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A Study of Perception and Challenges of Online Teaching of Faculties in Mumbai during Lockdown Period

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Abstract:
The lockdown period is started from 15th March and continued till date. Education Industry is affected by this lockdown and started a new online teaching pedagogy by conducting online sessions via Zoom, Google meet, Microsoft team, etc . Professors have started conducting online sessions which has its own pros and cons with respect to technology proficiency and use of Digital technology. This paper analyzes the impact of this lockdown period on perception of faculties and their technology proficiency with respect to online teaching and the challenges faced by faculties in use of digital technology.

Keywords: *Online teaching, lockdown period, Digital technology, challenges, perception.*

I. INTRODUCTION

India's educational system has totally disturbed due to covid-19 and it is ultimately affecting students' progress. In this critical situation and keeping the student's safety and academic progress in mind, many of the Institutes have taken the steps to provide a learning facilities through Skype, Zoom, Concall, etc to fill the gap. This is on another hand motivating Students and Teachers to be technology friendly. As students are facing challenges with no doubts, Institutes is continuously helping them via online learning to fill the gap between Teachers and Students and to utilize the time efficiently.

The Institutes has designed different strategies to overcome from this gap. The Professors has started sharing notes in advance before they conduct zoom online sessions. After that subject chapter is taught by sharing screen and doubts asked via zoom chat to solve the students doubts. This entire process has shifted educational industry from classroom session to online sessions which is increasing path towards digitalization.

Now education Industry has become edu-tech industry as its taking lead in increasing practices of pedagogical change. This new strategy of education has removed geographical barrier and shifted towards digitalization. This new change in teaching will be continue until covid-19 ends and will fill a gap between teachers and students.

This study is conducted to find faculties perception towards this online teaching and their technology proficiency, and challenges faced by faculties in use of Digital technology.

LITERATURE REVIEW

Recent studies in technology enabled enhanced learning environment indicates the paradigm shift in defining the role of teachers as designers. Use of technology to impart online sessions has come across a big challenge for educators during the pandemic scenario. As in India still the adoption of technology and use of digital mediums in education sector is lacking its momentum. The role of

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educators in such a scenario has brought a lot many challenges and opportunities at the same time. For those who are quickly adopting to this new way of teaching- learning process are the once who are the creators and designers of the new form of education system.

Role of educators in adapting technology based teaching-learning process

Empowering educators for adopting and effectively using technology is a great concern in todays time. Past studies into technology-enhanced learning also states the critical importance of teachers as designers of technology enhanced learning (McKenney, Kali, Markauskaite, & Voogt, 2015, p. 182). However, little attention has been paid to developing teacher education programs to support teacher design learning. In order to support the new age teaching workforce its important to redefine the role of teachers as designers (McKenney et al., 2015). For educators the opportunity to design and reconceptualize the process of teaching learning instill critical thinking and helps in creating something which is more practical and real (Ertmer, Parisio, & Wardak, 2013). In a global society it is not only important for the educators but also for the students to think beyond the textbooks and develop creative and collaborative skills by using technology as a medium which is very important for their personal development (Cope & Kalantzis, 2000). The role of teachers has become all the more important now, as they have to develop the new learners who can solve complex problem, collaborate, and be flexible and creative. (Sfard, 1998).

The new basics of teaching have now surpassed the traditional literacy skiils(reading and writing) Kalantzis, Cope, and Harvey (2003). Developing new and latest perspective on teaching is the call for the hour. These changes reflect a new understanding of how, where, and when people are learning (Kim, Hung, Jamaludin & Lim, 2012). Technology and digital mediums can help support in collaborate practioners in a field—that is "a participatory learning environment" (Barab, Hay, Barnett, & Squire, 2001). Thus, new age learning can be seen a process of participating in authentic contexts by gradually becoming expert-like full participants and by an collaborative mix of textual concept based and technology enabled knowledge . (Reilly, 2011, p. 6)

Digital Learning

In a changed and transformed digital learning scenario educators access and control their students activities by monitoring their progress at both individual and group level and developing real time interventions to offer them support (Kaendler, Wiedmann, Rummel, & Spada, 2015).

Designing of technology based learning environments while documenting, creating, analyzing, and visualizing student learning data by this , design is viewed as a meaning-making activity (not as a finite, fixed object of esthetic consideration, see Kazmierczak, 2003) that enables re-construction or transformation of resources of the already designed world of representation (so-called Available Designs, Cope & Kalantzis, 2000). It's critical for the teachers to continuously refine and redefine designing processes to continually improve classroom designs.

Digital Presence

For students to be online learners they must have a strong digital presence . Kehrwald (2008) provides an overview of how participants create an online digital presence. At first students introduce themselves to each other and gain familiarity with each other. Further they ensure their presence to others by messaging on the online platform, marking their attendance in online platform and developing networking skills. An individual's social presence was seen as a cumulative result of their "demonstrations of presence but it is also affected by the strength of relations between individuals and the history of the relationship between them" (Kehrwald 2008, p. 96).

Dixson (2010) states that for effective online instruction, there also needs to be "strong instructor presence" also goes on to discuss several researchers who have found, through their research, that online learning can be more engaging for, have higher achievements and performance than traditional face-to-face students and are better with instructor interaction and communication . The author goes on to state that "… presence is the phenomenon that helps translate virtual activities into impressions of 'real' people" (p. 2). Kehrwald (2008) states that online participants experience "other participants as both real in the sense of being a real person (a human being) and present in the sense of being there in (coexisting, inhabiting) the virtual environment".

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Kehrwald (2008) also found that being real and being present, in an online learning environment, are very different; however, in his research, the respondents in the online learning environment viewed their peers as real. The "respondents viewed social presence as a quality of individuals and associated it with relations between themselves and other inhabitants of the online environment as both real people and salient social actors" (p. 95).

RESEARCH METHODOLOGY

Statement of Problem

During lockdown period, the scenario of Education Industry is shifted from classroom teaching to Digitalization in teaching. During this period online sessions are started; Faculties have their different perception towards online teaching and also every faculties are different in their technology proficiency skills. There can be challenges faced by faculties towards use of Digital technology. So, to find out the faculty's perception towards online teaching, their technology proficiency and challenges in use of Digital Technology, the Researcher has decided to conduct a study on **"A study of perception and challenges of online teaching of faculties in Mumbai during lockdown period".**

Scope of the study

This study is conducted in Mumbai area only.

Objectives of the study

- To study the perception of faculty towards use of Digital technology during lockdown period according to demographic factors.
- To study the technology Proficiency of faculties during lockdown period according to demographic factors.
- To study the challenges in the use of Digital technology in teaching faced by faculties during lockdown period according to demographic factors.

Hypothesis of the study

1. H_{01}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Gender.

H_{11}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Gender.

2. H_{02}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

H_{12}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

3. H_{03}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

H_{13}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

4. H_{05}: There is no significant difference in the technology proficiency of faculty in lockdown period according to Age.

H_{15}: There is significant difference in the technology proficiency of faculty in lockdown period according to Age.

5. H_{07}: There is no significant difference in the challenges faced by faculty towards use of digital technology during lockdown period according to Age.

H_{17}: There is significant difference in the challenges faced by faculty towards use of digital technology during lockdown period according to Age.

Sample size

100 sample were selected for this study. Faculties from different Institutes were the respondents of this study.

Sampling method

Under Non probability method, Simple Random sampling method were used for this study.

Statistical test used:

Following test are applied depending on hypothesis statement:

- Independent T test sample is used as there is one grouping variable.
- Two way ANOVA is used as there are 2 independent variable.

Data collection

- Primary data is used for this study.

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- Questionnaire were designed according to different variable.

DATA ANALYSIS

CRONBACH ALPHA TEST:

To check reliability of scale Cronbach alpha test is applied for each variable and also for all variables taken together and results are as follows.

Table 1: List of Cronbach alpha value

Sr. no	Variable	Number of questions	Cronbach Alpha value	Result of test
1	Perception towards DT	7	0.697	Satisfied
2	Technology Proficiency	12	0.881	Satisfied
3	Challenges in using DT	8	0.754	Satisfied

Above table indicate that all Cronbach Alpha values are greater than required standard value 0.700. Therefore test is satisfied for each variable and also for all variable together.

Conclusion is scale is reliable and satisfactory.

Testing of Hypothesis

1. H_{01}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Gender.

H_{11}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Gender.

To test above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

ANOVA					
Perception towards DT					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	12.491	1	12.491	.066	.798
Within Groups	18547.836	98	189.264		
Total	18560.327	99			

Interpretation: The above table shows that there is no change in the perception of Faculties towards use of Digital technology in lockdown period according to Gender

Due to no changes in perception of Faculties towards use of Digital technology in lockdown period according to Gender, the calculated p-value (sig value) of F-test is 0798. It is more than standard p-value 0.05 (5% level of significance). Therefore F-test is accepted. Hence null hypothesis is accepted and alternate hypothesis is rejected.

Conclusion: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Gender.

To study findings of hypothesis mean scores of perception of faculties towards DT in lockdown period for each Gender is obtained and presented in the following table.

Report showing mean scores of Perception towards DT

Report			
Perception towards DT			
Gender	N	Mean	Std. Deviation
Female	35	76.4898	15.02436
Male	65	77.2308	13.03419
Total	100	76.9714	13.69226

Above table indicate that mean score of perception of faculties towards DT for 35 Female is 76. 4898 percent and for 65 Male is 77. 2308 percent.

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2. H_{02}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

H_{12}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

To test above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

ANOVA					
Perception of faculties as per Age					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	514.776	3	171.592	.913	.438
Within Groups	18045.551	96	187.974		
Total	18560.327	99			

Interpretation: The above table shows that there is no change in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

Due to no changes in perception of Faculties towards use of Digital technology in lockdown period according to Age, the calculated p-value (sig value) of F-test is 0.438. It is more than standard p-value 0.05 (5% level of significance). Therefore F-test is accepted. Hence null hypothesis is accepted and alternate hypothesis is rejected.

Conclusion: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Age.

To study findings of hypothesis mean scores of perception of faculties towards DT in lockdown period for each Age is obtained and presented in the following table.

Report			
Perception towards DT			
Age	**N**	**Mean**	**Std. Deviation**
Age upto 25Years	5	72.0000	14.76344
26yrs-35yrs	50	77.6571	15.09310
36yrs-45yrs	35	78.2857	8.98712
Above 45years	10	71.4286	19.04762
Total	100	76.9714	13.69226

Above table indicate that mean score of perception of faculties towards DT as per Age for 5 N upto 25yrs is 72.0000% , for 50 N 26-35yrs IS 77.65%, for 35 N 36-45yrs is 78.2857%, for 10 N above 45yrs is 71.9714%.

To test perception of faculties between every two Age is significant or not, POST HOC test is applied. Results are as follows.

POST HOC test

Multiple Comparisons						
Dependent Variable: Perception of Facutlies						
LSD						
(I) Age_of_respondent	**(J) Age_of_respondent**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Upto 25 Years	26yrs-35yrs	-5.65714	6.43074	.381	-18.4221	7.1078
	36yrs-45yrs	-6.28571	6.55481	.340	-19.2969	6.7255
	Above 45years	.57143	7.50948	.940	-14.3348	15.4776

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26yrs-35yrs	Upto 25 Years	5.65714	6.43074	.381	-7.1078	18.4221
	36yrs-45yrs	-.62857	3.02162	.836	-6.6264	5.3693
	Above 45years	6.22857	4.74941	.193	-3.1989	15.6561
36yrs-45yrs	Upto 25 Years	6.28571	6.55481	.340	-6.7255	19.2969
	26yrs-35yrs	.62857	3.02162	.836	-5.3693	6.6264
	Above 45years	6.85714	4.91611	.166	-2.9013	16.6155
Above 45years	Upto 25 Years	-.57143	7.50948	.940	-15.4776	14.3348
	26yrs-35yrs	-6.22857	4.74941	.193	-15.6561	3.1989
	36yrs-45yrs	-6.85714	4.91611	.166	-16.6155	2.9013

3. H_{03}: There is no significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

H_{13}: There is significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

To test above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

ANOVA					
Use of Digital Technology as per Age					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	1424.311	2	712.155	4.031	.021
Within Groups	17136.016	97	176.660		
Total	18560.327	99			

Interpretation: The above table shows that there is change in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

Due to changes in perception of Faculties towards use of Digital technology in lockdown period according to Qualification, the calculated p-value (sig value) of F-test is 0.21. It is less than standard p-value 0.05 (5% level of significance). Therefore F-test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is a significant difference in the perception of Faculties towards use of Digital technology in lockdown period according to Qualification.

To study findings of hypothesis mean scores of perception of faculties towards DT in lockdown period for each Qualification is obtained and presented in the following table.

Report			
Perception towards DT			
Qualification	**N**	**Mean**	**Std. Deviation**
Graduate	0	0	0
Post Graduate	14	78.367347	12.812586
Professional	60	74.095238	14.298945
Doctorate	26	82.857143	10.842095
Total	100	76.971429	13.692262

Above table indicates that the mean score of perception of faculties towards DT as per Qualification is, for 14 post graduate is 78.36%, for 60 Professional is 74.09%, for 26 Doctorates is 82.85%.

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To test perception of faculties between every two Age is significant or not, POST HOC test is applied. Results are as follows.

POST-HOC test

Multiple Comparisons						
Dependent Variable: Mean LSD						
(I) Qualification	(J) Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Post Graduate	Professional	4.27211	3.94498	.282	-3.5576	12.1018
	Doctorate	-4.48980	4.40604	.311	-13.2346	4.2550
Professional	Post Graduate	-4.27211	3.94498	.282	-12.1018	3.5576
	Doctorate	-8.76190*	3.12073	.006	-14.9557	-2.5681
Doctorate	Post Graduate	4.48980	4.40604	.311	-4.2550	13.2346
	Professional	8.76190*	3.12073	.006	2.5681	14.9557
*. The mean difference is significant at the 0.05 level.						

4. H_{05}: There is no significant difference in the technology proficiency of faculty in lockdown period according to Age.

H_{15}: There is significant difference in the technology proficiency of faculty in lockdown period according to Age.

To test above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

ANOVA					
Technology Proficiency as per Age					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1790.663	3	596.888	3.434	.020
Within Groups	16685.421	96	173.806		
Total	18476.083	99			

Interpretation: The above table shows that there is difference in the technology proficiency of Faculties in lockdown period according to Age.

Due to difference in technology proficiency of Faculties in lockdown period according to Age, the calculated p-value (sig value) of F-test is 0.020. It is less than standard p-value 0.05 (5% level of significance). Therefore F-test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant difference in the technology proficiency of faculty in lockdown period according to Age.

To study findings of hypothesis mean scores of technology proficiency of faculties in lockdown period for each Age is obtained and presented in the following table.

Report			
Technology Proficiency			
Age	N	Mean	Std. Deviation
Age upto 25Years	5	70.666667	18.878265
26yrs-35yrs	50	72.533333	13.839213
36yrs-45yrs	35	81.047619	13.117653
Above 45years	10	71.500000	1.657382
Total	100	75.316667	13.661153

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Above table indicate that mean score of technology proficiency of faculties as per Age for 5 N upto 25yrs is 72.66% , for 50 N 26-35yrs IS 72.53%, for 35 N 36-45yrs is 81.04%, for 10 N above 45yrs is 71.50%.

To test technology profeciency between every two Age is significant or not, POST HOC test is applied. Results are as follows.

POST HOC test

Multiple Comparisons						
Dependent Variable: Technology Proficiency LSD						
(I) Age_of_respondent	(J) Age_of_respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Upto 25 yrs	26-35yrs	-1.86667	6.18364	.763	-14.1411	10.4078
	36-45yrs	-10.38095	6.30295	.103	-22.8922	2.1303
	Above 45yrs	-.83333	7.22094	.908	-15.1668	13.5001
26-35yrs	Upto 25 yrs	1.86667	6.18364	.763	-10.4078	14.1411
	36-45yrs	-8.51429*	2.90552	.004	-14.2817	-2.7469
	Above 45yrs	1.03333	4.56692	.821	-8.0319	10.0986
36-45yrs	Upto 25 yrs	10.38095	6.30295	.103	-2.1303	22.8922
	26-35yrs	8.51429*	2.90552	.004	2.7469	14.2817
	Above 45yrs	9.54762*	4.72721	.046	.1642	18.9311
Above 45yrs	Upto 25 yrs	.83333	7.22094	.908	-13.5001	15.1668
	26-35yrs	-1.03333	4.56692	.821	-10.0986	8.0319
	36-45yrs	-9.54762*	4.72721	.046	-18.9311	-.1642
*. The mean difference is significant at the 0.05 level.						

5. H_{07}: There is no significant difference in the challenges faced by faculty towards use of digital technology during lockdown period according to Age.

H_{17}: There is significant difference in the challenges faced by faculty towards use of digital technology during lockdown period according to Age.

To test above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

ANOVA					
Challenges in use of Digital Technology					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2613.491	3	871.164	6.002	.001
Within Groups	13934.696	96	145.153		
Total	16548.188	99			

Interpretation: The above table shows that there are challenges faced by Faculties towards using DT in lockdown period according to Age.

Due to challenges faced by Faculties towards using DT in lockdown period according to Age, the calculated p-value (sig value) of F-test is 0.001. It is less than standard p-value 0.05 (5% level of significance). Therefore F-test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant difference in the challenges faced by faculty towards use of digital technology during lockdown period according to Age.

To study findings of hypothesis mean scores of challenges faced by faculties towards use of DT in

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lockdown period for each Age is obtained and presented in the following table.

Report			
Challenges in the use of DT			
Age	**N**	**Mean**	**Std. Deviation**
Age upto 25Years	5	93.000000	2.091650
26yrs-35yrs	50	76.700000	12.910998
36yrs-45yrs	35	72.428571	11.399912
Above 45years	10	84.750000	12.159244
Total	100	76.825000	12.928782

Above table indicate that mean score of challenges faced by faculties in lockdown as per Age for 5 N upto 25yrs is 93.00% , for 50 N 26-35yrs IS 77.70%, for 35 N 36-45yrs is 72.42%, for 10 N above 45yrs is 84.75%.

To test challenges faced by faculties towards of DT between every two Age is significant or not, POST HOC test is applied. Results are as follows.

POST HOC test
Multiple Comparisons

Dependent Variable: Challenges in use of Digital Technology
LSD

(I) Age_of_respondent	(J) Age_of_respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Upto 25 yrs	26-35yrs	16.30000*	5.65099	.005	5.0829	27.5171
	36-45yrs	20.57143*	5.76002	.001	9.1379	32.0050
	Above 45yrs	8.25000	6.59893	.214	-4.8488	21.3488
26-35yrs	Upto 25 yrs	-16.30000*	5.65099	.005	-27.5171	-5.0829
	36-45yrs	4.27143	2.65524	.111	-.9992	9.5420
	Above 45yrs	-8.05000	4.17353	.057	-16.3344	.2344
36-45yrs	Upto 25 yrs	-20.57143*	5.76002	.001	-32.0050	-9.1379
	26-35yrs	-4.27143	2.65524	.111	-9.5420	.9992
	Above 45yrs	-12.32143*	4.32002	.005	-20.8966	-3.7463
Above 45yrs	Upto 25 yrs	-8.25000	6.59893	.214	-21.3488	4.8488
	26-35yrs	8.05000	4.17353	.057	-.2344	16.3344
	36-45yrs	12.32143*	4.32002	.005	3.7463	20.8966

*. The mean difference is significant at the 0.05 level.

FINDINGS

- The mean score of perception of faculties towards DT for 35 Female is 76. 4898 percent and for 65 Male is 77. 2308 percent which indicate that there is no that much difference between male and female perception towards digital technology in lockdown period.
- The mean score of perception of faculties towards DT as per Age for 5 N upto 25yrs is 72.0000% , for 50 N 26-35yrs IS 77.65%, for 35 N 36-45yrs is 78.2857%, for 10 N above 45yrs is 71.9714% which indicates that there is no much difference in perception of faculties towards DT as per different Age in lockdown period.

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- The mean score of perception of faculties towards DT as per Qualification is, for 14 post graduate is 78.36%, for 60 Professional is 74.09%, for 26 Doctorates is 82.85% which shows that Doctorate faculties are more comfortable with DT in lockdown period and then post graduates.
- The mean score of technology proficiency of faculties as per Age for 5 N upto 25yrs is 72.66% , for 50 N 26-35yrs IS 72.53%, for 35 N 36-45yrs is 81.04%, for 10 N above 45yrs is 71.50% which proves that there is a minor difference in mean score of technology proficiency of all age group, faculties between 36-45 having more technology proficiency skills.
- The mean score of challenges faced by faculties towards use of DT in lockdown as per Age for 5 N upto 25yrs is 93.00% , for 50 N 26-35yrs IS 77.70%, for 35 N 36-45yrs is 72.42%, for 10 N above 45yrs is 84.75% which indicates that faculties between age of 36-45 faces more challenges in the use of DT.

CONCLUSION

It is concluded from the study that, during this lockdown period(covid-19), the faculties have the perception like Online teaching require Knowledge of information technology, Online teaching require knowledge of DT, Online lectures can add more variation/content in teaching, etc

In terms of Technology proficiency, more Doctorate faculties and post graduates are technology proficient in terms of use of Microsoft word, Microsoft excel, Microsoft ppt, SPSS Software,etc

With respect to challenges in the use of DT, challenges like Lack of availability of technology, Internet/Wifi connectivity, Lack of infrastructure, Lack of concentration, Lack of class room environment, Communication is not effective, etc

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