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## Digital Transformation analyzing the Impact of Technology Integration on Pedagogy in Higher Education (With special reference to college in Chennai city)

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### Abstract:

Advancements in adaptation of the online teaching, learning and assessment in higher education. Which have facilitated a convergence of online based assessment learning outcomes and, thus, offer new opportunities for all students through better access to innovation, increased interaction between staff and students and greater flexibility? However, the transition to online teaching and learning presents new challenges as the roles and expectations of both faculties and students evolve. An online teacher must create a coherent learning experience for students with whom they may not meet face-to-face and, therefore, must develop new support strategies that maintain motivation and encourage interaction among the faculties and students. Adapting student-centered approaches to the online environment has required the development of new skills and changes to teaching practices. This project presents an analysis of the changed environment for teachers and learners in an assessment outcome based on constructivist principles that has moved from predominantly on-campus delivery to online mode.

**Key word:** Online teaching-learning modes, Online education E-learning platform, higher education, students' preferences and adaptation of online teaching

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**Introduction:** Online learning emerged in 1982 when the Western Behavioral Sciences Institute in La Jolla, California opened its School of Management and Strategic Studies. The first-ever completely online course was offered in 1984 by the University of Toronto. In 1986, the Electronic University Network was established for use in DOS and Commodore 64 computers. The School employed computer conferencing to deliver a distance education program to business executives. E-assessment, which is also known as online assessment, is the continuous electronic assessment process where information and communication technology is used for the presentation of assessment activity, and the recording of responses. This includes the end-to-end assessment process from the perspective of learners, tutors. In 1994 India first time there was a paradigm shift as the ISROU provided the teleconferencing facility at **IGNOU headquarter in New Delhi**. It was a one-way video and two-way audio communication through phone line providing scope of live interaction for the learners. In the year 2000, the teleconferencing got the recognition as an official education channel under the Gyandarshan platform. But still there was a need for two way video communication to be fulfilled. In 2005 an effort was made by ISRO in collaboration with MHRD and IGNOU in this regard with the

launching of EDUSAT satellite designed by late **"APJ Abdoool Kalam"** during his tenure as President of India. Despite all efforts, EDUSAT could not fulfill the need as expected as the communication technology still to be developed to support such an initiative. In 2020 one may find it very easy today. But it is a fact that even 15 years back from today it was a big challenge to establish a two-way video communication between one to many. current Trends in online education 2020 imply training will be more specific and personalized. Online teaching and assessment will need to play a key role in creating a roadmap that leads from basic knowledge to expertise in the shortest possible time. The focus will remain on people who want to learn about specific skills and not waste time learning about everything. The decisive factor will depend on the person's motivation to regularly devote time to self-education. The government traced out the rural area's need to have sufficient electricity, internet connection and shelter for online education standards of the content and technology for digital education. The standard will be set by the NETF and other appropriate bodies. These will enable the government to set guidelines for classrooms, E-learning, and methods for digital learning in India. In the upcoming future, online education is going to be a part of every person's life and we need to be prepared for the changes. It's not just an option

anymore but a need. With the help of new technologies, the government has made research that **by 2026, the global e-learning industry is projected to reach USD 336.98 billion.** Augmented reality and virtual reality technologies will become one of the biggest innovators of online learning. **Artificial Intelligence, immersive technologies, and personalized learning** are just some of the educational trends that will be seen even more in the future of education.

#### **Review of literature:**

**Gikandi, J. W et al (2011)** analyze the online formative assessment in higher education that provides a systematic qualitative review of the research literature on online formative assessment in higher education. These techniques identified for formative assessment by the individual, peers and the teacher, many of which were linked with online tools such as self-test quiz tools, discussion forums and e-portfolios. Hence that examine the fundamental issues of assessment within the online context, including validity, reliability and dishonesty.

**Mahmood, S. (2021).** The Study on instructional strategies for online teaching formulated different notions for online education in developing countries. It includes maintaining a slow voice and practicing vocal functions by teachers. The material sharing in online platform and resource before the class will help in creating interactive online classes. These strategies play fundamental role in enhancing in student learning. Hence the author advise seven techniques to develop the teaching skills in developing country to prepare and implement the strategies for remote learning.

**Barr, B. A., & Miller, S. F. (2013).** analyze the online teaching learning experience involves the online education, its strengths, limitations, online teaching tools, professional development, best practices, and an evaluation of a personal online experience. Students' interest in a course and relevance of the content influences their work performance for achievement of goals for the course. Hence fourth Professional development can play a crucial role in preparing teachers to integrate technology and learning into an educational environment that encourages interaction and meaningful involvement and a connectedness to other learners, as well as the international community.

**Guangul, F. M., et al (2020).** state the challenges of remote assessment in higher education institutions challenges identified in remote assessment were academic dishonesty, infrastructure, coverage of learning outcomes, and commitment of students to submit assessments.. Hence, the assessment type used for un proctored assessment was taken as one prevention method and respondents were asked to identify the appropriate

assessment method higher education institutions have to create awareness among students on academic integrity issues and develop the ethics of students through the learning process by incorporating in the curricular and cocurricular plans.

**Mishra, L., et al (2020)** study on online teaching-learning in higher education during lock down period of COVID-19. The intended purpose of this paper seeks to address the required essentialities of online teaching-learning in education amid the COVID-19 pandemic and how can existing resources of educational institutions effectively transform formal education into online education with the help of virtual classes and other pivotal online tools in this continually shifting educational landscape. Hence governments must ensure the availability of reliable communication tools, high quality digital academic experience, and promote technology-enabled learning for students to bridge the disparities originated in the education system before and after COVID-19 catastrophe which is also inevitably necessitated for uninterrupted learning.

**Peimani, N., & Kamalipour, H. (2021).** Empirical study on online education and the COVID-19 In this paper online experience of teaching urban design research methods online during the early COVID-19 lockdown in the UK. This is an exploratory study with a qualitative approach with an aim to inform resilient practices of teaching in the face of public health emergencies. Hence pedagogy should be given primacy over technology in the wake of the COVID-19 pandemic and emergency online teaching and learning. In this sense, the pandemic can also be considered as an opportunity to deliberate over its impacts and associated changes in a way that contributes to the pedagogical reinventions as well as the evolution of online education.

**Statement of the Problem:** The problem for this study is to determine the understanding of adaptation of online teaching and the extent of assessment outcome. According to the Yashpal Committee, 2009, our undergraduate and graduate programmes are theoretical in nature devoid of practical experiences. Indian educators have increasingly become aware that as India prepares to leap into the next century, our education system lags behind, stuck in outdated methods which lack higher order learning and emphasize only on memory and understanding. Education is the only sector which spends resources in terms of money, manpower, efforts and time but without well-defined predetermined outcomes that have to be achieved at the end of the programme. The extent to which members of faculty and administrators of HEIs understand adoption of online teaching and

assessment outcomes in the higher education system . Implementation of online teaching is a challenging task and requires training and continued efforts for successful implementation. The present investigation entitled “ Impact of adapting online teaching and assessment outcome in higher education system among college faculties in Chennai” has been undertaken keeping in view the adoption of online teaching and assessment. The poor performance of students in teaching, learning and assessment in particular has been a thing of concern to educators, parents and government. The government has put in efforts aimed at identifying the major problems associated with higher education. Despite all these noble efforts, the problem of poor achievement in teaching, learning and assessment has continued to rear its head. It is against this background that this research identified one of the core difficulty areas where students’ performance has always been low.

#### Objective Of The Study:

1. To study the Digital Transformation analyzing the Impact of Technology Integration on Pedagogy in Higher Education
2. To identify the various methods of online teaching ,assessment in higher education system
3. To study the Impact of adapting online teaching, and assessment outcome in higher education system
4. To explore the perceptions of teachers in online teaching-learning, assessment in higher education

#### Hypothesis:

- There is no significance difference between methods of online teaching and assessment in higher education system
- There is no association between adapting online teaching, and learning assessment outcome in higher education system

- There is no association between perceptions of teachers in online teaching-learning, and assessment in higher education

**Methodology:** The Convenience Sampling technique has been adopted to collect primary data from employees residing in Chennai city. A total of 275 copies of the well-designed structured questionnaire were distributed to college faculty as respondents in Chennai. The data were collected from November 2021 to February 2022. After giving adequate time to the respondents 220 filled in questions were received which were used for the study. A study is based on primary and secondary data. Primary data are collected by conducting a descriptively among 100 sample women and men teachers and students in Chennai city. A link to the survey was created through google form and sent out to the students and teachers from all areas of knowledge (e.g. Arts and science) and cycles of study (e.g. undergraduate and masters) were invited. Secondary data have been collected from books, journals, newspapers, periodicals, reports and internet

**Limitation Of The Study:** The findings of the present study were limited to following limitations of the study such as,

1. The primary data was collected only from Chennai city of Tamil Nadu. Therefore, a broad generalization of the findings may not be valid for the whole state or country because of the difference in social and cultural factors in different parts of the country.
2. Limitations associated with the Convenient Sampling Method are applicable as the study adopted it for the collection of data.
3. The Employees working the educational institutions are only considered for the study. Therefore, findings of the study are not applicable for other sector employees.

**Descriptive Statistics Respect to Demographic of the respondent**  
**Table No. 1**

Descriptive Statistics					
	N	Range	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic
gender	220	1	1.61	.489	.239
age	220	3	2.40	.796	.634
marital status	220	1	1.82	.383	.147
experience	220	3	2.78	1.154	1.331
income	220	1	2.45	.498	.248
qualification	220	0	2.00	.000	.862
designation	220	0	1.00	.000	.000

The table 1 represents that the descriptive statistics of demographic profile of the respondent values are in mean range standard deviation and variance  $0.01 < 0.05$ .

**Correlation :** Correlation to Test Influence of income and performance

To test the significant influence of income and performance

sample correlation is applied to ascertain.

H0: There is no significant difference between the income and performance

H1: There is significant difference between the income and performance

**Table No. 2**

Correlations					
Control Variables			income	Am familiar with online teaching methods	To save money, technology performance provides good value
age	income	Correlation	1.000	.539**	.840
	Am familiar with online teaching methods	Correlation	.539*	1.000	.076
	To save money, technology performance provides good value	Correlation	.080	-.076	1.000
**. Correlation is significant at 0.01 level					

The above table represent that Obtained value is .840, p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between qualification and technical skill

#### ANOVA

ANOVA to Test Influence of experience and technical skill

To test the significant influence of experience and technical skill

sample correlation is applied to ascertain.

H0: There is no association difference between the experience and technical skill

H1: There is association difference between the experience and technical skill

**Table No.3**

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Am familiar with online teaching methods	Between Groups	10.162	3	3.387	23.534	.602
	Within Groups	31.088	216	.144		
	Total	41.250	219			
My technical skills as increased since adopting technology	Between Groups	3.317	3	1.106	7.222	.495
	Within Groups	33.065	216	.153		
	Total	36.382	219			
I use to meet the technology based learning	Between Groups	12.211	3	4.070	5.544	.427
	Within Groups	158.589	216	.734		
	Total	170.800	219			
While interaction with technology performance is clear and understandable.	Between Groups	7.360	3	2.453	5.866	.839
	Within Groups	90.349	216	.418		
	Total	97.709	219			

The above table represent that Obtained ANOVA value for all factors are above 0.05, hence p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between experience and online teaching methods (.602) technical skill(.495) adopting technology(.427)technology based learning technology performance(.839)

**Regression:** Regression to Test Influence of experience and technical performance

To test the significant influence of experience and technical performance

sample correlation is applied to ascertain.

H0: There is no association difference between the experience and technical performance

H1: There is association difference between the experience and technical performance

Table No.4

Model Summary <sup>b</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.640 <sub>a</sub>	.409	.398	.895	.409	37.193	4	215	.824
a. Predictors: (Constant), To save money, technology performance provides good value, I must use technology performance, i ever used the internet to complete the task, i use the computer always at workplace									
b. Dependent Variable: experience									

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.226	4	29.807	37.193	.632
	Residual	172.301	215	.801		
	Total	291.527	219			
a. Dependent Variable: experience						
b. Predictors: (Constant), To save money, technology performance provides good value, I must use technology performance, i ever used the internet to complete the task, i use the computer always at workplace						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.424	.519		-.818	.414
	i use the computer always at workplace	.328	.074	.247	4.467	.762
	i ever used the internet to complete the task	.789	.102	.406	7.700	.642

The above table represent that Obtained r value is .632, p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between qualification and technical skill

#### Findings

- The majority of respondents are women at 60.1% and men are 39.9% with respect to gender

- The majority of respondents belonging to the age group of (36-45) years have a majority of 40.5% with respect to age.
- The majority of respondents are married 82.3%. Unmarried are 17.73% with respect to marital status of the faculties.
- The majority of respondents have 15-20 (44.55%) years of experience in the teaching profession.
- The majority of respondents who are assistant professors, 84.55% belong to the assistant professor designation in the college teaching profession.
- The Obtained correlation value is .840, p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between qualification and technical skill
- The Obtained r value is .632, p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between qualification and technical skill
- Obtained ANOVA value for all factors are above 0.05, hence p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between experience and technical skill
- Obtained ANOVA value for all factors are above 0.05, hence p values are  $0.01 < 0.05$  significant at 1% the value indicates that there is a significant difference between experience and online teaching methods (.602) technical skill.(495) adopting technology(.427)technology based learning technology performance(.839)

#### Conclusion :

The proliferation of online learning in higher education, there is an increased need to understand the engagement and gains of students who only have an opportunity for an online atmosphere. While there may be some benefits of online learning in the realm of engagement, it seems that there are also some sacrifices online learners make when it comes to an engaging educational experience. Further research might look at particular online tools and techniques, both general and discipline-specific, which lead to these different types of engagement and learning in order to improve education for online learners. Future studies might integrate concepts such as motivation (Pintrich 2004) and achievement goal orientation (Murayama and Elliott 2009), also known to play a role in student engagement but not specifically measured with NSSE, and apply previous findings to the setting of online learning. This study used a multi institution sample, but it may be useful to conduct some in-depth explorations of a few schools that have made progressive advances in online education, profiling their processes and outcomes to develop an applied model for practice.

As the technology used in online education continues to evolve rapidly, research must persistently address the impact of online learning in higher education. It might be useful to replicate the current study with a slight reframing of the research question, comparing subgroups of students who take 100% of their courses online to those who take all of their courses in traditional face-to-face settings and exploring whether the predictive power increases. More research is also needed on whether there are disciplinary differences between academic majors and the use of online curriculum, and if these patterns are similar to those for face-to-face learning settings. If a primary goal of online learning is to reach a wider range of students and provide educational opportunities for those who might not otherwise have such access, then it is important to ensure that online education students are partaking in equally engaging educational experiences that contribute to their learning and success.

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