 0.05 level of significance and hence it is not significant (Vide Table 2). It reflects that the mean scores of E-learning readiness of female and male faculty members did not differ significantly. So there was no significant influence of Gender on E-learning readiness of faculty members. The Null Hypothesis ($H_0$2)i.e., there is no significant influence of Gender on the E-learning readiness of higher education faculty members is not rejected. It may, therefore, be said that E-learning readiness was found to be independent of Gender of faculty members.

Influence of Discipline on the E-learning readiness of higher education faculty members

The p-value for Discipline(0.751)is greater than 0.05 level of significance and hence it is not significant (Vide Table 2). It reflects that the mean scores of E-learning readiness of faculty members from Social Science, Arts & Humanities and Science & Technology disciplines did not differ significantly. So there was no significant influence of Discipline on E-learning readiness of faculty members. The Null Hypothesis ($H_0$3)i.e., there is no significant influence of Discipline on the E-learning readiness of higher education faculty members is not rejected. It may, therefore, be said that E-learning readiness was found to be independent of Discipline of faculty members.

Influence of interaction between Age and Gender of higher education faculty members on the E-learning readiness

The p-value for interaction between Age and Gender (A X B) is 0.496 ($p > 0.05$) and hence it is not significant (Vide Table 2). It reflects that the mean scores of E-learning readiness of female and male faculty members in age groups of21-30 years, 31-40 years, 41-50 years, 51-60 years did not differ significantly. So there was no significant influence of interactionbetween Age and Gender on E-learning readiness of faculty members.Thus the Null Hypothesis ($H_0$4)i.e., there is no significant influence of interaction between Age and Gender on E-learning readiness is not

rejected. Itmay, therefore, be said that E-learning readiness was found to be independent of interactionbetween Age and Gender of faculty members.

Influence of interaction between Age and Discipline of higher education faculty members on the E-learning readiness

The p-value for interaction between Age and Discipline (A X C) is 0.846($p > 0.05$) and hence it is not significant (Vide Table 2). It reflects that the mean scores of E-learning readiness of faculty members in age groups of 21-30 years, 31-40 years, 41-50 years, 51-60 years from Social Science, Arts & Humanities and Science & Technology disciplines did not differ significantly. So there was no significant influence of interaction between Age and Discipline on E-learning readiness of faculty members. Thus, the Null Hypothesis ($H_0$5) i.e., there is no significant influence of interaction between Age and Discipline on E-learning readiness is not rejected. It may, therefore, be said that E-learning readiness was found to be independent of interaction between Age and Discipline of faculty members.

Influence of interaction between Gender and Discipline of higher education faculty members on the E-learning readiness

The p-value for interaction between Gender and Discipline (B X C) is 0.608 ($p > 0.05$) and hence it is not significant (Vide Table 2). It reflects that the mean scores of E-learning readiness of female and male faculty members from Social Science, Arts & Humanities and Science & Technology disciplines did not differ significantly. So there was no significant influence of interaction between Gender and Discipline on E-learning readiness of faculty members. Thus, the Null Hypothesis ($H_0$6) i.e., there is no significant influence of interaction between Age and Discipline on E-learning readiness is not rejected. It may, therefore, be said that E-learning readiness was found to be independent of interaction between Gender and Discipline of faculty members.

Influence of interaction among Age, Gender and Discipline on the E-learning readiness of higher education faculty members

The second order interaction among Age, Gender and Discipline (A X B X C) on E-learning readiness of higher education faculty members was analyzed with the information presented in table 3 and graphs presented in figures 2,3,4 and 5.

The p-value for interaction among Age, Gender and Discipline is 0.042 which is less than 0.05 level of significance and hence significant (Vide Table 2). It reflects that the mean scores of E-

learning readiness of female and male faculty members in the age groups of 21-30 years, 31-40 years, 41-50 years, 51-60 years from social science, Arts and Humanities and Science & Technology do differ significantly. So there is significant influence of interaction among Age, Gender and Discipline on E-learning readiness of faculty members. Thus the Null Hypothesis ($H_0$7) i.e., there is no significant influence of interaction among Age, Gender and Discipline on E-learning readiness of faculty members is rejected. It may, therefore, be said that E-learning readiness was found not to be independent of interaction among Age, Gender and Discipline of faculty members. Thus, there was statistically significant three-way (Age * Gender * Discipline) interaction effect. To know the trend of influence of interaction among Age, Gender and Discipline on E-learning readiness of faculty members, the mean "E-learning readiness" score of "Age" and "Gender" with respect to each discipline are plotted and presented in a line graph, as shown in figure 2, figure 3 and figure 4.

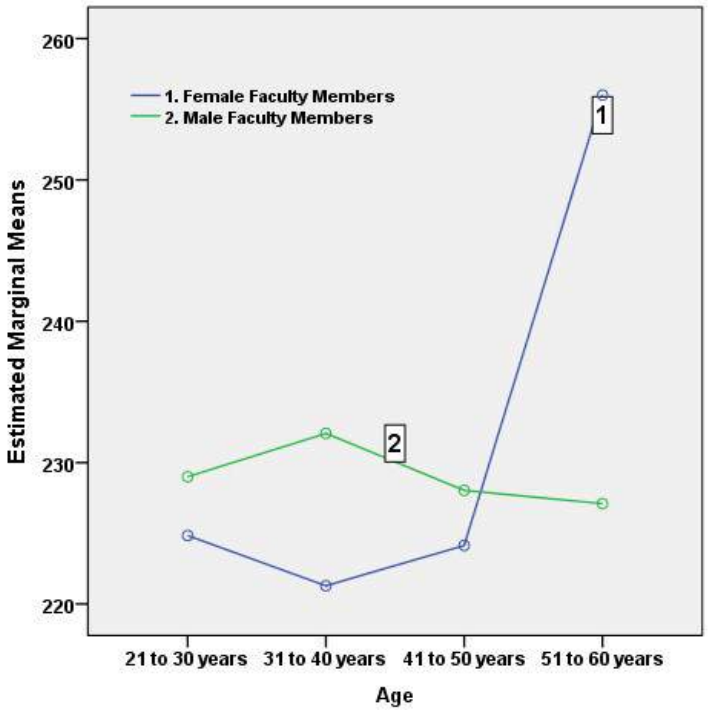
Table 3: Descriptive Statistics

Dependent Variable:E-learningReadiness					
Age	Gender of Faculty Member	Discipline	Mean	Std. Deviation	N
21 to 30 years	Female	SS	224.84	23.153	31
		Humanities and Arts	228.00	1.414	2
		Science and Technology	229.84	27.496	38
		Total	227.61	25.209	71
	Male	SS	229.00	34.243	8
		Science and Technology	239.00	28.718	44
		Total	237.46	29.488	52
	Total	SS	225.69	25.340	39
		Humanities and Arts	228.00	1.414	2
		Science and Technology	234.76	28.359	82
		Total	231.77	27.423	123

31 to 40 years	Female	SS	221.29	20.983	28
		Humanities and Arts	241.50	28.000	8
		Science and Technology	229.63	18.341	40
		Total	227.80	21.077	76
	Male	SS	232.07	25.043	29
		Humanities and Arts	221.40	24.218	10
		Science and Technology	230.79	28.173	76
		Total	230.30	27.027	115
	Total	SS	226.77	23.568	57
		Humanities and Arts	230.33	27.183	18
		Science and Technology	230.39	25.141	116
		Total	229.30	24.802	191
41 to 50 years	Female	SS	224.14	26.796	21
		Humanities and Arts	202.33	24.111	3
		Science and Technology	233.92	21.318	12
		Total	225.58	25.646	36
	Male	SS	228.04	34.109	27
		Humanities and Arts	232.10	25.714	10
		Science and Technology	226.87	25.858	16
		Total	228.45	29.874	53
	Total	SS	226.33	30.870	48
		Humanities and Arts	225.23	27.626	13
		Science and Technology	229.89	23.858	28
		Total	227.29	28.124	89
51 to 60 years	Female	SS	256.00	6.928	3
		Humanities and Arts	222.00	.	1
		Science and Technology	222.00	.	1
		Total	242.40	19.256	5
	Male	SS	227.10	36.846	10
		Science and Technology	247.67	16.258	3

		Total	231.85	33.818	13
	Total	SS	233.77	34.451	13
		Humanities and Arts	222.00	.	1
		Science and Technology	241.25	18.464	4
		Total	234.78	30.302	18
Total	Female	SS	224.59	23.607	83
		Humanities and Arts	229.79	27.843	14
		Science and Technology	230.20	22.692	91
		Total	227.69	23.532	188
	Male	SS	229.59	30.642	74
		Humanities and Arts	226.75	24.923	20
		Science and Technology	233.30	28.071	139
		Total	231.56	28.637	233
	Total	SS	226.95	27.177	157
		Humanities and Arts	228.00	25.794	34
		Science and Technology	232.07	26.068	230
		Total	229.83	26.519	421

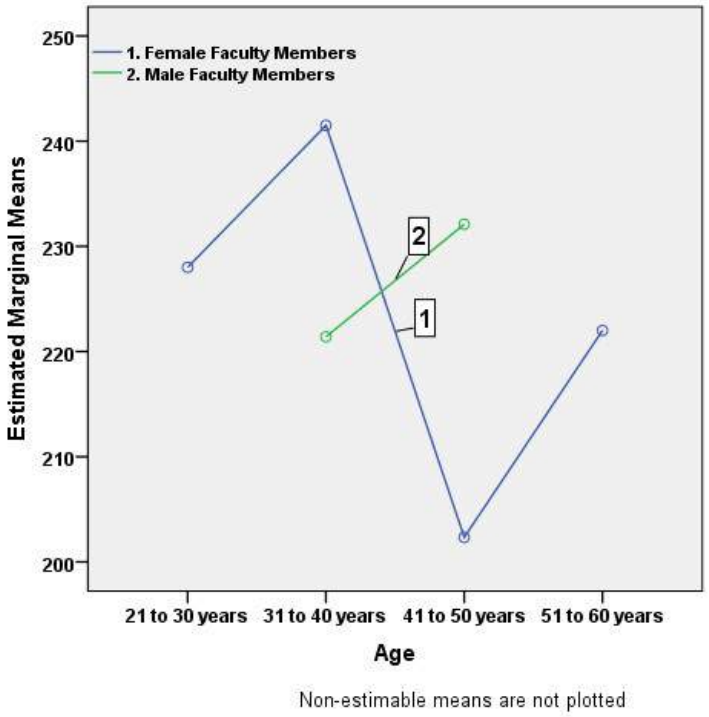
Source: Research Data



Source: Research Data

Figure 2:Trend influence of interaction between age and gender on E-learning readiness of faculty members of Social Science Discipline

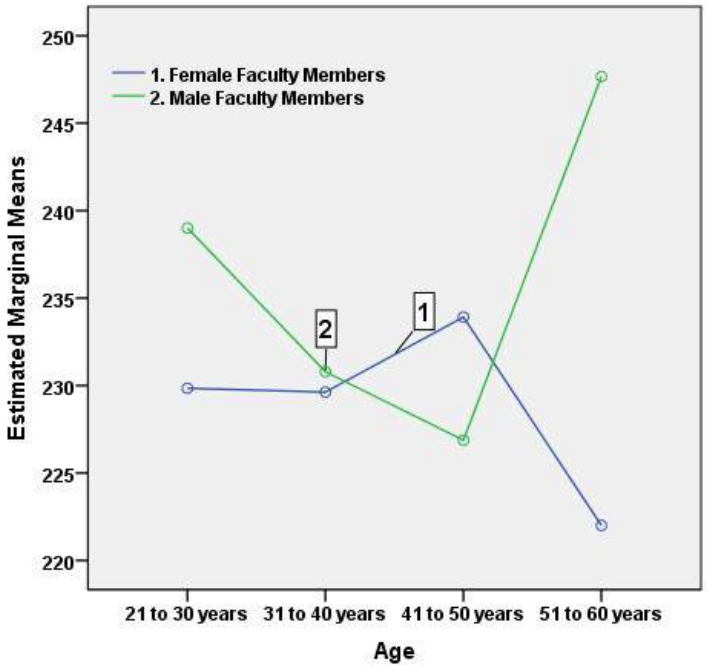
From figure 2 the interaction effect between gender and age in social science discipline can be seen at the age group level of 41 to 50 years. The mean scores of E-learning readiness shown in table 3 also support this fact. It can also be further interpreted that the E-learning readiness of female faculty members of Social Science discipline is increasing with their age, while the E-learning readiness of male faculty members shows a declining trend from the age level of 41 to 50 years. Thus, the significant interaction effect of A X B X C could be due to this interaction of Age and Gender at 41 to 50 years age group in social science discipline.



Source: Research Data

Figure 3: Trend influence of interaction between age and gender on E-learning readiness of faculty members of Arts and Humanities Discipline

Figure 3 informs us that at age group levels of 31 to 40 years and 41 to 50 years, there is an interaction between gender and age in Arts and Humanities discipline. From table 3 and figure 3, it can be interpreted that E-learning readiness of female faculty members of Arts and Humanities discipline is more than the male faculty members in the age group of 31 to 40 years and there is a steep fall in the E-learning readiness of female faculty members as we move from age group of 31 to 40 years and 41 to 50 years age groups. Due to lack of availability of enough sample in the few age groups with regard to gender, a further deep explanation of the interaction effect is not possible in the case of Arts and Humanities discipline. However, from figure 3 it is clear that the significant interaction effect of A X B X C is coming due to the interaction of Age and Gender of Arts and Humanities faculty members from the age group levels of 31 to 40 years and 41 to 50 years at 41 to 50 years.

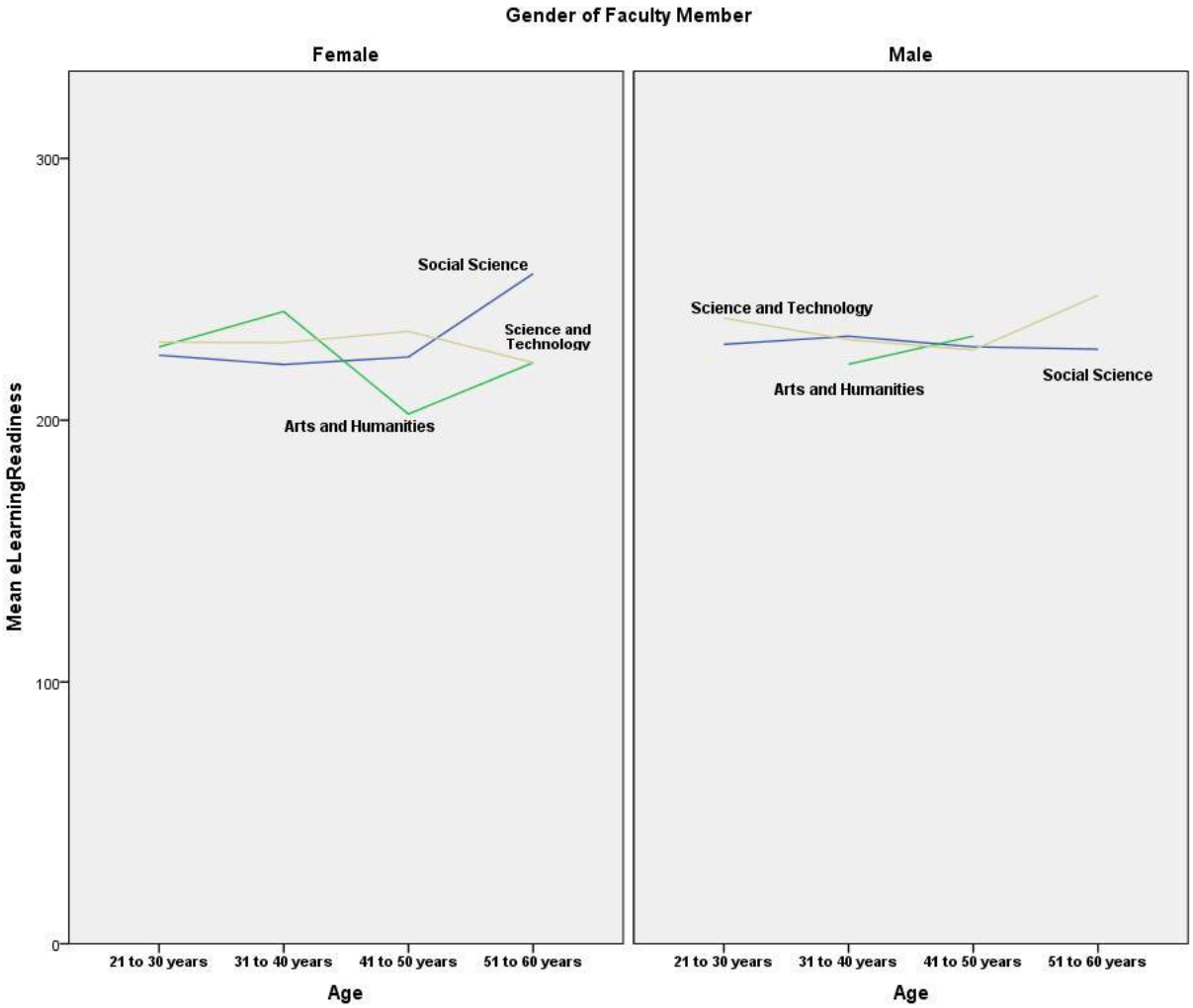


Source: Research Data

Figure 4: Trend influence of interaction between age and gender on E-learning readiness of faculty members of Science & Technology Discipline

Figure 4 showsthat the interaction between gender and age in Science & Technology discipline is coming at two levels i.e., at the age group levels of around 31 to 40 years and 41 to 50 years. From table 3 and figure 4, it can be interpreted that E-learning readiness of male faculty members of Science & Technology discipline is more than the female faculty members in the age group of 21 to 30 years and there is a steep fall in the E-learning readiness of male faculty members as we move from age group of 21 to 30 years to 41 to 50 years. Thus, from figure 4 it is clear that the significant interaction effect of A X B X C is coming due to the interaction of Age and Gender of Science &Technology faculty members at two age group levels i.e. around 31 to 40 years and 41 to 50 years.

To explain about the second order interaction among “Age”, "Gender" and "Discipline" (A X B X C), the plot of the mean "E-learning readiness" score for each combination of groups of “Age”, "Gender" and "Discipline" are plotted in a line graph, as shown in figure 5. The figure shows clearly that there is both between group interaction among various levels of these three independent variables (Age, Gender, Discipline).



Source: Research Data

Figure 5: Interaction effect among A X B X C (Age X Gender X Discipline)

Thus, from the results it can be concluded that E-learning readiness was found to be independent of Gender, Age and Discipline of faculty members of higher education institutions. Further, E-learning readiness was found to be independent of interaction between Age and Gender; Age and Discipline and Gender and Discipline of faculty members. However, the findings also reveal that E-learning readiness was found to be dependent of interaction among Age, Gender and Discipline of faculty members.

Discussion

E-learning readiness of faculty members

The mean score of E-learning readiness indicates a positive sign of readiness of faculty members towards E-learning practices. Also, the scores of standard deviation reveal that faculty members are not much scattered in terms of E-learning readiness. Further, it is also good to see that faculty members are using many online resources as a source of their learning.

Effect ofdemographic factors and E-learning readiness

Regarding demographic factors, the need for considering the demographic variables like age, gender, experience, discipline etc as predictor variables has been emphasized in many studies (Basol, et al., 2018; Ng, 2012; Mbarek, 2013; Hashim&Tasir, 2014;Aristovnik, et.al., 2017). However, the influence of these variables on criterion variable has not been uniform in all studies. The findings of the present studythat Gender does not have any significant influence on E-learning readiness adds support to the studies by Golband, etal. 2014;Panda & Mishra, 2007; Agboola, 2006;Soydal, etal., 2011;Navani& Ansari, 2016; Mutiaradevi, 2009;Oketch, 2014) who also reported that Gender does not have any significant influence on E-learning or its factors. Wong &Atan, 2007reported that there is no difference in the levels of positive perceptions towards E-learning of both male and female genders. Rasouli& Attaran, 2016;Wattakiecharoen&Nilsook, 2013 claimed that there is no significant relationship between Gender and E-learning readiness even with resepect to students.The finding of this study also contradicts the findings of Doculan (2014) that gender is significantly related to technological skills. Gender also plays a great role with regard to faculty members whose views regarding effectiveness of E-learning (Islam, etal., 2011), technological and contextual challenges (Aldowah, etal., 2017); understanding the E-learning subjects (Gonzalez-Gomez, etal., 2012); E-learning readiness (MOHE,2014, Yasmine,2007; Muilenburg& Berge, 2005; Al Gamdi&Samarji,2016), use of E-learning (O"Donnell,1991) differ significantly. Even in case of students, Gender plays a significant role with respects to factors like in attitude of students towards use of computer, use of E-learning resources or use of instructional technologies, E-learning readiness (Rajagopal and Bojin, 2003; Shashanni, 1994;Owate, etal., 2017; Spotts, etal., 1997; Naresh, etal., 2016).

A majority of the studies in psychological and social science research consider Age as an important predictor variable. The present study reveals that age does not have any significant influence on E-learning readiness of higher education faculty members. This finding is inline with the findings of Golband, et al. 2014, Al Gamdi&Samarji , 2016; Wattakiecharoen and

Nilsook, 2013; Navani& Ansari, 2016, Mutiaradevi, 2009, Oketch, 2014who claim that Age does not have any significant influence on E-learning readiness. The finding is also in contradiction with the findings ofTusubira and Mulira, 2004 who claimed that age plays an important role in use of new technology or new e-learning resources. Shashanni, 1994; Owate, et al., 2017 revealed that students age has strong influence on their use of computers, E-learning resources, integration of technology into teaching learning and computer attitude. Islam, 2011; Soydal, et al., 2011 revealed that age has significant effect on E-learning effectiveness or components related to E-learning readiness and Adelabu, et al.,(2014) and Osika, et al., (2009) said that the perception regarding contextual challenges in implementing E-learning are highly influenced by age. Studies by McMahon, et al., 1999 reveal that age plays a very important influence on ICT anxiety. Doculan (2014) presents that age significantly influences technology access and skills of E-learning stakeholders. Al-Fadhli,2009 ;Nauaf, 2010 reported that younger faculty members are more ready to implement E-learning when compared to older faculty members.

Discipline to which the faculty members belong to is also considered as one of the predictor variable in E-learning readiness studies. The findings of the present study reveal that Discipline to which the faculty members belong to did not have a significant influence on E-learning readiness. This finding is inline with the findings of Rasouli& Attaran, 2016; Al Gamdi&Samarji, 2016; Soydal, et al., 2011 who reported that Discipline/department to which the faculty members or students belonged to did not have any significant influence on E-learning readiness or factors related to E-learning readiness while Owate, et al., 2017 reported that subject specialization of students greatly determines their usage of e-resources. Islam, 2011 reported that program of study had significant effect on E-learning.

With regard to interaction among Age, Gender and Discipline, the findings of the present study reveal that the first level interaction among these variables (A X B, A X C, B X C) are not significant but the second order interaction (A X B X C) is significant. This indicates that the inter and intra relationship among the predictor variables has a significant influence E-learning readiness of faculty members of higher education institutions (Owate, et al., 2017).

With regard to the readiness of faculty members towards E-learning, the results indicate that they are ready for E-learning and there is no much variation among the faculty members with respect to their E-learning readiness. The results also indicate that the differneces in the mean scores of faculty members with respect to Age, Gender and Discipline are not significant. However, it is to

be noted that the interaction among these three predictor variables has a significant influence on E-learning readiness scores of higher education faculty members.

Recommendations

The score of E-learning readiness of around half of the faculty members is less than the mean scoreand this indicates that there is a need for intervention mechanisms to improve their readiness towards E-learning. The intervention mechanisms should also be planned to encourage the use of MOOC's and digital libraries among faculty members.The difference in the mean scores of E-learning readiness with regard to Age, Gender and Discipline are not significant and hence these factors are not a barrier in implementation of E-learning practices. However, while implementing the E-learning practices in the institution, it should be kept in mind that the interaction among these factors can influence E-learning readiness.

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