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Online Teaching Pedagogy for Teachers: Issues and Challenges

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ABSTRACT

Online education changes all the components of teaching and learning in education sector. The paper focuses mainly on two issues such as instructors and content development. Instructors' issue involves changing teacher's role, transition from face-to face to online, time management and teaching styles. Content issues includes role of instructors in content development, integration of multimedia in content etc. To overcome these challenges in online teaching institutes, colleges and schools needs to provide professional development of instructors, trainings for learners and technical support of content development therefore it is worthwhile to study the issues and challenges faced by the teachers in online teaching.

Introduction

In the midst of the coronavirus pandemic, many education instructors were forced to pivot their instruction online to allow teaching and learning to continue. The accessibility of the internet and flexibility of online courses have made online education an integral part of education. Given the improvements in delivery methods, online learning environments provide a greater degree of flexibility than traditional classroom settings. Online platforms can also offer more diverse representations of student populations as learners prepare for working in the twenty-first century. The diversity comes from interacting with students outside of one's geographical location, possibly offering a variety of perspectives on course content. The courses themselves can also incorporate a wider range of available learning technologies. Courses offered completely online are primarily delivered in an asynchronous learning or synchronous learning format.

Asynchronous learning environments are described as online spaces where work is supported through the use of digital platforms in such a way that participants are not required to be online at the same time. Threaded discussions, e-mail, and telephone calls are options of asynchronous delivery. This gives meaning to the anytime-anywhere appeal of online learning.

Synchronous learning refers to a learning event in which a group of students are engaging in learning at the same time. Before learning technology allowed for synchronous learning environments, most online education took place through asynchronous learning methods. Since synchronous tools that can be used for education have become available, many people are turning to them as a way to help decrease the challenges associated with transactional distance that occurs in online education.

Literature Review:

Banning (2005) states that the Socratic method is heavily student orientated learning so students are able to think independently and various strategies can be used by academic such as quizzes, discussion, strong group work sessions with strong emphases on communicating with peers, self-assessment and research for the purposes of making student critical thinkers. However not all students may able to reach this position of critical thinkers without proper guidance, encouragement and nurturing. The time and effort spent nurturing students can be enormous.

Zapalska and Brozik (2006) explained that a popular method of identifying the learning style of an individual is the VARK questionnaire. This process identifies a learning style of a student and categorises it as Aural, Read/Write, Visual and kinaesthetic. Aural (A) refers to students who prefer to learn through receiving verbal instructions. Read/Write refers to the learning style of students who prefer reading instruction and writing notes as the best way to learn. Visual (V) are students who prefer the utilisation of visual objects as a way to learn such as graphs, charts and videos. Kinaesthetic (K) is when learners prefer to learn by a doing approach. It should be noted that a student may fall into two categories but one may be a stronger preference than the other.

Folley (2010) discussed that a current challenge for academics in an e-learning environment is to understand the different learning styles of different students for better learning outcomes. The traditional method of learning may not be adequate in the modern day classroom where e-learning technology is playing a major role in the delivery of education. In principal the key to understanding the student needs is to understand the diversity in the virtual class.

Taylor (2002) describes e-learning as exceptional for courses that require cognitive learning. However for teachers dealing with cultural barriers, differences in student attitude do not work well in the e-learning environment. Academic staffs that are better trained will bear the fruits of higher student learning. However if the teaching staff are not trained in using the e-learning technology and do not have a strong grasp of the operation of the technology then student learning is likely to suffer.

Hannon and D'Netto (2007) state "instructors usually fail to take into account cultural differences when designing and delivering courses". He argues that because pedagogy and technology do not reflect the culture of the student, it reduces his or her learning outcome and the cultural differences affect their

ability to work with e-learning technologies. The outcome is reduced because students of different languages respond differently to how things are organised in e-learning technologies and also students of different cultures have different abilities to work with e-learning technology.

Conrad (2004) highlights four areas of expertise required to be an effective online instructor; Pedagogical, Social, Managerial, and Technical. His study is based around a questionnaire delivered to five new academics, new to the e-learning environment, to learn their views and experience. The numbers of participants was small, but the study gives insight into first time e-learning experiences from the perspective of academic staff.

Burd and Buchanan (2004) suggest four distinct learning styles: imaginative, common sense, analytic and dynamic. The dilemma to instructors is how to identify and understand the learning styles of online students when they cannot be visualised, especially when they have limited time and many students enrolled. Also they recommend "to be effective, teachers need to communicate with non-participants privately to encourage discussion". This is a brilliant idea, however finding non-participants may not be easy; it may require time and effort that may not be practical for academics to accommodate.

Chua and Dyson (2004) states that in reviewing e-learning literature there are various criticisms of the quality of the e-learning systems currently being used. Issues have been raised that include: usability problems, bad performance, institutions being unable to customise according to their requirements and sometimes criticised for having a teacher centred system rather than learner centred system.

Nielsen et al., (2011) describes that an Institutions have a variety of applications and computer operating systems for various uses such as the student registration system, and research support applications such as NVIVO and SPSS. All these applications have to be merged and linked within one e-learning environment to make it accessible and enable central support; however, this requires the merging and linking of various applications. This creates increased network traffic to support the centralised infrastructure, thus it should be robust and have enough capacity and capability to handle student academic communication. This is a complex process especially where old and new applications meet, and is a challenging process effecting academics who have to use the system.

Gerrard (2005) two types of training are required for online teachers. First is in-depth training for those who spend the majority of their time teaching by using e-learning technology and the second is a shorter course for teachers who will use the technology in addition to face to face learning.

Based on the above literature review, Researcher found the certain gap of the study and accordingly framed the objectives and hypothesis of the study:

Objectives of the Study:

1) To Study the online teaching challenges faced by Teachers
2) To understand the content development done by teachers for online classes
3) To study the various online teaching tools used by teachers

Hypothesis of the Study:

H_1: Challenges in the online teaching are significantly affecting the teaching quality of the teachers.

H_0: Challenges in the online teaching are significantly affecting the teaching

quality of the teachers.

Research Methodology:

"Research design is the conceptual structure within which research is conducted. Research design indicates the blue print for the collection, measurement and analysis of data. The design includes an outline of what the researcher plans and frames the research work. It explains how samples are selected, sample size determined, how data is collected and which statistical methods are used for data analysis".

Quantitative research approach is being used for the study as a quantitative research enables the researcher to examine association and differences among the variables. To carry out research effectively, Data is collected from primary sources and secondary sources.

Instrumentation and Procedure

The questionnaire has been distributed to the teachers through the Google form link and 119 respondents have been reverted back the questionnaire, according results and discussions of the study revealed.

Analysis and Results:

Table 1. Demographic Description of the Respondents

Demographic Variable	Demographic Categories	Number	(%)
Gender	Female	65	55
	Male	54	45
Age	20-30years	30	25
	31-50years	74	62.5
	50 and above	15	12.5
Section	Graduate College	109	92
	Post Graduate College	10	8
Online Application tools	Google Classroom	39	33
	Zoom	60	50
	Microsoft Office	10	8
	Whatsapp	4	3
	Others	6	6
Previously taken online lectures	Yes	60	50
	No	59	50
Major Challenges Faced by Teachers	Lack of Electricity	0	0
	Lack of Internet Connectivity	68	57
	Lack of appropriate materials &resources	38	30
	Lack of time	11	9
	Lack of confidence	2	4
Application used to prepare content for online class	Microsoft office PowerPoint	90	76
	Google Slides	12	10
	Mentimeter	0	0
	others	17	14

In the present study researcher used this analysis for hypothesis testing. For testing the hypothesis or test of significance, following tests are performed.

i) **'z'** test for two independent samples at 95% confidence level.

ii) **Kolmogorov-Smirnov** test for two independent samples at 95% confidence

level.

For analysis researcher used statistical package SPSS version 22. In addition to this, excel add-in Mega Stat is also used. Depending upon the type of data statistical methods are chosen. Statistical analysis is categorized as descriptive analysis and inferential analysis, which is often known as statistical analysis.

Calculating the test-statistic:

The value of the test-statistic is

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

where

χ^2 = Pearson's cumulative test statistic,

O_i= an observed frequency;

E_i= an expected (theoretical) frequency, asserted by the null hypothesis;

n= the number of cells in the table.

Table 2: Chi-Square Tests results of Challenges in the online teaching are significantly affecting the teaching quality of the teachers

Pearson Chi-Square value		Degree of freedom	P value	Difference
Calculated	Table (1% l.o.s.)			
241.591	21.67	9	0.00	Significant

Observations:

From the table above it is observed that calculated Pearson Chi-Square value 241.591 is greater than critical Chi-Square value 21.67 (obtained from table at 1% level of significance with degree of freedom 9). Also p value is 0.00 which is less than significant value 0.01 i.e.1%.

Interpretation:

Hence null hypothesis is rejected at 1% level of significance with degree of freedom 9. Hence result is significant.

Findings:

Hence it can be concluded that **Challenges in the online teaching are significantly affecting the teaching quality of the teachers**

We use **Kolmogorov-Smirnov** test for testing normality and results of which are tabulated below

Table 3: Tests of Normality- Kolmogorov-Smirnov

	Kolmogorov-Smirnov[a]		
	Statistic	**df**	**Sig.**
Challenges in the online teaching are significantly affecting the teaching quality of the teachers	0.151	400	0.000

Observations and interpretations:

From the above table it is observed that significant p value 0.000 for k-s tests is less than 0.05 clearly indicates that data for different characteristics related to **Challenges in the online teaching are significantly affecting the teaching quality of the teachers** is not normal. Hence we use non parametric **one sample sign test** for testing significance of different characteristics related to **Challenges in the online teaching are significantly affecting the teaching quality of the teachers**

One sample sign test:

To test above null hypothesis we use **one sample sign test** with hypothesized mean value 3

Table 4: One sample nonparametric sign test of median vs hypothesized score 3 for the Challenges in the online teaching are significantly affecting the teaching quality of the teachers

	Median score	**Sample size**	**Calculated 'z' value (one tailed, upper)**	**Significant P value**
Hypothesized scores different characteristics related to **Challenges in the online teaching are significantly affecting the teaching quality of the teachers**	$\mu_0 = 3.0$	n= 390	z = 18.48	p =0.000
Observed Mean rating scores for different characteristics related to **Challenges in the online teaching are significantly affecting the teaching quality of the teachers**	M= 4.4			
Critical z values: 1. At 5% level of significance the corresponding z value is 1.645 2. At 1% level of significance the corresponding z value is 2.326				

Observation: From the above table it is observed that 'z' value for null hypothesis is 19.50 which is greater than +1.645 (also greater than +2.326). Also p value is 0.0000 which is less than 0.01. **Hence we reject null hypothesis at 5% & 1% level of significance.**

Interpretation:

On the basis of above data it can be inferred that Median rating scores for different characteristics related to **Challenges in the online teaching are significantly affecting the teaching quality of the teachers** is greater than or equal to 3.

Findings:

Challenges in the online teaching are significantly affecting the teaching quality of the teachers.

Discussions and Findings:

1. 32% of the respondents are strongly agree and 48% of the respondents are agree that sufficient knowledge required about computer and IT skills to conduct the online lectures.
2. 29% of the respondents are strongly agree and 26% of the respondents are agree that sufficient trainings are required to conduct the online lectures.
3. 35% of the respondents are strongly agree and 50 % of the respondents are agree that online tools are easy to use while conducting the online lectures.
4. 40% of the respondents are strongly agree and 50% of the respondents are agree that the Flexible hours are required for conducting the online lectures.
5. 55% of the respondents are strongly agree and 40% of the respondents are agree that the Online lectures are effective than traditional classroom.
6. 58% of the respondents are strongly agree and 45% of the respondents are agree that Lack of face-to face contact with the students generally happen during the lectures.
7. 58% of the respondents are strongly agree and 47% of the respondents are agree that they faced difficulties of conducting online practical sessions.
8. 59% of the respondents are strongly agree and 60% of the respondents are agree that it is difficult to get an immediate feedback on what was being taught.
9. 50% of the respondents are strongly agree and 46% of the respondents that online environment takes more time than face-to face class.
10. 55% of the respondents are strongly agree and 60% of the respondents liked to conduct online lectures, after Covid -19 pandemic get over.

Conclusions:

The Covid-19 pandemic has disrupted the education sector globally. Classes have been suspended to enforce social distancing and educational institutions, from schools to universities, have shifted to online methods of teaching and evaluation. Still, there is no certainty about when normalcy will be restored. This has encouraged some sort of a permanent tilt, if not a complete shift, to online education. A staggering 84% of teachers reported facing challenges in delivering education digitally with close to half the teachers facing issues related to the internet both signal issues and data expenses. Two out of every five teachers lack the necessary devices to deliver education digitally; the situation is particularly grave in UP and Chhattisgarh where 80% and 67% of teachers respectively lack the requisite devices to deliver education online. The challenges are directly linked to a lack of teacher preparedness -- less than 20% of teachers reported receiving orientation on delivering education digitally while in Bihar and Jharkhand, the figure was less than 5%. Other than the technological issues various other hurdles faced during online classes were figuring out online class etiquette, parents hovering during online classes are an issue, maintaining discipline online is tough, etc. All this can be done if teachers have the will power, determination and the positive approach towards becoming techno-friendly themselves first of all and then when they see that its implementation actually has made the learning process more interesting, varied, richer and also suitable to individual differences in the classroom, they will make this as their enhanced instructional material in their classroom. Thus, teachers need to be prepared themselves for the changing role that the technological development has brought. Fair use of ICT would lead to effective

transition to the knowledge society in the globalized world and would also create better teaching and learning environment in society.

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