

ANALYSIS OF QUALITY OF ONLINE TEACHING IN PUBLIC SECTOR UNIVERSITY OF LAHORE -TEACHERS' PERCEPTION

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ABSTRACT

The quality of online teaching learning in higher educational institutions during the pandemic period has been a growing concern in academic circles. The present study investigated teachers' perceptions regarding quality of online education in a public sector university in Lahore. A sample of twenty-two teachers from a public sector university participated in this study, who were selected conveniently. Utilizing the qualitative method, in depth interviews were conducted from the participants of the study. Five themes emerged from the thematic analysis of the data, reflecting upon devices & technologies usages in online teaching, educational practices during online teaching, assessment of quality of online teaching, online classroom management and evaluation of online teaching. The findings indicated that teachers had a mixed response regarding the overall quality of online education in the university where some aspects were considered beneficial, while improvements were required in others. It is recommended that proper trainings should be given to teachers to make online teaching more effective and conduct more studies for better assessment of quality of education at university level.

1. Introduction

The advancements in the area of technology and IT services have created opportunities for facilitating learning and improving the educational process. The application of these advancing technologies gave rise to a phenomena called E-Learning, commonly referred to as Online education, Online teaching. It has emerged as a popular domain of learning which has combined distant education with face to face instructions utilizing technology mediated communication. Closure of educational institutions all across the world due to COVID-19 pandemic, has drastically changed the mode of education to

online teaching, whereby teachers and students are engaged in the educational process remotely through the use of digital platforms. The existing circumstances has raised dependency of teachers and students on technology for continuation of the educational process (Adnan & Anwar, 2020; Murphy, 2020)

Online teaching learning according to (Cojocariu *et al.*, 2014), encompasses the ability of the user to use a device/computer connected to a network which offers with the possibility to teach and learn from anywhere at any time. Online learning as defined by (Singh & Thurman, 2019) is “learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, computers, laptops, etc.) with internet access. In these environments, students can be anywhere to learn and interact with instructors and other students”. Online teaching is of two types, one which includes real-time teaching also called as Synchronous learning and other includes anytime teaching also called as Asynchronous learning. Synchronous teaching involves a structured learning environment, where live lectures are conducted through online platforms which the students attend enabling real time interactions with their teachers, discussions and instant feedback (McBrien *et al.*, 2009). In Asynchronous teaching learning, instead of real time interaction & live sessions with the students, the content is made available on learning systems and online forums, from where students can access at any time. Instant feedback and immediate response are not possible under such an environment (Littlefield, 2018)

Though online education has been there for a while, but the need for usage of different modes of online teaching emerged over the course of period during the COVID pandemic lock down situation. As at the very start of the lockdown, Whatsapp groups and emails were used immediately, but as the lockdown period extended, these modes were felt to be inadequate and there was a need for proper online platforms for continuation of educational activities (Mishra, Gupta and Shree, 2020). Zoom, Google Classroom emerged as prominent online platforms which were used for online educational purpose (Archibald, *et al.* 2019; Agarwal & Kaushik, 2020; Mishra, Gupta & Shree 2020; Murphy, 2020). As the online teaching environment incorporates the use of technology for pedagogical purpose, various types of medium and online platforms are used, learning methods are diversified, different instructional strategies and designs are used (Krause, *et al.* 2015; Cloete, 2017). In order, to evaluate the quality of online education, there is a need to assess the online teaching process in order to find the factors which may affect its quality, learner’s satisfaction and the overall success of the learning situation (Rjaibi & Rabai, 2011). Researchers have identified some of the factors which may deter the quality of online teaching which include the limited usage of technology for educational purpose (Valentine, 2002), lack of monetary support, allocation of funds (Corry & O’Quinn, 2002), Network problems, proper training not provided to faculty (Akwunwa, 2013), changing role & responsibilities of the teachers in virtual environment, change in interactions with the students and peers, effective online assessment, academic dishonesty & use of unfair means by online students (Esfijani, 2018).

Like the other countries, education system in Pakistan was disturbed as all educational institutions in the country were closed on 13th March 2020. Sudden closure of the universities resulted in a rapid shift from traditional face to face education to online teaching, for which most of the educational institutions were not fully prepared for. Policies for online teaching and learning were developed by HEC which the universities were required to follow, for providing online education to student. The minimum features required for Virtual Instruction laid down were a functional Learning Management System

(LMS), a functional Video Conferencing (VC) solution supports, building capacity of faculty members and relevant staff for online delivery (Ali, 2020). The number of online courses in higher educational institutions have increased, which have arisen the concerns about the quality of online education being provided to students during this pandemic situation. Some of the factors which were considered to affect online teaching included technology implementation, internet connectivity, governance, communication, readiness of teachers and their training to make online classes engaging (Xinhua, 2020).

Mishra, Gupta & Shree (2020) conducted a study to explore the essential for online teaching and how the existing resources of the university can be used for online education in this continually shifting educational landscape. Research design included both quantitative and qualitative approach. For quantitative data, the sample included 338 participants (78 faculty members & 260 students) selected through disproportional stratified sampling, descriptive survey was conducted to assess their perceptions toward online teaching. For qualitative data, the sample included 40 participants (20 teachers & 20 students) selected through nested concurrent sampling, semi-structured interviews were conducted. Descriptive statistics was done for quantitative data and content analysis was done for qualitative data. Findings showed that LMS, email, WhatsApp was the most commonly used online platforms. Students and teachers faced internet connectivity, broadband services, video uploading and interrupted power supply issues, besides lack of interest, attention, use of unfair means in exams by the students. Study also showed the greater realization of need of online mode of teaching as well as its relevance in today's time and emphasized development of multimodal approaches for achievement of educational objectives for better learning outcomes. According to Waqar (2020), teachers in Pakistani universities were not adequately trained for conducting online teaching classes. Many were not even aware of the online platform and lacked the technical knowledge for conducting online sessions. Teachers are now required to pre-plan their class activities, arrange resources and come up with ways to engage students in online teaching. Teachers role are considered important for smooth online teaching as they are a key part of the teaching learning process in any educational institution. As teachers are considered important in the educational process, it was therefore required to explore teachers' opinions of the quality of online education and the ways in which the online educational experience can be improved for the students. This study aimed to assess the quality of online education being provided in public universities as perceived by the teachers. These perceptions are influenced by teachers' experiences with use of technology, internet connectivity, conduct of online classes, electronic communication, students' assessment and evaluation.

1.1 Objectives of the study:

The objectives of the study were to:

1. To examine teachers' perception about quality of online teaching in public sector university of Lahore.
2. To explore ways in which online teaching can be improved in public sector universities.

1.2 Research Question:

- What is the perception of teachers regarding quality of online teaching in public sector university of Lahore?

- In which ways the online teaching can be improved in public sector universities?

1.3 Significance of study:

Online teaching has become a necessity and is being implemented as a viable alternative well with its limitations. This study will be beneficial in providing with an insight of what the teachers think of online teaching practices ongoing in the public universities, which factors do they think affect the quality of online teaching, and provides suggestions to improve the online teaching learning experience for the students. The study will also be helpful for the university administration, educational experts in accessing how the existing resources of the institutions can transform traditional education into online education with the help of online platforms and applications in this continually shifting educational landscape.

2. Research Methodology

The present study was Qualitative. Qualitative design is generally based on a constructivism perspective and emphasis is placed on understanding the individual and their interpretation of the world around them. The central endeavour of the Constructivist paradigm is to understand the subjective world of human experience (Guba & Lincoln, 1989, Glesne, 2016). Research problems become research questions, based on prior research experience. Sample sizes can be as small as one. The population of this study include teachers in public universities of Lahore. The sample included teachers of a public sector university in Lahore. Convenient sampling technique was used for selection of data. The participants of this study included 22 teachers, conveniently selected from 04 different departments (Education, Psychology, Statistics & English). As the study was qualitative in nature, an interview protocol was used to collect data from the teachers of selected universities. The interview protocol consisted of two parts, the first part is the demographic profile of the respondents and the second part is regarding teachers' perception of quality of online education, which consisted of 20 questions covering areas of technology and devices usage for online teaching, online teaching practice of teachers, online class management and evaluation and areas of improvement. The research interview was validated, revised and improved through consultation with the relevant experts. Necessary ethical considerations were taken by the researcher for this research. The researcher shared the purpose of the study with the respondents. They were assured that their identity will be kept anonymous and that their response would be used for research purpose only. In data analysis, thematic analysis was done for the interpretation of the transcriptions of the interviews and themes were emerged.

3. Results

3.1 Demographic of participants

The demographics that interview protocol included were the age of the respondents, their qualification, designation, experience of the teachers and courses taught online. Majority of the respondents (45%) were of age group 30 – 34 years. Majority of the respondents' academic qualification was post graduate or above. Teaching experience of majority of the respondents was 4 years and above and

55% of the respondents had taught 5 -8 online courses in last one year. The demographic details of the respondents are given in Table 1.

Table 1: Demographic Information of Respondents

Age Group	Frequencies	Percentage
25-29 years	6	27
30-34 years	9	42
34-39 years	5	22
40-above	2	9
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Education	Frequency	Percentage
Graduate	2	9
Post graduate	12	55
PhD	8	36
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Teaching Experience (Years)	Frequency	Percentage
8	8	36
1-3 year	8	36
4 -6 years	4	18
7-9 years	2	9
10-12 years		
<hr/>		
Department	Frequency	Percentage
Education	6	27
Psychology	6	27
Statistics	5	23
English	5	23
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Courses taught online	Frequency	Percentage
1-4 courses	6	27
5-8 courses	12	55
9-12 courses	4	18

3.2 Qualitative Results: Analysis of Themes

The categories which have been identified revolve around five main patterns or themes, these patterns are formed after drawing inference from the interview transcripts. The patterns shed light on five perspectives according to which teacher's perception on quality of online teaching can be gauged. Firstly, teachers' perception of online teaching quality is viewed from the lens of technology & devices usage, new online platforms. Secondly, teachers' perception on educational practices during online teaching, thirdly teachers' perception on quality of online teaching and its assessment, fourthly, teachers' perception on classroom management and lastly, their perception about effectiveness, challenges and ways to improve online teaching is seen from the lens of evaluation.

THEME 1: TECHNOLOGICAL AND DEVICE USAGE

A) Devices:

Device used in online teaching learning is the first theme that emerged under teacher's perception of technologies and devices. Teachers were using laptops, mobiles and many other devices in online teaching. The theme identifies that devices and technologies are very effective in online teaching.

- **Laptop/computer:**

All the 22 participants highlighted laptop as an important device in online teaching. This involves teachers to communicate easily with students, keep them engaged in the activities, students are also able to self-learn, perform group work and individuals tasks assigned to them in order to develop self-discipline in them

- **Mobile/iPod:**

Only one participant highlighted mobile as an important device for online teaching

B) Technologies:

The second subtheme which emerged under this broad theme is emerging technologies, in which teachers perception of these technologies and which technologies they were excited to use for managing their online classroom environment were asked. Teachers shared that most common online platform recommended by their university included Learning Management System (LMS), Zoom, Google Classroom, however they were given the option to use any other online platform as well.

- **Zoom:**

The participants highlighted that they commonly use zoom video lecture to take their online class which helped them to even record the lecture, maintain better interaction and a strong student teacher relationship. As one of the participant said "there are so many technologies that can be introduce but at this time zoom and skype is mostly used and yes I am excited to even explore more technologies (P11).

Teachers did mention about the 40 mins time limit on the free zoom session as a limitation as they had to restart their session for completing their lecture.

- **Google classroom:**

The participant highlighted that they use Google classroom which has streamlined the process of sharing files, study content, resource material between teacher and students. It has also assist in conducting quiz, assignments and tests in online teaching

- **Google Meet:**

Google Meet is also a video-communication service, which was used for delivering lecture to the students. However, its usage was seen very less among the participants, also it didn't provide them with video recording option.

- **LMS:**

The participants shared that they were familiar with Learning Management System and were actually able to use university LMS during COVID pandemic. They considered it to be a good

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platform for asynchronous learning for the students, who could read and learn content from there at their own pace.

C) Training to conduct online classes:

The third sub-theme emerged was online training of teachers to conduct online classes. All the participants were asked this question. One of the participant said, "The university provided us with an introductory session on usage of Zoom, its different features and also shared some of the strategies which could be used for engaging students in online classes" (P4). Another one shared, "Yes university gave us proper guidance for the use of LMS and being myself a computer science teacher, I have also explored the different platforms and easily adapted to online teaching" (P11).

THEME 2: EDUCATIONAL PRACTICES DURING ONLINE TEACHING

This theme highlighted the online teaching practices which revealed the ways by which teachers were managing their online class.

A) Kind of support offered to students:

All the participants were asked about the support they had offered to their students during online classes. The most commonly reported kind was technical supports to students by the respondent teachers.

- **Fostering technical skill**

Participants shared that as many of the students were not familiar with online learning, use of technology and particular learning platform or software, assistance and orientation was provided to them regarding their virtual classroom for continuation of education. One of the participant said "we have taught our students how to take their online class by guiding them in every possible way to make them familiar with required applications and its usage (P8)". One of the participants said: "it is an obvious thing we have to provide support to students, as we all have internet issues also, I ask student to feel free to ask a thing even after lectures." (P14). Another participant said: "I have provided every kind of facility whether it is extra class or individual help". (P7)

B) Instructional strategy:

The participants were asked about how they give instructions to students, from which pattern emerged such as discipline, educating students about class instructions and management. Some of the instructional strategies seen were cooperative learning strategy, lecture method, flipped learning, questioning etc. They also shared that they would change the type of strategy from time to time according to need.

- **Questioning:**

Some participants say they use questioning method to keep students engaged in the lesson. Another participant said "I use to ask questions from different students" (P8)

- **Lecture method:**

Most of the participants were using lecture method to deliver the lecture in online teaching. . Participants said that sometimes the students are out of control and they continuously asking question or talking during the lecture which disturbs other participants so they use direct method to deliver lesson as well as to solve the problems. One of the participant stated: “the first thing you need to be aware of is the language ability of the students and how to hold, control and deliver your topic in front of the students” (P3)

- **Cooperative Learning:**

One of the participant said that: “cooperative learning strategy in class as it enables to breakdown the students into small groups, and each group can then work on their assigned topic/task without disturbing others” (P5). Another of the participants said: “I prefer to use cooperative learning as students are given activities related topic to work in small groups through which they can discuss, practice and learn well. Students also assist their group fellows who face difficulty in either connecting online or unable to attend class” (P16)

C) Online Communication

Participants were asked about the communication and share of information and discussion with the participants stated that they use WhatsApp, Google classroom, email and zoom meeting for communication and correspondence with the students. Course outline, topics to be covered are timely shared with the students. Topic discussion is important in online teaching so that students are not blank when they join zoom for online class. One of the participant said:” it’s mandatory to discuss the topic before every lecture so that students are able to know what to read and come for class” (P7).

Another participant shared” I highlight the important topic and ask students to work in pairs and groups so that they do little work themselves and then discuss it in class” (P22) Another participant said “ Sessions are held in regular manner and information is provided to students, however most of the students log-in but are always on mute and donot respond in online session” (P15). Another participant said “Students are allowed to ask question after the class they can send their queries through email or if they have some major issues regarding studies then conduct a meeting to resolve their issues” (P16)

D) Adaptation of traditional course to online teaching

Many of the participants were of the view that technology has played a major role as it represents an additional element of the learning process and development; that’s why technology is constantly contributing to create new forms of learning and teaching. They used virtual meeting, online platforms, YouTube educational videos and collaborations in classroom to adapt their mode to online teaching. One of the participants said: “New slides are made related to every topic and relevant videos from YouTube are selected which explains detail related to the topic. Practice is repeated for-very class.” (P16).

All the participants highlighted that they use zoom video lecture to deliver their lecture. Zoom video lecture is very popular in online teaching as it brings education right to your home, somehow, online courses require more time than on campus classes. On the other hand, online course requires good time management skills.

E) Students motivation and engagement in online environment:

Motivation and engagement of students emerged as sub-theme as this is an important element-in online environment. Teachers can motivate students through adopting different ways. The teaching techniques highlighted by the participants include both student centered learning as well as teacher centered learning, individual work, group work. This signifies that teachers tend to adopt instructional management techniques to manage their classroom.

One the participants said: "By giving them bonus marks on class participation, students tend to participate well in online class" (P16). Another participant said: "By provide opportunities to students to personally connect to the subject matter, they feel in charge and perform well" (P4).

- **Activities:**

Activities play an important role in online teaching so students can concentrate in online lecture. One of the participant said;" I take presentations, online quizzes, and make my students motivated by giving them bounce marks" (P10) Another participant said "engage students with practical work" (P21)

- **Questions:**

A question is the theme in which we can engage and motivate students. Teacher can ask the question during the lecture to check that the students are listening or not. When teacher start asking the questions all the students will listen it carefully. One of the participant said "I ask them questions to see who is active in class or not. In the end of the session, there is also a slot of 10 minutes where students are open to discuss their issues". (P14)

THEME 3: QUALITY ASSESSMENT OF ONLINE TEACHING

A) Quality of online course:

Most of the participants saw online education as a fast-growing segment of education, especially due to the pandemic situation, hence its quality was also of a concern. Participants shared that they followed same prescribed HEC course outline, used the same reading material, added video content and other online material/resources to the course taught online This helped in ensuring that online course is not poor in relation to campus based courses –students studying both online and on-campus are essentially taking the same course. One participant said" it is the challenging situation but I have done my best in delivering the content to the students and help them with course related problems" (P7).

- **Quiz:**

Participant said we can ensure the quality of online class by taking online quizzes from students and students must participate in these types of quizzes.

One of the participants says" by taking viva after assignment" (P14)

- **Assignments:**

Participants said that we can ensure the quality of online learning by giving them open book or conceptual assignment that they can send through email, WhatsApp, Google Classroom.

B) Diversity in online environment:

Participants believed that differences and diversity between the students are present and effort should be made to cater many of these in online classes to make learning effective. Some of the ways in which diversity can be supported in online classes are by enabling students to share different ideas, by performing different activities, by discussing individuals/groups, by questioning different questions and make charts on different activities.

One of the participant said” I use images to engage student’s attention, use translation and give examples for clarification” (P2). Another participant shared that “Students need do differ and different students are engaged differently in the class. I invite students to participate, motivates them to contribute and captures their interest and attention in class” (P8)

C) Online evaluation:

Assessments and evaluations are an important part of any educational process. Participants shared that quizzes, matching exercises, MCQS, descriptive assessment, case studies and problem solving questions, scenario based questions and games are some of the ways they have used to assess students online. However, some of them expressed that its quality may be compromised as students do tend to use unfair means to attempt the assessments.

One participant said” I prefer to take the evaluation on Google form as I found it is the best way to quickly evaluate the student performance online” (P1). Another participant said” by assigning them different concept based assignment, which they have to attempt according to their own understanding of concepts”(P14). One of the participants said “ I take assessment of the students by taking them turn the cameras on and giving short time to attempt so that students respond quickly and don’t even think about cheating”(P15).

THEME 4: ONLINE CLASSROOM MANAGEMENT

A) Management Practices

This theme identified how teachers see the student’s behavior and what behaviors management strategy they used in their online classes. One participant said: “Ethics is a mandatory part of classroom but sometimes it is difficult to manage it in online class” (P20). The participants revealed that at time they do engage students by techniques and other activities so that they have no free slots and no time to engage in disruptive behavior, sometime they have to use authority as well to maintain discipline. The pattern emerged under this theme reveals that mostly teachers use assertive discipline and instructional management techniques to manage and prevent disruptive behavior in students.

- **Disruptive behavior of some students**

Some students have non sense behavior in class and this behavior irritates all the students, they cannot concentrate on their studies and disturb other students also. Sometimes they unmute their mic and intentionally make bad sounds, play music which disturbs whole class. One participant said: “Students do try to misbehave as they think that no one is watching them. Muting their mic or giving limited access to such students help to control it in some way ” (P14).

B) Time management:

Participants highlighted that planning ahead of your schedule may assist in managing time, otherwise the distraction can easily get in the way of finishing tasks. Teachers need to block out distractions in online class and keep students on track. One of the participant said: “By sort my resource material & practicing my lecture before delivering it to students to check the duration and keep time managed” (P15). Another participant said: “In online class, I have more time to engage with the students as I can take extra class with them when need be. (P7)”

C) Working environment at home:

Majority of the participants stated that they had peaceful environment at their home, but some shared that at times there is disturbance during class as loud noises coming from streets. Other than this, electricity issue and internet connectivity issue was faced by the teachers which at times disturb their scheduled class. One of the participants said: “ I am not always able to find a peaceful environment at home, but I make sure there is no disturbance around me when I am teaching, by adjusting class time”. (P19)

THEME 5: EVALUATION OF ONLINE TEACHING

A) Online classes vs. face to face classes:

All the participants highlighted that they like to take face to face classes. Because they feel that traditional classes are more effective than online classes, face to face classes are easy to teach, sometimes students show the non-sense behavior in online class and teacher is not able to point out because they don't know who was showing the bad behavior so they just mute all the students so that they cannot affect other students learning. Also, in face to face classes students learn more things from their peers or environment as compared to online classes. One of the participants said: Face to face teaching is way better than online. But if students can change their attitude in online classes it will be more effective than face to face” (P7)

B) Challenges during online teaching

Participant highlighted that they face many challenges in online teaching. Some of the biggest challenges were internet issue, power out and nonsense behavior of some students. One of the participants said: “Students don't always to mute their mic and I find noises coming from their background a distraction I feel studying from home is a challenge for students too since home environment are not conducive for studies especially for married students with young kids but I appreciate their presence and participation in class”,

C) Suggestions for improvement of online classes

Teacher respondents were asked about ways to improve online classes. Participants expressed that online teaching has placed a lot of burden on the shoulder of the teachers. Thus they need to be self motivated, self disciplined and self driven to perform their duties well in a virtual environment. Moreover, teachers should be equipped with the new skill set to be able to use technology effectively.

One participant stated: “we need to improve the quality of existing LMS system and we also need to train the teachers with skill for conducting online classes” Internet quality was also pointed out as is important part in improvements of online classes. One of the participants said: “there should be provision of proper internet facility, so that online sessions can be conducted smoothly.”(P13) Further, maintain high academic and nonacademic standards. Avoid use of threats and at times being flexible for certain instances/ genuine cases. One of the participants said: “you cannot force students to turn on the camera, if you engage the students ask questions” (P9). Managing time -One of the participant said “Many factors could play a role in making online class effective like coming to class well prepared with content, being able to maintain discipline in class and time management” (P1). When a teacher has internet issue, she can record video of her lecture and later upload on class forum, LMS, google classroom. This will be beneficial for the students too who are unable to attend class on time.

4. Discussion and Conclusion

Use of internet, new technologies and online platforms gained importance in all fields especially during the COVID-19 pandemic. In Pakistan, under the directions of the Higher Education Commission, universities shifted to online platforms to catch up with the curriculum. As it was a novel mode of instructions, students and teachers had to cope with the transition to online learning as they figure out the constraints, reorient themselves to address these and maintain the standards of education, in which the perception and readiness of teacher is an important consideration. It was therefore necessary to explore and understand teacher’s perceptions regarding the quality of online education.

The online education was considered as an appropriate mean of instruction during the pandemic as teaching learning practices could continue from the comfort of homes. Popular online tools used by teachers in public universities were Zoom, Google Classroom and then LMS which they considered were easy and convenient tools for online class. They did not use other supporting platforms such as Kahoot, Edpuzzles, Flipgrid, Quizlet etc. Though the teachers received a brief introductory training sessions, they felt the need for more training to proper orientation to online mode of teaching. Teachers realized that all of their students were not that familiar with IT usages, and they helped fostering of technical skills among the students so that they can use the online platforms. Online communication was considered important by the teachers so that students remain in touch about the educational activities and do not feel left out. Online-based teaching is interactive (Johnston et al., 2005) and online teaching creates environments where students actively engage with the material, learn by practical activity (Palloff and Pratt, 2013) and also refers to their understanding as they themselves build new knowledge.

Regarding educational practices during online teaching, teachers shared that same prescribed HEC course content, reading materials were used in the online classes, in addition to recorded lectures and online videos, resources, so that the quality of the academic material is not compromised. Instructional strategies used were cooperative learning strategy, lecture method, flipped learning, questioning in order to engage the students in the online sessions. Due to the shift of educational practices to online platforms, the instructor’s role has become more of a facilitator than a traditional classroom teacher. Since the role of instructors has changed in online education to being a facilitator,

mentor and coach, the instructors will need to adjust their attitudes towards technology usage and new teaching styles to meet the challenges of online education. Besides the role shifting, the virtual instructor is also to select and filter information for student consideration, to provide thought-provoking questions, and to facilitate well-considered discussion among the students (Yang & Cornelious 2005).

The participants perceived the online teaching practices to be effective when instructional quality indicators were addressed during the online teaching learning experience. Such indicators included time spent within the online environment/ online sessions with the students, course resources made available to the students, the extent of interaction/responses made with the students, online assessments and so on. Teachers shared that quizzes, matching exercises, mcqs, descriptive assessment, case studies and problem solving questions, scenario based questions and games were used to assess the students. Some of the students attempted them properly without creating issue, however, there were always some students who used unfair means and thus compromised the overall quality of assessments and online examinations. Having a peaceful working environment at home was also considered important by the teachers as it affected their working and content delivery. Some of the challenges which affected the online education were internet issue, power out, time management, disruptive behavior of some students which disturbed the class lesson flow.

When considering the overall opinions of teachers about the quality of online class, study indicated that teachers have mixed opinions, as they considered some aspects to be beneficial whereas expressed room for improvement in others. They did consider online classes as a new mode of instructions for continuation of education but also felt the need for more training to effectively carry out the educational practices. The teachers at university level did not supporting online classes without provision of proper training and infrastructure facilities like internet network and devices / computers. Teachers valued online communication with students, their engagement in class participation and discussion to be important. Teaching practices were considered to be effective when instructional quality indicators were addressed which included time spent within the online environment/ online sessions with the students, course resources made available to the students, the extent of interaction/responses made with the students, online assessments and so on.

5. Ways to improve online teaching:

Some of the ways in which teachers can improve the quality of online teaching are:

- i. Teachers should plan the flow and sequence of the lesson, arrange content resources well before the online session, in order to lesson struggle during the lesson. A structured online session will also enable the students to focus and concentrate on what is being taught in online class.
- ii. Teachers should engage students in activities to keep them active and motivated during the session, by giving students the opportunity to participate either by asking questions or engaging them in discussions.
- iii. Teachers should also engage in conversation with the students discussing course content, resources to be used, its utility, value, and applicability from the outset. This is important as Course's perceived relevance is considered as an important contributor to motivation.

- iv. Make discussions meaningful by having a brainstorming sessions, in such sessions students may be presented with variety of ways of approaching a topic or a problem; including comprehension exercises, where students help one another understand a complex topic; by providing opportunities of critiques, where students challenge a particular argument or interpretation; diagnoses, where students deconstruct a problem; and sharing activities, where students reveal their own experiences or perceptions.
- v. Practice norms should be developed by the teachers for their students in which they know about the digital platform that they can always visit for the most recent and up-to-date information and stay connected with their instructor.

Recommendations:

The findings of the current study can be used by the public sector university teachers in order to revisit their teaching strategies for online classes. For online teaching, teachers should be given training on how to effectively deliver content in online environment, motivate students and keep them engaged for bringing out positive learning outcome. Teachers must also develop their instructional skills and strategies to make the online teaching environment effective, so that students are motivated, engaged and well connected with their class fellows and teachers. The study recommends that greater number of teacher perceptions from different public universities be examined to validate the quality of online educational process ongoing in the public sector universities.

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