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Online Teaching Experience during the COVID-19 in Pakistan: Pedagogy–Technology Balance and Student Engagement

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Abstract

This study aimed to explore the lived experiences of university teachers who participated in online teaching for the first time during the COVID-19 pandemic. A qualitative method of data collection and inductive thematic analysis were used. The data were collected through a semistructured interview from 11 faculty members who teach in various universities in Pakistan. The analysis presented five themes of the online teaching experience: culture and gender-related issues, teaching effectiveness, challenges in online teaching, coping strategies, and faculty's post-COVID-19 perceptions. The findings reflect that the faculty prioritized to focus on immediate online instructional matters in the wake of the pandemic with a lack of emphasis on global practices for online learning. Experienced and young faculty reported disparities in striking a balance between pedagogy and technology. Moreover, despite the limitations, the experience itself prepared the faculty for a blended learning approach and increased their awareness of global and future challenges. The implications were reported based on the findings.

Keyword Online teaching · Higher education · Teaching effectiveness · Stress · Global concerns

1 Introduction

A global change in the mode of work was witnessed during the COVID-19 pandemic with an increased reliance on online services along with new norms. This shift to online mode of work decreased the disparity between countries and increased the possibilities of global connectedness and learning. In the developed countries such as Australia, Europe and the USA, digital mode of education has been rehearsed since decades. Despite this trend, some of the higher education teachers perceived

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this sudden shift as a challenge or threat due to obliviousness with online teaching system (Daumiller et al. 2021). Unlike these countries, in developing countries where online learning is a new phenomenon, exploration of teachers' perception is more pertinent especially during an emergency. This research approach may offer a model of preparation for online teaching in similar situations in other countries.

Pakistan is a developing country where a systematic and nationwide infrastructure for online teaching with facilities such as virtual classrooms is yet to be established. Distance education is primarily conducted through one large government university that has not completely adopted the online mode of teaching. The preparations to operate online programs during an emergency remained meager due to the greater prevalence of the face-to-face mode of education.

In the wake of the COVID-19 pandemic, Pakistani universities were forced to adopt online learning, and existing courses were modified for an online mode of delivery. This study focuses on Pakistan and, to draw meaningful insights, utilizes a qualitative analysis of the data collected from faculty members working in higher education. The significance of this study lies in providing insight into planning first-time online teaching especially in the developing countries.

The available literature focuses on the impact of the pandemic on the education sector in many parts of the world, especially in developing countries, and their challenges, constraints, and coping mechanisms (Judd et al. 2020; and Huber and Helm 2020). The studies focus on innovative strategies adopted by educational institutes for distance learning during this crisis (Bao 2020; Moorhouse 2020). Most of the literature available on online learning, educational challenges, and instructors' experiences are based on regular situations and contexts wherein educational institutes were not compelled to shift to online learning and teaching (Ali and Ahmad 2011; Farid et al. 2015). Moreover, most of these studies focus on experiences that are collected from developed countries. Therefore, this paper attempts to shed light on the pedagogical knowledge and experience gained by teachers who are new to online teaching in a developing country like Pakistan during the COVID-19 pandemic (Conrad 2004; Rapanta et al. 2020).

2 Literature Review

The review of the literature covers studies that provide information about the response to the pandemic, primarily from China (Anderson 2020), comparative analysis from the universities of Hong Kong (Crawford et al. 2020), studies on the digital divide of schools in Europe (Verma et al. 2020), COVID-19-related studies, and other studies on policy development and curriculum during the pandemic (Sasot et al. 2020). In this backdrop, quality research focusing on the experiences of first-time online teachers in higher education is lacking. This section presents a review of the research on the experience and challenges of online pedagogy while providing a rationale for the present study. The interplay between the variables has provided the basis for the exploration of the online pedagogy of novice teachers.

2.1 Online Teaching and Learning Environment in Contrast to the Traditional Learning Environment

Online education focuses on providing a stimulating environment that is different from traditional education (Holly et al.2008). Online pedagogical practices involve instant messaging platforms besides utilizing Learning Management Systems (LMS) (Moorhouse 2018).

It has unique challenges, such as lack of experience and preparation and institutional as well as technological challenges (Bao 2020). When Guskey's (2000) perspective is applied, the shift to online learning requires the consideration of learner skills, including self-regulation, IT skills, workload management, blended learning awareness, gender, and age. Learners who are frustrated with technology often abandon the learning process (Hofmann 2014). The failure of learners in continuing their online education is linked to lack of family support and extensive workload (Park and Choi 2009). The learner satisfaction, among other factors, primarily determines the success of blended or online learning, and dissatisfaction can be a result of the learner's inability to effectively utilize online modes. The lack of prompt feedback from instructors and poor student–teacher interaction is critical for learning (Islam 2014). Therefore, this experience is unlike live interaction, which facilitates and incorporates the exchange of feedback through dialog and positive gestures (Kelley and Gorham 1988).

2.2 Online Pedagogy and Relevant Domains

Online teaching is reported to increase the levels of work intensity that demands an instructor to have additional multiple roles like that of a facilitator, mentor, and a co-learner (De Gagne and Welters 2009). A study indicated that asynchronous communication was found to have links with in-depth communication, helping students move at their own pace and help them fulfill the learning outcomes (Tallent-Runnels et al. 2006). Another study has shown that teachers who have a minimum of two years of online teaching experience in nursing academia with a doctoral degree viewed teaching effectiveness, students' success, quality indicators, and a dynamic role of the instructor as important domains, which led to the concept of *dance* within the online learning environment. Another concept, the *intensive online learning environment*, is also differentiated from the online learning environment based on the notion that it has increased dependency upon effective communication, technology, and its use for increased communication, and learning and feedback strategies in which the instructor's importance is central (Roddy et al. 2017). Additionally, a concept known as *integration* in online teaching has a fundamental value in predicting the quality of learning outcomes as a result of preparation (Cosmas-Quinn 2011). Integration refers to the alignment of online tools with the requirements of the course. Notably, little attention has been directed toward the efforts of understanding online pedagogy in an emergency.

2.3 Correlates of the Effectiveness of Online Teaching

All the educational institutes were not reported to be technologically equipped for the online mode of teaching, and this led to learning setbacks (Binkley 2021). This also indicated the institution's role in the effective implementation of online teaching model. The instructor's role in adapting content for online learning is important, and the possibilities of success are lowered when instructors are habituated to face-to-face teaching (Kim et al. 2014). Course redesigning is a major challenge in online teaching, and this often becomes an intimidating experience for the untrained (Vitale 2010). Despite these challenges, the purpose of online teaching is to fulfill its goals without compromising on the quality of education (Conroy et al. 2020).

The socio-economic divide creates another educational challenge because a vast majority of students belong to technologically challenged areas and many of them come from low-income backgrounds which affirms that education is influenced by the digital divide (Strauss 2020). The universities have realized that they need to implement changes to support the instructional continuity by aiding online learning (Krishnamurthy 2020). Amidst all this, the role of the faculty is instrumental in using this online mode for the attainment of educational outcomes.

2.4 Global Research on Online Education During COVID-19

Numerous studies have explored the impacts of COVID-19 on the education sector. A meta-analysis of 20 countries presented diverse results depending on geographical location, technological availability, and adaptability to this challenging situation. The findings indicated that developing countries faced greater challenges majorly due to unfamiliarity with online teaching and the lack of resources. Good practices such as online training for staff and students were reported in Hong Kong (Crawford et al. 2020). Peking University proposed instructional strategies to fulfill course objectives, such as making emergency plans to reach students with no or low internet connectivity, dividing the curriculum into smaller units, providing online assistance for workload management, improving student learning abilities outside the class; lastly, merging online and offline self-learning effectively (Bao 2020). A survey finding reported that about 172 executives from American universities expressed an increased concern on the mental health of students, faculty, and an accelerated trend of physical health issues of faculty, and a higher rate of students' attrition linked to online teaching (Krishnamurthy 2020).

The findings of a study indicated the importance of social, cognitive, and facilitatory aspects in online teaching and the need to adapt the assessment modes when conducted by teachers with 10 years of online teaching experience (Rapanta et al. 2020). Furthermore, considering the novel emergency situation, the necessity of self-regulatory activities such as self-reflection and portfolios was emphasized.

Another study analyzed the strengths, weaknesses, opportunities, and challenges of online teaching during the COVID-19 pandemic (Dhawan 2020). In addition to the strengths, such as location, flexibility, the availability of a wide range of

content for different audiences, and opportunities to adopt innovative pedagogical approaches, weaknesses such as learners' capabilities and confidence level, challenges related to digital literacy, unequal distribution of IT infrastructure, digital divide, and quality education were also reported. A study from the USA has also identified the pre-requisites for online teaching of student teachers in an early childhood practicum during the crisis brought about by COVID-19 (Kim 2020). Their experiences indicated three phases of online learning, i.e. preparation for teaching online, implementation including communication, teaching, supervision, and reflection on children and distance learning while instructing children.

3 Research on Online Teaching and Learning in Pakistan During COVID-19

Digital learning in Pakistan faces multi-faceted challenges. The biggest challenge includes internet accessibility, which seems to discriminate against students from marginalized communities and remote areas. Inclusivity is another challenge, as hearing-impaired students have reported difficulties in online learning (Manzoor 2020).

In Pakistan, educational institutes commonly use platforms such as Google Meet or Classroom, Learning Management Systems, Zoom, and YouTube as a part of the Distance Mode of Learning (Mukhtar et al. 2020). Certain issues, including privacy issues, lack of online technology, financial and technical issues, and most importantly, lack of family support and effective feedback, affect the curriculum implementation (Adnan and Anwar 2020; Bao 2020).

The Higher Education Commission (HEC), Pakistan formed aCOVID-19 Technology Support Committee to assist universities in creating distance learning guidelines (Mukhtar et al. 2020), but a strategic plan is still required.

Recent studies will contribute to enhancing the quality of online teaching. A qualitative study developed themes around the advantages, limitations, and recommendations of online teaching and learning by conducting interviews during the COVID-19 pandemic. The study reported academic inefficiency as a limitation, teaching as a major area of focus, and assessment and quality as recommendations along with other advantages (Mukhtar et al. 2020). Similarly, another study showed the lack of preparedness and previous experience and the dissatisfaction of teachers with online learning as opposed to face-to-face teaching in the case of medical education, primarily due to the difficulty of teaching anatomy and clinical skills online (Aziz et al. 2020). According to the perspectives lack of face-to-face interaction with the instructor, response time, and the absence of a traditional method of education along with the lack of internet access made online education challenging (Adnan and Anwar 2020). This review indicated a dire need to explore the perceptions of the faculty teaching in various higher educational intuitions of Pakistan so that pedagogical methods for online teaching can be proposed for novice faculty and crises and emergencies and the scope of online teaching can be expanded beyond medical education or a single institution.

3.1 Online Teaching, Challenges, and Coping

The closing of educational institutes with poor adaptability to a new mode of education and lack of organization is likely to result in considerable stressful challenges. Students are reported to face multiple problems related to stress, depression, anxiety, unsupportive family, and poor connectivity issues. It was reported that 42% of the selected population in West Bengal suffered from stress, depression, and anxiety. The students from low-income backgrounds faced learning setbacks and stress due to financial and technological challenges (Kapasia et al. 2020), adding to the responsibility of the teacher to monitor online learning engagement (Manzoor 2020).

Additionally, online teaching is mainly instructor-centered, and this is more likely to cause increased psychological stress among the faculty (Murphy et al. 2011). The significant role of the teaching faculty and counselors in emotionally supporting students during times of crisis has been reported (James et al. 2011) along with the teachers' impact on the effective learning of students (Snelling and Fingal 2020).

Owing to social isolation, students and teachers were reported to be at risk of developing mental health issues, including depression and suicidal behaviors. Stress coping mechanisms may help create a healthy teaching and learning environment. Filipino teachers channeled their anxiety into spending quality time with their family; using social media to interact with friends, office colleagues, and students; reading e-papers; and researching effective distance learning practices (Talidong, 2020). The resilience and the use of humor by individuals lowered anxiety, while mental disengagement served as the coping mechanism (Savitsky et al. 2020). Other coping strategies may include the improvement of online modes of education, implementation of a uniform policy, and better infrastructure. The creation of alternative approaches for a positive space that supports marginalized sections such as disabled individuals is also important (Kapasia et al. 2020; Manzoor 2020).

3.2 Theoretical Basis of Research

The approaches of instructional design (ID) and learning design (LD) are usually implicit in the process of face-to-face teaching as compared to online teaching where the use is quite explicit (Carr-Chellman 2015; Dijkstra et al. 1997; Kaburise 2014). For online learning design, approaches are different and rely on the techno-pedagogical design with an increased emphasis on learner's engagement through creative solutions and interaction (Winters and Mor 2008) to meet the requirements of the learners (Partlow and Gibbs 2003; Parchoma et al. 2019). This makes the paradigm of constructivism applicable to online pedagogy (Taber 2011; Shah 2019). Notably, this online learner engagement is co-constructed within the larger socio-cultural influences and therefore provides a basis for exploration of lived experiences.

4 Method

4.1 Design

This study is qualitative and exploratory. It attempts to analyze the lived experiences of the higher education institutes HEI faculty members in Pakistan who were engaged in online teaching for the first time during the COVID-19 pandemic. The lack of information on this topic guided the utilization of the descriptive phenomenology (Creswell 2007). The descriptive phenomenology assisted the participants in articulating their observations, viewpoints, and the "lived experience" that were pertinent to online teaching (Creswell 2007; Colaizzi 1978).

4.2 Participants

4.2.1 Sample

Criterion-based sampling was used to select the participants for the study (Anjum et al. 2018). Eleven participants (HEI's faculty) were interviewed for the study. The recruitment of participants continued until no novel themes in the data were identified, i.e. the data reached its point of saturation (Javadi and Zarea 2016).

4.2.2 Criteria for Inclusion

The criteria for the inclusion of the participants in the study were limited to university faculty engaging in online teaching for the first time in their teaching career during the COVID-19 pandemic. A minimum teaching experience of one year was considered important so that the participants had experience in face-to-face pedagogy. The participants were recruited through convenient sampling from 5 higher education institutes in Pakistan that fulfilled the aforementioned criteria. Table 1 shows the socio-demographic characteristics of the 11 participants.

4.3 Data Collection and Analysis

4.3.1 Interview Procedure

A semistructured interview was used to explore the strengths and challenges of online teaching, the opportunities arising from online teaching, and the threats and risks involved based on the experience of the faculty. The study also examined the prevailing conditions of stress due to the transition to online teaching during the COVID-19 pandemic.

Research ethics were ensured. Written informed consent of the participants was taken after explaining the purpose of the study to them via text and e-mails. The confidentiality of the identities of the participants was maintained, and verbal consent was

Table 1 Demographics of participants in the Study

Participant	Gender	Education	Years of teaching experience	Online teaching experience	Participation in webinar/online conference and certification	Weekly online working hours	Teaching levels
P1	Male	Masters	3	First time	N/A	10	BS
P2	Male	PhD	8	First time	Webinars	16	BS, MS
P3	Male	Masters	2	First time	Webinars, online certification	14	BS
P4	Male	PhD	11	First time	Webinars	12	MS
P5	Female	PhD	9	First time	Webinars, conferences	14	MPhil, PGD
P6	Female	PhD	7	First time	Conferences	10	MS, PGD
P7	Male	Masters	1	First time	N/A	18	BS
P8	Male	Masters	4	First time	Webinar	12	BS
P9	Female	Masters	7	First time	Webinar/online courses	10	BS
P10	Female	PhD	9	First time	Webinars	8	BS, MS
P11	Male	PhD	13	First time	N/A	12	BS, MS

taken before recording. The interviews were conducted and recorded via telephone calls and Zoom. The questions were modified according to the flow of the conversation. The participants responded to questions such as the following:

What is your experience of online teaching during the COVID-19 pandemic?

How would you describe the strengths and challenges of online teaching?

Which resources helped you to overcome the challenges?

What opportunity does the transition to online teaching generate?

How have teaching practices evolved with the transition to online teaching?

At the end of each interview, the main points were summarized. Additional comments and feedback were incorporated. Each interview took around 40–60 min. Later, the audio recordings were transcribed, and the participants' personal or university identity was excluded from the transcription.

To increase the credibility of the data collection process, a pilot interview was conducted (Forero et al. 2018). A stage-wise approach was taken for data collection and analysis. In the first stage, the participants were recruited and the mode and time of the interview were decided. In the second phase, the researcher explained the purpose of the interview to establish rapport with the participants. In the third phase, the interview was conducted.

4.3.2 The Procedure of Data Analysis

Braun and Clarke's (2006) six-step model of thematic analysis was employed to gain deeper insight into the participants' experience with the online teaching process. The thematic analysis was initiated shortly after the earlier interviews were conducted. In the first stage, the data were transcribed line by line and read at least twice to promote familiarity with it. Further, a reflective log was maintained. In the second stage, the data were coded using MS Word. Two researchers coded each transcribed interview to increase the credibility of the coding process (investigators triangulation). Further, an expert in the field assessed the coded transcripts (10% of the data) to exterminate researcher reflexivity and biases.

In the third stage, similar codes were grouped, and initial themes and mind maps were created through inductive thematic analysis (Thomas 2006). In the fourth stage, the themes formed were checked against the coded extracts to ensure a coherent pattern of themes with identifiable distinctions. A fellow researcher, who was blind of literature, independently developed a thematic map. The thematic map was finalized after extensive discussion (Gani et al. 2020).

In the fifth stage, peer debriefing sessions were conducted. In the final stage, the final write-up was completed while considering logical rationalities and the direct quotes from the participants to ensure the credibility of the findings. All these steps ensure the credibility, conformability, dependability, and transferability of the research (Nowell et al. 2017).

5 Findings

The findings indicated the impact of the transition to online education in Pakistan during the COVID-19 pandemic. The cultural-contextual and experiential issues provided a unique blend that engaged students at a certain level and in a certain way to execute the business with a short-term approach at the outset, with the long-term impacts deeply ingrained in the faculty's mindset. Several areas indicate that content development and technology pose a challenge in online pedagogy for novice teachers in unique ways.

5.1 Emergent Themes

The inductive analysis of data led to five major emerging themes, including (a) culture and gender-related issues, (b) teaching effectiveness, (c) challenges in online teaching, (d) coping strategies, and (e) faculty's post-COVID-19 perceptions. Each theme is significant, as it reflects the lived experience of the faculty teaching online during the COVID-19 pandemic.

5.1.1 Theme 1: Culture and Gender-Related Issues

Under this theme, the subthemes that emerge include *support*, *privacy and protection*, *parents' exposure and apprehension*, and *gender roles and expectations*.

As a subtheme, *support* from family, colleagues, and peers was one of the significant social factors contributing to the mitigation of stress arising because of uncertainties during the COVID-19 pandemic. For example, P4 explained that "On WhatsApp group, all the colleagues were supporting…helping with work-related things is essential." P1, P7, P10, and P11 explained that active peer support was also advised among students for their mental wellbeing. For this purpose, students formed virtual groups and committees for interaction. P3 experienced a sense of teamwork and strong bond among students as they were more connected besides being in isolation.

The participants shared that the privacy and protection of data are beyond the responsibility of the institution. For instance, P2 expressed that: "it is overwhelming to share personal WhatsApp numbers and information about social media accounts…giving access to these mediums intrudes privacy." As instructional channels are presently being digitized, privacy and protection are one of the leading concerns. P3 shared that using non-educational applications without knowing their privacy settings are dangerous. For instance, P6 reported security concerns: "cyber-security……the glitches with the use of various apps are annoying…sudden popping up of inappropriate content and ads is problematic." Participants (P1, P5, P6, and P10) expressed that privacy concerns are not only limited to the sharing of personal information online. In fact, many students find it inconvenient to share videos because the sessions are being recorded, and they keep their audios muted. Students, especially those from underprivileged areas where the families have no concept of

online teaching, are reluctant to show their study space at home. Not sharing videos or minimum participation in the discussion makes the class less interactive.

In this context, *parents' exposure and apprehension* play a pivotal role. About 70% of the participants reported that the parents discussed openly how online teaching will meet the standards of education provided in the university. P3, P7, and P9 reported that parents are apprehensive about the jobs their children will get after distance education. P9 expressed this issue in detail: "the presence of the teacher in the class gives a direction to the students. Parents were satisfied that their children are going to the university, and now, the university is closed, so parents do not know where their children are heading in their practical life, … parents were found to be worried about their children's jobs after getting this kind of online learning."

Gender roles and expectations are amplified when teachers work from home. All the female participants reported that household chores and family expectations increased massively during the lockdown. They reported that while working from home, they are supposed to look after their kids and the adults at home during working hours. Other cultural and gendered stereotypes such as household chores being taken care of mostly by female teachers along with their online classes created additional responsibilities during working hours. One of the female participants said that she would "finish household work before online class time…still; children come up for petty things…" The study revealed that male participants did not experience any dual roles or responsibilities while working from home.

5.1.2 Theme 2: Teaching Effectiveness

The participants stated that teaching effectiveness served as the core function of online teaching. Various factors contributed to making online teaching efficient, which is reflected through three subthemes: *teacher characteristics* (sensitivity, flexibility, and self-efficacy), *establishing differentiated instructions*, and *instructional continuity*.

All the participants shared *teacher characteristics* and reported that teacher sensitivity was integral for the continuation of education and learning after the emergency closing of institutes. The teacher's sensitivity was exhibited in their understanding that they would need to work beyond the regular hours and typical work patterns. They demonstrated a flexible attitude to learning technology, readiness to adapt to changes, and a feeling of self-efficacy. In terms of flexibility, all the participants reported the convenience of preparing and recording lectures at any time of the day. Participant 1 shared that they "make videos during the free time…more hours to prepare lectures, upload lectures even late at night." Likewise, participant P6 believed that "online teaching helps in planning and delivering lectures more conveniently."

Participant 8 emphasized that in addition to flexibility in preparing lectures, the faculty should be able to plan the assessment modes for the courses they teach, which indicates their increased sensitivity to the online mode of assessments. Some participants, especially P9 and P11, expressed "how difficult it is to manage a number of courses…more flexibility is needed in giving deadlines." According to the participants, although their readiness to learn technology was evident, it depended

on their faith in their self-efficacy, which was linked to their previous experience. For example, a participant shared that it took him 10 days to successfully identify and select the appropriate apps and virtual tools for use in online lectures. Later, however, he was confidently able to create links and integrate course pages and materials. Some senior faculty members, such as participant 8, showed their reservations: "not ready…university is not ready… students are also not ready."

In response to the transition to online teaching due to COVID-19, the data suggested that the faculty successfully customized and differentiated their modes of instructions. For example, P1, P2, P4, and P11 shared that they formed groups of students for their online classes. The purpose was to have an open, interactive, connected, and communicative learning process. Participant 9 also shared her experience with online teaching by using *differentiated instruction techniques*. She managed to sift through all the study resources based on the academic level of the students. The faculty members who were engaged in teaching different levels of students had a clear general understanding of how to align the instructions and teaching techniques with different needs at different levels. The understanding of the suitability of instructions to the student needs was more evident in the case of faculty members who were teaching only undergraduate courses. For example, this is apparent from the narrative of one of the participants: "teaching to a graduating batch … uploaded a lot of articles to read before coming to the class. However, for a junior class, just uploaded the PowerPoint slide."

For *instructional continuity*, the role of both the university and the faculty was reported to be on the same grid. All the participants appreciated the role of the university in the continuation of education even during the global emergency. The general feeling of instructional continuity was satisfactory, and they perceived that the shift to online teaching was helpful for the instructional continuity. For example, P5 explained that the students were "now becoming more independent learners…adequate timeline, guidelines, and planning will yield effective results for the transition to virtual teaching." Likewise, P3 expressed that: "universities in Pakistan have officially decided to proceed with their learning via online teaching…this transition was successfully addressed with institutional support." By realizing their responsibility and support, they offered great support for the instructional continuity. Three participants shared that they are primarily responsible for addressing their students' issues while seeking support from the university and innovatively using all available resources. According to participant 10: "for students having connectivity issues, 'Taleem Bundle' was created under departmental supervision. Offline Mode of content delivery was made possible to ensure accessibility for every student." Similar views were reported by P11 who stated that it was decided that lectures would be recorded and uploaded different platforms, such as YouTube and Zoom. It was further decided that CDs should be made for those who do not have access to these platforms.

5.1.3 Theme 3: Challenges in Online Teaching

Under this theme, the subthemes that emerge are *training needs, teaching stress, and student engagement*.

All the participants emphasized that the appropriate *training needs* of the faculty should be met to transfer knowledge efficiently. Few participants perceived accessibility to various resources as a challenge. For instance, P7 reported that the "sharing of psychological tests and its manual is against the rules of the department. There is no access to it online as well. The sharing of similar material is a big challenge, and it causes a great hindrance in completing the course work." Additionally, P11 highlighted that the concerned universities should formulate policies with the Higher Education Commission of Pakistan to ensure unlimited access to the digital library for both teachers and students. Similarly, the teacher should have access to multiple cost-effective training and teaching tools. This is mandatory for transitioning to online teaching smoothly. Another integral challenge related to this was the limited accessibility of students to online teaching due to weak internet connectivity across the country and the limited availability of gadgets due to affordability. P1, P2, P8, and P9 expressed that lack of resources in the remote areas has created a major hindrance in initiating online education.

An important factor related to the delivery of online lectures is *teaching stress*. The faculty reported some key factors that contributed to their stress during online teaching, including challenges in managing content, records, and time; engaging students in the learning process; and maintaining work–life balance. For instance, P3 shared that using different apps and devices and combining multiple apps for content preparation and delivery was stressful at the beginning. It was hard for him to make many videos and select the content. Teaching stress was also found to be linked with time management and work–life balance. For instance, P5 clearly expressed that most of the time, his household chores and online classes overlapped, and due to lockdown, it was difficult to manage both simultaneously. Another challenge was the presence of too many students in a class. P4 shared that "it is difficult to schedule an online class with a large number of students…to convey time and date, etc." P6 shared similar concerns regarding evaluation: "whether the content is being shared with all the students and the lecture is being comprehended by all…it is difficult to follow up with everyone due to a large group." Only about 20% of the faculty showed serious concern for the uncertainty related to social grooming and acquiring skills for employability. For instance, P4 expressed that through online teaching, some important aspects cannot be met: "inculcating social skills, networking, and relevant employability skills appear to be difficult now…students do not give presentations in online teaching, they do not liaise with different people from the industry, and these important soft skills cannot be taught online."

Regarding *student engagement*, the participants shared that the students' attention decreases with time, making it difficult to get them involved in the lecture. Participant 6 reported that his basic interest remains in adapting and designing his online course to motivate and generate interest among students. Similarly, P11 explained that in online pedagogy, teachers have to ensure that the lessons are more interactive and interesting to the students and convince them to remain glued to the screen. Finally, the participants also highlighted that a lack of prior experience contributed to online teaching stress. Moreover, the faculty was new to this experience. Participants P1, P6, and P7 particularly pointed out that due to little exposure to online lecture delivery, several complexities emerged in terms

of designing, structuring, and organizing the course modules, making sessions interactive, and identifying augmented resources and tools. In this regard, previous experiences were perceived to be helpful. Some faculty members, such as P3 and P11, shared that they delivered online lectures on a trial-and-error basis. Internet accessibility issues contributed further to this challenge.

5.1.4 Theme 4: Coping Strategies

The subthemes that emerge under coping strategies include *cognitive connections* and *pedagogical and technological adaptation*.

In terms of *cognitive connections*, instead of developing a major cognitive shift, the ongoing teaching methodology was shifted online. However, the transition to online teaching created some doubts about the shift from the instructional designs practiced in the traditional classroom. P3 explained that the faculty members were mindful of not bringing drastic changes into their teaching practices so that they and their students could cope with the new teaching instructions. In this regard, the comments of P7 and P11 were very convincing. P7 mentioned that "having a cognitive understanding of my students' learning approach, it was not required of me to go for a major cognitive shift by introducing an entirely different way of teaching…a familiar teaching method with some modification was required to meet the needs for synchronous and asynchronous learning." Likewise, P11 expressed: "the lecture format and teaching method should be familiar to all students, like what they have already experienced during regular classes in the university."

Another important aspect of *pedagogical and technological adaptation* that P7 figured out was the adoption of synchronous and asynchronous modes of instruction. P3 further added that emails and WhatsApp groups were more efficient platforms for the asynchronous mode of instruction: "WhatsApp and emails require less data and are user friendly…can be accessed at any time. This asynchronous mode has helped a lot…."For case studies as course content, P3 and P11 adopted pedagogical methods, such as providing prompts, focused discussions, identifying misunderstandings, reaching consensus in discussions, summarizing the topics, and validating the understanding of the content via immediate and quick assessments and feedbacks. Other participants (for example, P4 and P6) reported the reinforcement of students' roles through group discussions and by practicing chunks of the flipped classroom by uploading the study materials on LMS in advance for discussion purposes. About 20% of the participants reported that MS Teams assisted them by providing technological support. P10 highlighted the importance of learning different technologies and learned advanced technologies appropriate for his courses. For example, he used YouTube's open transcript option to read and copy the lecture transcript. Similarly, P11 also reported that he focused on using Zoom classrooms innovatively, such as the locking of the Zoom classroom once the discussion has started, screen sharing, polls, question and answer session, optimized light, reduced sounds, and the display of all the relevant links and materials in the chat section, etc.

5.1.5 Theme 5: Faculty's Post-COVID-19 Perceptions

The subthemes that emerge in this theme include *increased collaboration*, *enhanced professional development,* and the *opportunity for blended learning*.

The most important aspect was the *increased collaboration* among faculty members. The faculty reported that online teaching showed an increased collaboration among different schools and universities at both the national and international levels, among researchers, and so on. P3 stated: "online teaching provides potential prospects to connect the online knowledge hub…irrespective of the community's geographical locations." Likewise, P5 explained that online teaching facilitates intellectual relationships at the national and international levels, assists teachers in developing new modules based on those already developed by the virtual campuses of other institutions. P11 highlighted the importance of collaboration among community schools and universities. He reported that they developed an entirely new education system and implemented it effectively by collaborating with existing small networks such as jazz smart schools.

The importance of *enhanced professional development* should also be highlighted. Some participants (P1, P4, P5, P6, and P10) believed the post-COVID-19 educational system has opened avenues for professional development in terms of the enhancement of research skills; the adoption of modern, creative, and innovative pedagogical practices; the use of modern technology and accurate tools; the integration of technology with traditional teaching styles; and the acquiring of skills essential for digital literacy and the online education system. Additionally, P3 explained that they use podcasts, webinars, and lectures from international professionals and the industry. In post-COVID-19 perceptions, the potential for *blended learning* was clear. As reported by P6, the participants anticipate a rapid growth in blended education as a mode of instruction in higher education. Other participants foresee the transition to online teaching as an opportunity to introduce a blended mode of education in Pakistan. P10 expressed that blended learning is a good option and the physical classroom must be replaced with online classrooms, and a mix of learning tools can be used by keeping online classes and sharing lecture details via emails. Within the model of blended learning, the importance of educational apps such as YouTube to reach students in remote areas was also emphasized (Fig. 1).

6 Discussion

The findings identified that the psychological, educational, and socio-cultural aspects are related to the realm of the psychological, educational, and socio-cultural aspects in times of global emergency. The data are unique, as it was solicited during the peak of the COVID-19 crisis. The mitigation of the stress caused by COVID-19 was noted at the time of interviews taken (June and July 2020), and this may be one of the reasons that the faculty could talk in detail the about psycho-social and educational experiences of online teaching with a little focus on direct stress caused by COVID-19.
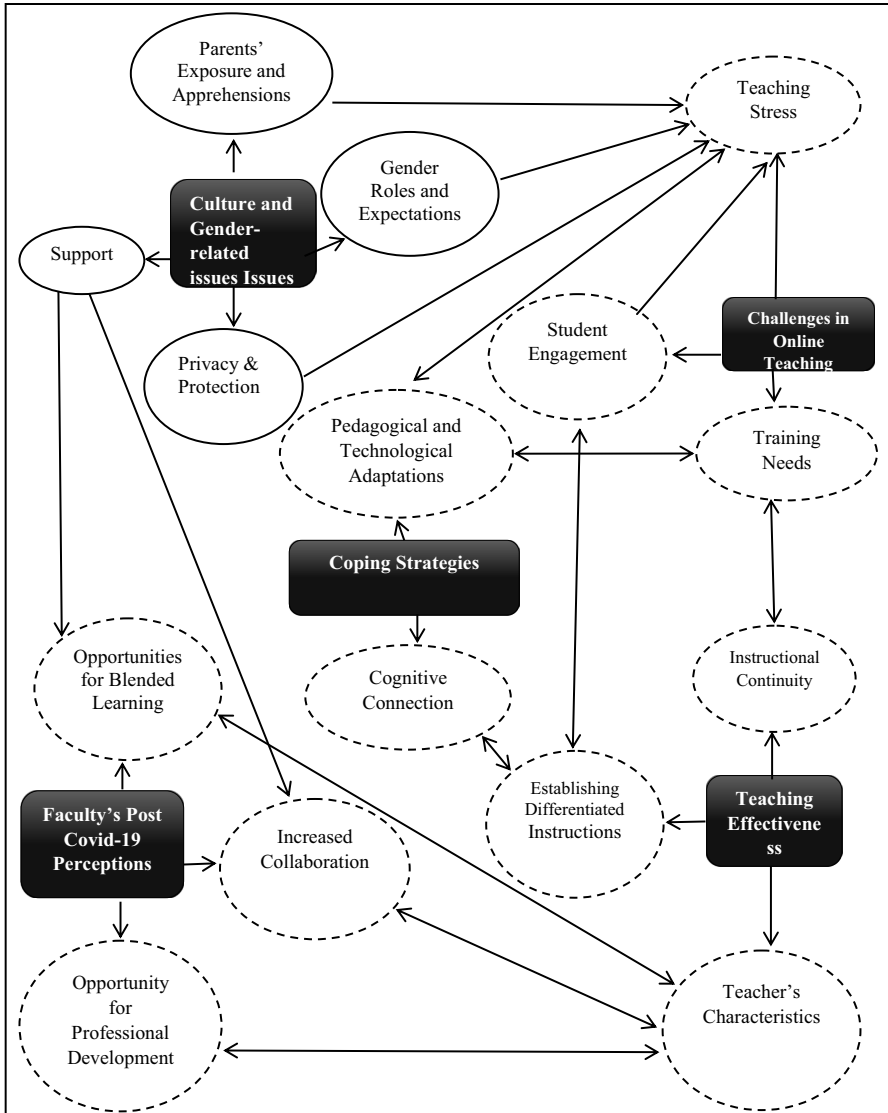
Fig. 1 Thematic map displaying themes and subthemes of first-time online teaching experience of university teachers during COVID-19 pandemic

The intricate analysis of the data shows that online teaching effectiveness is linked to the faculty member's characteristics. They were challenged by the content and technology management, lack of previous online teaching experience, lack of systematic approaches, and cultural and gender-related issues, and consequently, low student engagement was experienced which was of a temporary or a superficial nature.

Adaptation and adjustment have been observed both on part of the teachers and students, especially in cases where the emphasis was laid on online teaching. They provided a perspective that resonates with the differentiated instruction for using online mode for the post-COVID-19 era. During the interviews, the faculty showed motivation for online teaching. They participated fully and this indicates the lack of resistance, openness, and flexibility to adapt to this new model. These generic findings will be discussed in detail along with a comparison with the previous literature.

6.1 Teaching Effectiveness

The findings indicate that the faculty have realized their role in online teaching effectiveness. Through their rigorous online teaching experience two months before the interview, they developed stronger self-efficacy and showed readiness to teach online. However, for the senior faculty, pedagogy was more important than utilizing multiple modern technological tools. The faculty with over 10 years of teaching experience focused on translating traditional teaching methods to online teaching so that students do not struggle with major cognitive shifts. They also emphasized the role of the institute or university in making this experience a continuous learning experience for the students. They valued the importance of training for both faculty and students and the differentiated use of technology for senior and junior students.

However, their first-time use of online teaching seems to have had limitations when their perspective of teaching effectiveness was viewed in connection with the previous literature. The focus of the faculty remained upon immediate teaching and learning issues, and they demonstrated a lack of focus on student learning as an outcome of the online teaching, which has been previously investigated in different contexts. Our findings on the factors leading to teaching effectiveness were similar to a previous study that reported the importance of teachers in connecting, leading, and working in congruence with students in online classes, but in our study, the connection was seldom made with a view of student success (Ni 2013).

There may be several reasons for this deviation. First, this study was conducted in a real-time situation rather than taking an experimental design on online teaching, which might be more appropriate for investigating the relation of online teaching with student learning outcomes. Second, the faculty's sensitivity to the situation might be a factor that decreases their focus on outcomes while increasing their focus on the process of learning. Third, their cultural understanding of lack of internet access for all the students as a major challenge might have prevented them from focusing on outcomes more than learning processes. Fourth, the process of learning was only considered to be an indicator of effective learning. However, this can only be considered as speculation. A study on online teaching experience in a non-pandemic situation with faculty having extensive relevant experience may be conducted to validate these findings.

6.2 Stress and Coping Methods in Online Teaching

The findings of this study reveal a few sources of stress in online teaching which are common to those already reported in face-to-face teaching. A previous study has

identified huge workloads and lack of resources as causes of stress even among the high school teachers (Austin et al. 2005). This high workload is indicative of a disruptive work-life balance and issues in time management.

The management of content and records as well as student engagement were also reported as key sources of stress. Several factors are at play here. The first-time online teaching experience itself could be a reason for low student engagement. The cultural context with internet accessibility issues and the lack of previous exposure/ experience with the online world of teaching and learning could be another reason for the low student engagement. In addition to the peripheral variables that contribute to the low student engagement, the faculty noticed that the students had low motivation because of a lack of exposure to the self-paced learning model.

A sudden shift from face-to-face teaching to the online mode with a lack of content preparation could have led to a lack of focus on increasing student engagement by taking into consideration the established practices in the online world of teaching and learning. The focus of the entire learning environment to train teachers for increasing student engagement also remained low as the focus seemed to be on creating a system of online teaching and learning. However, the data shows that private universities invested in streamlining online education in an emergency, and this was perceived as systemic support.

Previous studies indicate that there are certain methods of engaging students in an online teaching and learning process which might be learned and adapted for online pedagogy. A study has shown that online undergraduate student engagement can be the result of a peer support community, engaging teachers, and factors such as workload and course design (Farrell and Bruton 2020). It is noteworthy that the online engagement experiences in these studies have been recorded for a longer duration, such as a maximum period of around one year. In the Pakistani context, two months of online teaching experience before the conducting of interviews may not be sufficient for the faculty to help them assimilate and contemplate fully on strategies for increasing student engagement in online learning. Similarly, a previous study has also supported the importance of meaningful and multiple ways of interacting with students (Dixson 2010), which could not be very well planned because of the unexpected change of teaching mode, lack of previous experience, and internet accessibility issues.

A review of the stress coping techniques on the part of the faculty indicates that they responded by acknowledging the change and the dire need to engage technologically in meaningful ways. They incorporated technology into their teaching, adapted the content, and offered or received support. However, their focus on strategic and research-based plans for enhancing student engagement was meager, and they focused only on resolving immediate sources of stress.

6.3 Challenges

The faculty linked the issues of online teaching with cultural issues and the conversion of all kinds of course content to the online mode, despite the fact the course demanded practical work, e.g., laboratory work, hands on activities, and group

activities. Therefore, our findings are close to the previous online teaching experience which is reported to have faced content development issues. Content development can be a great challenge for online teaching but the modification of the existing curriculum to the online mode seems to be challenged by the access to the digital resource, limited accessibility of students, and large classes. Therefore, rather than content development (Kebritchi et al. 2017), the ability to reach all the students was perceived as a challenge.

Instead of developing suitable content for the online mode, it was adapted and therefore, the long-term development of content was considered as another challenge. It is interesting to note that the development of the skills for employability and the labor market, rather than student learning outcomes, were perceived as challenging by the teachers. Their focus remained on skill development which indicates their long-term perspective.

Additionally, content accessibility was influenced by systemic issues. The sharing of materials such as manuals and tests was not possible either due to organizational permissions required or the extensive procedure of issuing such tests, and it was possible only in the face-to-face mode. The teachers were found to be unable to resolve this matter on their own. Therefore, it can be inferred from the data that all subjects and all kinds of content cannot be satisfactorily adapted for the online mode. This is also in line with the previous study that revealed the importance of socio-cultural methods for the creation of a culture that facilitates understanding and sharing (Hunt and Tickner 2015). Our findings also corroborate the previous study that emphasized culturally sensitive enhanced communication and increased efforts to accommodate cultural differences (Parrish and Linder-VanBerschot 2010), which might be observed less in a context where online teaching was implemented for the first time and at a large scale.

6.4 Faculty's' Post-COVID-19 Perceptions

The faculty showed their eagerness to quickly adapt to the online mode of teaching. Moreover, they realized the global demands of the era. Their adaptability, flexibility, and sensitivity to the importance of the online mode of teaching for the future were evident through their perspectives on the importance of blended mode of teaching in the post-COVID-19 era. The faculty showed willingness to adopt an online mode of teaching and learning despite the huge workloads and restricted resources as source of stress. These findings are unique in a context where online teaching was not a trend before the pandemic, and despite psychological, educational, and cultural challenges, teachers were prepared to utilize this mode in the future strategically. During these earlier stages of such conceptions, training opportunities for online teaching were perceived to be a factor that is crucial for the success of this endeavor.

6.5 A Comparison to COVID-19 Literature

The findings of this study go beyond the previous research on first-time online personal teaching experience (Conrad 2004; Qamar 2020) by bringing developing

online teaching pedagogy for a faculty that is new to this technology by connecting variables such as content adaptation/development, student engagement, cultural issues, and the interplay of these within the socio-cultural context.

6.6 General Observations

It was observed that senior teachers focused more on content adaptation while younger teachers focused heavily on the adaptation of technology. For female teachers, the work-life balance was a greater challenge when compared to their male counterparts. This might be due to the multiple demanding roles of female teachers and a greater number of household responsibilities when they work from home. The trial-and-error method of teaching and the online teaching experience itself made the faculty aware of the importance of online teaching, associated challenges, and the role of larger socio-cultural variables that carry a heavy influence.

7 Conclusions and Implications

There is a congruence between the psycho-educational and contextual issues faced by the Pakistani faculty engaged in online teaching. The findings support the *Community of Inquiry Model* of online education theories, which bring the learning experience to the center of social presence, cognitive presence, and teaching presence—an awareness necessary for effective teaching (Picciano 2017). Additionally, a unique experience was construed under the given circumstances. However, the faculty found the experience to be deeply challenging in areas such as developing content technology, maintaining the pedagogy balance, and engaging students. The results explicitly demonstrate the relation between teaching experience and the perceptions of online pedagogy. The first-time experience of online teaching in a crisis has obvious limitations in reaching its true pedagogical spirits, where the theoretical notions of *dance in online teaching*, *online intensive environment*, and *integration* could not be achieved to engage students meaningfully in the learning process.

The findings provide a direction toward further exploration of online teaching pedagogy to enhance students' engagement, academic effectiveness, and personal development with the enhanced data. Despite the limited sample and data collected only with qualitative approach in a minimal time frame during the first wave of pandemic; the findings may contribute to the enhancement of online teaching theories of effectiveness during catastrophe and may also support the design of training modules for faculty who would undertake online teaching initiatives in emergencies. Researching on first online teaching experiences by including a larger and more diverse sample may help in developing sound models of work ready to tackle emergencies. A policy on online teaching methods to enhance student engagement can also be drafted at the HEI level to support a smooth transition.

Declarations

Conflict of interest There is no conflict of interest for publishing this study.

Consent to participate Consent to participate in this study was taken from the participants before data collection and their consent was also taken for recording the interviews. Their data anonymity was ensured. Their consent for publication was also taken.

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