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RESEARCH ARTICLE

ANALYSING COMPONENTS OF E-LEARNING READINESS IN LECTURERS AND STUDENTS DURING THE COVID-19 PANDEMIC

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Abstract

The lockdown due to the COVID-19 pandemic has highly impacted the education field. E-learning proved to be one of the most efficient ways of teaching and learning. Objectives are to identify the components of e-learning readiness: 1. Technology readiness 2. Perceived self confidence 3. E-learning acceptance 4. Beliefs about training requirements It also looks at the differences in the components of e-learning readiness between lecturers and students. Sample size is 91, with both male and female lecturers (n = 48) and students (n = 43) from arts and science colleges of Chennai. E-learning Readiness Scale with both teachers and students forms was used. Independent measures t-test was done. Results showed that most of the lecturers and students have access to basic facilities which is needed for e-learning. Lecturers and students were found to be equal in their technology readiness and perceived self confidence. Lecturers were significantly high on e-learning acceptance compared to students. And students' belief towards training requirements of e-learning was significantly high compared to lecturers. This shows that students need to be given proper education and training on e-learning for them to be confident enough to accept and adapt to e-learning. The lesser belief of training requirements in lecturers also needs to be addressed to check if they are fully equipped for efficient use of e-learning tools.

Introduction:-

The lockdown due to the COVID-19 pandemic has highly impacted the educational field. As a replacement of the traditional classroom, the challenges against education are positively faced by conducting online classes for students. The ed-tech resources are used to facilitate learning. With the rapid progress in technology, e-learning proved to be one of the most efficient and effective ways of teaching/learning in a Distance Education set up. It includes lecturers using different platforms on the web to connect with a group of students. Teaching and assessment happens with the aid of different tools that are available on the web. In addition to these tools in different platforms on the web, the success in teaching through the web is highly reliant on the lecturer who can handle the classes skill-fully and acceptance of this new mode of learning by students. In this regard, the requirement of the technical skills of lecturers and students along with the need for them to accept and adapt to this new normal is high.This study focuses primarily on analysing the e-learning readiness in lecturers and students which is demanded to be high during this testing times. This study measures e-learning readiness through it's four components namely, technology

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readiness, perceived self-confidence, e-learning acceptance and belief towards the importance of training for e-learning.

E- learning is defined as "an instruction delivered on a digital device (such as desktop computer, laptop computer, tablet or smart phone) that is intended to support learning" (Clark & Mayer, 2016). It not only provides easy accesses to education but also helps in terms of student-teacher interaction, rather than simple, virtual, CD or taped video lessons. Teachers as well as students are expected to own at least one of the digital tools (like mobile phones, computers or laptops) provided with a good internet facility so as to ensure the utmost efficiency of e-learning. The primary challenge of lecturers and students towards e-learning is the readiness and skill to handle sessions and webinars, in a way that is comfortable as well as conveyable to the students. The technology-readiness construct is defined as "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work" (Parasuraman, 2000). Lecturers must be open to access the digitalised educational curriculum. As William James advocated, self-confidence is about "believing in oneself" (Bénabou & Tirole, 2002). It is one of the factors that evokes readiness in usage of technological tools with the required skills and without. The next facet, acceptance is referred as "the degree to which a law, measure or device is accepted" (Adell, Várhelyi & Nilsson, 2014). The more the acceptance readiness towards technology, the more will be the success of implementing e-learning. The need to be trained in regard of online teaching is a necessity. The online training is briefed as "the manipulation of the course management system (CMS)—e.g., Blackboard, Angel, or other software. The contents of training often deals with tools, especially popular Web 2.0 tools (wikis, blogs), mobile technologies (iOS, Android, etc.) and social networking programs (Twitter, Facebook)" (Meyer & Murrell, 2014).

Despite the rapid proliferation and increased popularity of e- learning at the university level, very little research appears to have been done on the preparedness or readiness of lecturers and students for such learning environments (Parkes, M.,2015). Results from the study by Arif (2001) suggest that students are able to effectively access and navigate course content using the Internet. Results of the study by Parks.M (2015) showed that students were generally considered to have relatively high levels of preparedness for competencies associated with the use of technology and the Internet—for example, using search engines or uploading and downloading resources. The exception was the competency associated with the knowledge and use of Learning Management Systems, for which students were ranked lower in preparedness than the other technology competencies. This suggests that there is the need for the provision of suitable training programs for students beyond the development of mere computing skills. So, it can be understood that although students possess basic computing skills, for them to use e-learning tools efficiently requires training.

The results of the survey by Hamat (2012) in Malaysia show that 65% of the lecturers respondents are owners of smart or mobile phones. The respondents also indicated a favourable perception of e-learning although 79% of them have never used it. This favourable perception of e-learning will influence the readiness to use e-learning. Study by Moftakhari (2013) found that instructors and students, were less on their Technology Readiness. Acceptance for e-learning of students were over the expected level, however it is the contrary for instructors. On the other hand, there is a good acceptance for e-learning training. Both instructors and students believe that they need to be trained before launching e-learning applications.

Rationale:

The lockdown of the nation because of the COVID-19 pandemic has posed a lot of challenges in the field of higher education. This situation demands lecturers and students to be equipped with technology and skills to conduct classes and assessments through the web. With this shift in learning and teaching it is important to check if lecturers and students are ready to adapt e-learning. This study aims to look at the four aspects of e-learning readiness : technology readiness, perceived self-confidence, e-learning acceptance and belief towards the importance of training for e-learning. Analysis of these four aspects will aid in understanding the current level of readiness in lecturers and students in Chennai, to identify the challenges present and focus on the areas that requires improvement to successfully conduct classes and assessment through web. The study also aims to look the differences between lecturers and students, if any present in these four components of e-learning readiness.

Problem and hypotheses:

Research questions:

1. What is the level of e-learning readiness in lecturers during the COVID-19 pandemic?
2. What is the level of e-learning readiness in students during the COVID-19 pandemic?

3. Is there any differences in the levels of e-learning readiness between lecturers and students?

Objectives:-

1. To measure the levels of e-learning readiness in lecturers and students during the COVID-19 pandemic.
2. To find out the differences in the levels of e-learning readiness between lecturers and students.

Hypotheses:

1. There will be no significant difference in technology readiness between lecturers and students during the COVID-19 pandemic.
2. There will be no significant difference in perceived self confidence between lecturers and students during the COVID-19 pandemic.
3. There will be no significant difference in e-learning acceptance between lecturers and students during the COVID-19 pandemic.
4. There will be no significant difference in belief towards training requirements between lecturers and students during the COVID-19 pandemic.

Method of Investigation:-

Research design:
Ex post facto research design.

Independent variables:
Groups under study - lecturers and students.

Dependent variables :
Four aspects of e-learning readiness:
1. technology readiness
2. perceived self confidence
3. E-learning acceptance
4. belief towards training requirements

Sample:
Sample size of the study is 91. Purposive sampling was adopted to identify both male and female lecturers (n=48) and under graduate students (n=43) from arts and science colleges of Chennai.

Inclusion criteria:
Lecturers and under graduate students aged 18 - 21 from different arts and science colleges of Chennai city.

Exclusion criteria:
Lecturers and students from professional colleges in Chennai city.
Lecturers and students from other places apart from Chennai city.

Description of the tool:
E-learning Readiness Assessment Scale was adopted from the scales of previous studies. The questions in the E-learning Readiness Assessment Scale were altered by Moftakhari (2013). The scale has two forms for both teachers and students and measures four facets: Use of technology readiness, perceived self-confidence, e-learning acceptance and belief towards training requirements. The first three questions has a response format in the form of yes/no. The rest of the questions measuring the four facets are in the form of 5-point Likert-type scale with 1 to be the lowest and 5 to be the highest indicator of readiness. The mean score is 3.40 and the expected readiness values for each variable are, 37.4 for technology readiness, 54.4 for perceived self-confidence, 34 for e-learning acceptance and 10.2 for belief towards training requirements.

Reliability:
Internal consistency was established. The Cronbach's alpha was found to be, 0.83 for technology readiness, 0.91 for self-confidence, 0.95 acceptance readiness, 0.88 for training readiness respectively.
Validity:

The items of the questionnaire were adopted from the previous studies (Akaslan & Law, 2011a; Akaslan & Law, 2011b; Soydal, Alır & Ünal, 2012) under the concern of experts and thus validity is considered acceptable.

Procedure of data collection:
Snow ball technique was used and questionnaires were circulated through Google forms.

Ethics:
Ethical guidelines were followed. Sample groups were given a choice of voluntary participation. Anonymity was maintained and confidentiality was assured.

Results and Discussion:-

Apple's Numbers was used to analyse data collected for the present study.

Descriptive Statistics:
1. Mean
2. Standard deviation

Inferential Statistics
Independent measures t-test

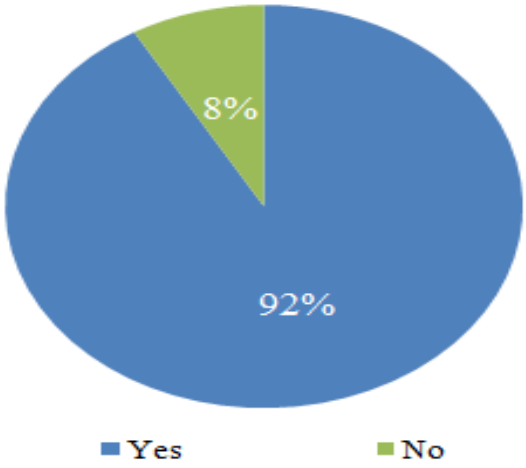

Figure 1:- Represents lecturers' access to an individual computer.

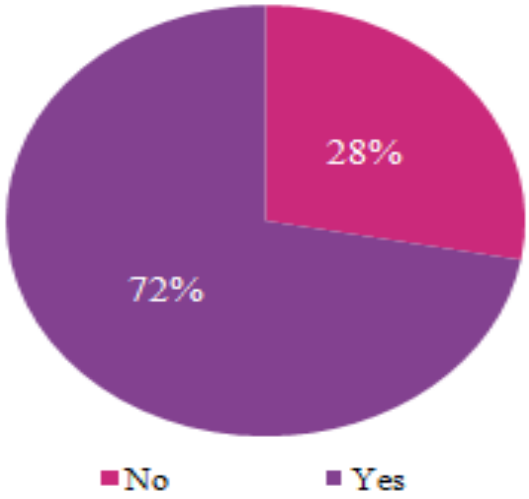

Figure 2: represents students' access to an individual computer

From **figure 1 & 2:** it is understood more than 92% of lecturers and 72% of students claimed to have an individual computer.

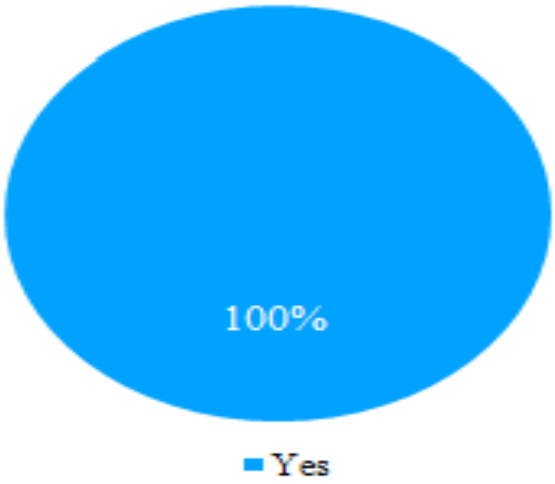

Figure 3:- Represents lecturers' access to an internet connected smartphone.

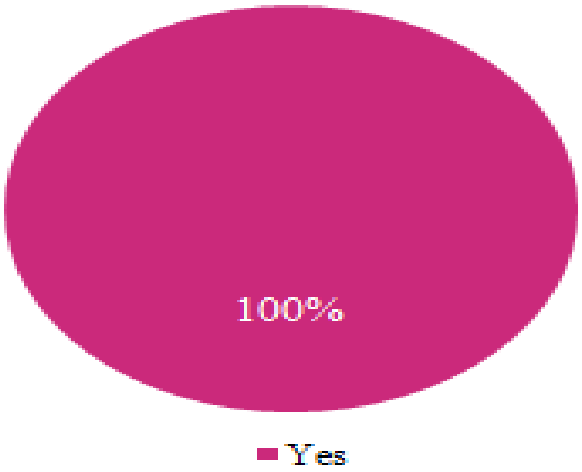

Figure 4:- Represents students' access to an internet connected smartphone.

From figure 3 and 4, it is understood that all the lecturers and students of the sample group have access to an internet connected smartphone.

Table 1:- Represents the mean and the standard deviation of the four aspects of e-learning readiness in lecturers during the COVID-19 pandemic.

Variables	n	Mean	Standard Deviation
Technology Readiness	48	30.8	11.5
Perceived Self-confidence	48	43.8	16.5
E-learning Acceptance	48	32.1	11.59
Belief towards training requirements	48	7.8	3.7

From table 1, it can be seen that the lecturers have mean scores of 30.8 in technology readiness, 43.8 in perceived self-confidence, 32.1 in e-learning acceptance, 7.8 in belief towards training requirements. All the obtained mean scores in all the four components of e-learning readiness of lecturers is lesser than the expected mean scores. The expected level of readiness in the four components are 37.4 for technology readiness, 54.4 for perceived self-confidence, 34 for e-learning acceptance and 10.2 for training readiness.

Table 2:- Represents the mean and the standard deviation of the four aspects of e-learning readiness in students during the COVID-19 pandemic.

Variables	n	Mean	Standard Deviation
Technology Readiness	43	30.7	8.14
Perceived Self-confidence	43	45	11
E-learning Acceptance	43	23.4	7
Belief towards training requirements	43	10	3

From table 2, it can be seen that the students have mean scores of 30.7 in technology readiness, 45 in perceived self-confidence, 23.4 in e-learning acceptance, 10 in belief towards training requirements. All the obtained mean scores in all the four components of e-learning readiness of students is lesser than the expected mean scores. The expected level of readiness in the four components are 37.4 for technology readiness, 54.4 for perceived self-confidence, 34 for e-learning acceptance and 10.2 for training readiness.

Figure 5:- Represents lecturers and students mean scores of four components of e-learning readiness.

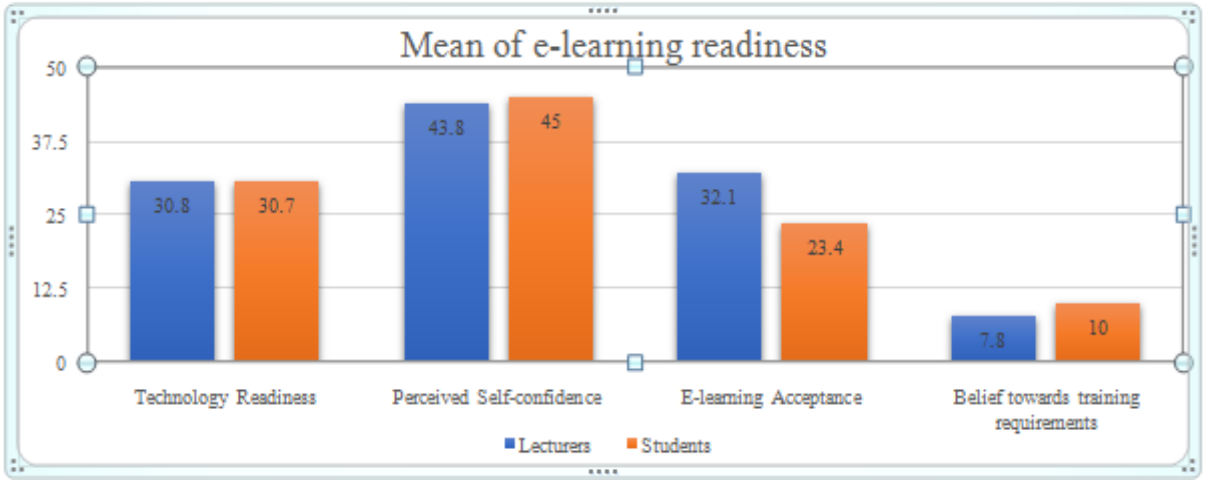

Table 3:- t test for the mean differences in technology readiness between lecturers and students during the COVID-19 pandemic.

			Groups				
	Lecturers			Students			T
	Mean	SD	N	Mean	SD	n	
Technology readiness	30.8	11.5	48	30.7	8.14	43	0.64^{NS}
NS - not significant							

Table 3 represents the Independent sample t test results for technology readiness between lecturers and students during the COVID-19 pandemic. From table 3, it can be seen that there was no significant mean difference in technology readiness between lecturers and students. The mean score of technology readiness in lecturers (M=30.8) is same as the mean score of technology readiness in students (M=30.7). Hence the null hypothesis that states, there will be no significant difference in technology readiness between lecturers and students during the COVID-19 pandemic is failed to be rejected.

Table 4:- t test for the mean differences in perceived self confidence between lecturers and students during the COVID-19 pandemic.

			Groups	

	Lecturers			**Students**			**t**
	Mean	**SD**	**n**	**Mean**	**SD**	**n**	
Perceived self confidence	43.8	16.5	48	45	11	43	-0.426^{NS}

NS - not significant

Table 4 represents the Independent sample t test results for perceived self confidence between lecturers and students during the COVID-19 pandemic. From table 4, it can be seen that there was no significant mean difference in perceived self confidence between lecturers and students. The mean score of perceived self confidence in lecturers (M=43.8) is close to the mean score of perceived self confidence in students (M=45). Hence the null hypothesis that states, there will be no significant difference in perceived self confidence between lecturers and students during the COVID-19 pandemic is failed to be rejected. The perceived self confidence to use e-learning tools is slightly higher in students compared to lecturers.

Table 5:- t test for the mean differences in e-learning acceptance between lecturers and students during the COVID-19 pandemic.

			Groups				
	Lecturers			**Students**			**t**
	Mean	**SD**	**n**	**Mean**	**SD**	**n**	
E-learning acceptance	32.1	11.59	48	23.4	7	43	4.337**

** = p<0.01, significant at the 0.01 level, two-tailed.

Table 5 represents the Independent sample t test results for e-learning acceptance between lecturers and students during the COVID-19 pandemic. From table 5, it can be seen that there is a significant mean difference ($p < 0.01$), in e-learning acceptance between lecturers and students. The mean score of e-learning acceptance in lecturers (M=32.1) is significantly higher than the mean score of e-learning acceptance in students (M=23.4). Hence the null hypothesis which states that, there will be no significant difference in e-learning acceptance between lecturers and students during the COVID-19 pandemic is rejected.

Table 6:- t test for the mean differences in belief toward training requirements between lecturers and students during the COVID-19 pandemic.

			Groups				
	Lecturers			**Students**			**T**
	Mean	**SD**	**n**	**Mean**	**SD**	**n**	
Belief towards training requirements	7.8	3.7	48	10	3	43	-2.749**

** = p<0.01, significant at the 0.01 level, two-tailed.

Table 6 represents the Independent sample t test results for belief toward training requirements between lecturers and students during the COVID-19 pandemic. From table 6, it can be seen that there is a significant mean difference ($p < 0.01$), in belief toward training requirements between lecturers and students. The mean score of belief toward training requirements in students (M=10) is significantly higher than the mean score of belief toward training requirements in lecturers (M=7.8). Hence the null hypothesis which states that, there will be no significant

difference in belief toward training requirements between lecturers and students during the COVID-19 pandemic is rejected.

Discussion of Findings:-

From the data collected, it is seen that more than 92% of lecturers and 72% of students of the sample group claimed to have an individual computer and all the lecturers and students of the sample group have access to an internet connected smartphone. This means that most of the lecturers and students have access to basic facilities which is needed for e-learning during this COVID-19 pandemic.

Four components of e-learning readiness- technology readiness, perceived self-confidence, e-learning acceptance and belief towards training requirements were measured in both lecturers and students.

Lecturers and students are found to lag behind in their technological readiness when compared to the expected level. Still they are found have the required computer skills, they use internet as an information source and for communication. The lag found in technology readiness is because of the unfamiliarity of the e-learning tools. It is because there was no need to learn or use those tools earlier. As they have the required skills, with proper training on e-learning they will be able to use e-learning tools efficiently. There was no significant mean difference in technology readiness between lecturers and students. The level of technology readiness are same in lecturers and students. This is against the finding of Arif (2001), that students are technologically sound compared to instructors. The lecturers of the sample are found to have the required computer skills in par to the students. This might be because of the era of digitalisation around or the need that this COVID-19 pandemic has created.

Lecturers and students have reported that their basic skills to use the internet efficiently are high. They are also open towards e-learning and ready to integrate e-learning in their teaching. The overall mean of perceived self confidence in both lecturers and students are lesser than the expected level of readiness. This is because of the lag in their skills to create e-learning contents using e-learning tools which will require training. With their reported skills they will be able to learn and integrate e-learning effectively. There was no significant mean difference in perceived self confidence between lecturers and students. The perceived self confidence to use e-learning tools is slightly higher in students compared to lecturers. This difference in perceived self confidence might be because of the familiarity and ease in which students handle new softwares and programs.

Lecturers and students are found to lag behind in their e-learning acceptance when compared to the expected level. There is a significant mean difference, in e-learning acceptance between lecturers and students. Lecturers are high on e-learning acceptance compared to students. They believe that e-learning improves quality of teaching and increases their productivity. Students are very less on their e-learning acceptance compared to the lecturers. This is in accordance to the finding by Parkes (2015) that students find some facets of e-learning challenging. Preparedness to use e-learning tools might not necessarily lead to e-learning readiness and acceptance. This might be because of so many existing biased thinking and ideas about the virtual classroom environment. This can be rectified by proper introduction and training on e-learning tools and its uses. The existing situation resulted by the pandemic has created opportunities for e-learning lessons and assessment. This might aid in changing this perspective of students towards e-learning.

The overall belief towards training requirements of e-learning is lesser than the expected level for both lecturers and students. There is a significant mean difference, in belief toward training requirements between lecturers and students. Students are higher in their belief towards training requirements of e-learning. This might be because of their lack in belief and acceptance of e-learning and it's efficiency. The fact that students are open towards training and belief that they highly require training in e-learning tools and applications is favourable. This proves that they are open to learning and provided with proper training they will be able to use e-learning tools efficiently. The lesser belief of lecturers towards training requirements cannot be ignored. They are also found to lack skills to use e-learning tools. Hence, training must be highly recommended for lecturers too.

This COVID-19 pandemic has forced education to be fully reliant on the web. This has demanded a need to be equipped with the required technology, skills to operate and acceptance of this new mode of teaching and learning on both lecturers and students. Results showed that most of the lecturers and students have access to basic facilities which is needed for e-learning. Lecturers and students were found to be equal in their technology readiness and

perceived self confidence. Lecturers were significantly high on e-learning acceptance compared to students. And students' belief towards training requirements of e-learning was significantly high compared to lecturers.

Conclusions:-

1. Lecturers and students have access to basic facilities required for e-learning.
2. Lecturers and students have the same level of technology readiness and perceived self confidence towards e-learning.
3. Lecturers are high on e-learning acceptance compared to students.
4. Students' belief towards training requirements of e-learning is high compared to lecturers.

Implications:

Having understood the different facets of e-learning readiness in lecturers and students helps in understanding this whole idea of implementation of e-learning. It has aided in identifying the parts that are lacking in successful implementation of e-learning. So these areas can be improved to make teaching and learning successful through web during this pandemic.

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