Analyzing Reflections of Prospective Teachers about the Use of E-Learning resources for Self-learning in a Public Sector University of Rural Sindh

Dr Ghulam Muhiyddin Solangi
Associate Professor, Shaheed benazir Bhutto University, Shaheed Benazirabad
drghulammuhiyddin@sbbusba.edu.pk

Shamim Akhter Rind
M. Phil Scholar, Shaheed Benazir Bhutto University, Shaheed Benazirabad
shamimrind786@gmail.com

Imtiaz Ali Dahri
M.Phil. Student, Shaheed Benazir Bhutto University, Shaheed Benazirabad
Aliimtiaz835@gmail.com

Abdul Waheed Jamali
M.Phil. Student, Shaheed Benazir Bhutto University, Shaheed Benazirabad
Wafawaheed533@gmail.com

Abstract

The aim of this study was to analyze the reflections of prospective teachers about the use of E-learning resources for self-learning in a public sector university of rural areas. E-learning plays a vital role in the teaching and learning process. E-learning provides opportunities for the students that they can learn their own. The use of e-learning and technology encourages the students for self-learning. Therefore, this study focused on the perceptions of prospective teachers about the usage of e-learning resources for self-learning. The objective of the current study was to share the reflections and experiences of prospective teachers (PTs) about the use of E-Learning while pursuing B. Ed degree and to highlight the difficulties which PTs come across during the E-learning process. The study was qualitative in nature and phenomenological approach was used in this study. The students at university B. Ed department were the population for this study. Data was collected through interviews. Ten (10) participants were selected for data collection by using purposive sampling technique. Thematic analysis approach was used for data analysis. The findings of study revealed that data emerged from thematic analysis indicate that reflections of PTs enjoyed their E-learning experiences and judge it pleasant and an opportunity for them to enhance their content and pedagogical knowledge. PTs frequently use online resources for their professional development in different domains of teacher education such as education policy, curriculum development, pedagogy and assessment. Nevertheless, PTs face certain difficulties such as very little space has provided them for searching in university hours because majority of B.Ed. courses are designed in face-to-face mode. Other issues include low internet, inadequate number of computers and space for students in computer labs and language issues to comprehend English language of articles. Due to distractions in the university computer lab, PTs face difficulties in maintaining their concentration. Owing to huge amounts of information available on the internet, it becomes difficult for PTs to identify and choose authentic online resources. The study recommends universities should increase the number of computers in the computer lab. Laptop facilities should be provided for senior students.

Key Words: E-Learning, Prospective Teachers, Self-Learning

Introduction

Background of study

According to Al-Samarraie and Saeed (2018), the Internet has emerged as a crucial tool for providing research and learning resources so that students and teachers can exchange and learn. The usage of internet and new important technology to create those resources that are linked for educational purposes, educate the students, and managing the course in a company is known as technology-based e-learning (Bond et al., 2018). There has been a lot of debate over what constitutes e-learning. Existing definitions usually emphasize the researchers' areas of interest and expertise (Moore et al., 2018). Rodriguez-Ardura and Meseguer-Artola (2020) stated that numerous applications, learning strategies, and processes are included in the idea of e-learning. Because of this, it is difficult to define the term "e-learning," and there isn't even a commonly accepted definition, according to Martin et al. (2020) and Moore et al. (2018). In response to these discrepancies, there might be as many definitions of the term "e-learning" as there are scholarly articles on the topic (Adedoyin & Soykan, 2020). Moore et al. (2018), to establish a consensus definition, then asked the following questions: Is e-learning an online course for distant learners? Does it mean that using a virtual learning environment supports education that takes place on campus? Is it a reference to an online tool that can expand, improve, and enrich collaboration? Or is it a component of blended learning or entirely online? (Martin et al., 2020). Some scholars defined the “e-learning” provided by various scholars and organizations are reviewed below. According to other definitions, e-learning is more than just providing courses that are entirely online. According to Al-Samarraie and Saeed (2018), e-learning has changed from being conducted entirely online to using technology to deliver all or part of a course at any time or place. The European Commission (2001) defines e-learning as the use of the Internet and new multimedia technologies to enhance the quality of learning by facilitating remote collaboration and communication as well as resource and service access. Here are some additional definitions of e-learning. The term "e-learning" describes the utilization of information and communication technologies to make online learning and teaching resources accessible. E-learning is any learning that is made possible by electronic means. They did, however, define this term to mean education that is facilitated by digital technology (Abbad et al., 2009). Some researchers stated that some researchers further restrict this definition to encompass any online or internet-based learning (Dhawan, 2020; Martin et al., 2019). Online-distance learning, hybrid learning, and distributed learning are some of the different ways that the term "e-learning" is used (Adedoyin & Soykan, 2020). E-learning is the use of ICTs in a variety of educational processes to enhance and support learning in higher education institutions (UNESCO, 2021). This includes utilizing online learning, ICTs as a supplement to conventional classrooms, or both. E-learning is the study and use of knowledge that is mainly made possible and distributed via electronic channels (Rodriguez-Ardura & Meseguer-Artola, 2020). According to Rodriguez-Ardura and Meseguer-Artola (2020), e-learning is dependent on computers and networks, they predict that it will eventually evolve into systems that incorporate a variety of channels, such as wireless and satellite, as well as technologies like cell phones.

Information broadcasts and knowledge flow through network courses; global sharing and learning resources; the internet; and, lastly, learning flexibility as a computer-generated learning environment is created to overcome time and distance constraints are the key components of e-learning (Bond et al., 2018). Distance learning, which involves sending lectures to distant locations via video presentations, served as the foundation for the concept of e-learning (Al-Samarraie & Saeed, 2018). The evolution of communications technologies, particularly the internet, led to the transformation of distance learning into e-learning (Bond et al., 2018). According to Sun & Chen (2016) and Martin et al. (2020), e-learning is a revolutionary approach that gives employees the skills and information they need to turn change into an advantage. According to Martin et al. (2020), the e-learning approach, for instance, is learner-centered and uses an interactive, self-paced, repetitive, and customizable system. The term also describes the dissemination of information and training to people through computer network technology, particularly the internet (Zhang et al., 2022). The characteristics of e-learning were summarized to define it (Ali et al., 2018). They recommend a multimedia environment first. Secondly, they employ diverse forms of information. Thirdly, users have total control over their own learning environments thanks to e-learning systems that facilitate collaborative communication. Fourth place goes to e-learning support networks for information access. Fifth, the systems can be freely implemented on different computer operating systems thanks to e-learning. According to Naveed et al. (2020), university students can now receive individualized help and have more customized study schedules that are more convenient for them and different from those of other students thanks to this new, electronic network-based learning environment. This makes it possible for teachers or teachers and peers to interact and collaborate more than in a traditional learning setting. According to Liaw et al., (2007), learning has become more dynamic, interesting, and enjoyable when multimedia constructs are used in academic e-learning environments. E-learning is the most promising educational technology because of its service, cost, quality, and speed (Bond et al., 2018; Almahasees et al., 2021). According to Kebritchi et al. (2017), it is evident that e-learning can allow students at higher educational levels to finish their education while also pursuing their personal goals and advancing their careers, all without having to follow rigid schedules. The fact that there are now a lot more online courses because of the benefits that both students and universities have experienced lends credence to this theory (Dhawan, 2020). Three different points of view were used to evaluate the effectiveness of e-learning: the technological viewpoint was presented by Rodriguez-Ardura and Meseguer-Artola (2020) and Naveed et al. (2020), the distance learning perspective by Adedoyin and Soykan (2020), the e-learning as pedagogy viewpoint by Martin et al. (2020), and the distance learning perspective by Bond et al. (2018). As previously mentioned, it is difficult to define e-learning in a way that is universal. Although e-learning encompasses web-dependent and web-supplemented services for the delivery of support and educational procedures, some authors define it as only providing fully online courses.

Types of E-Learning

Different types of online education can be categorized in several ways. There have been some classifications based on the extent of their involvement in education (Algahtani, 2011). Furthermore, the time of the interaction determines some classifications. E-learning was divided into two main categories by Algahtani (2011): computer-based and internet-based. The wide variety of hardware and software used in computer-based learning are widely accessible for use with information and communication technology. Algahtani (2011) adds that each element can be used in computer-assisted learning or computer-managed instruction. According to him, computer-assisted learning substitutes computers for more traditional methods by providing interactive software that can be used as a support tool in the classroom or as a tool for independent study outside of it. Nevertheless, in computer-managed instruction, information is stored and retrieved by computers to support educational administration. Internet-based learning is an improvement over computer-based learning, claims (Almosa, 2001). It makes the material available online and gives students access to pertinent knowledge sources, like email services and references, so they can use them whenever and wherever they want, even if teachers or instructors aren't available.

Zeitoun (2008) separated these characteristics into three groups: the degree of use in education, mixed or blended more, assistant mode, and fully online. The assistant mode complements the traditional method when needed. A short-term degree is offered by the mixed or blended mode for a partially traditional approach. Utilizing the network exclusively for educational purposes is the most extensive enhancement, known as the fully online mode (Zeitoun, 2008). Algahtani (2011) distinguished between "synchronous" and "asynchronous" fully online modes according to the optional interaction timing. According to Algahtani (2011); Almosa and Almubarak (2005), while synchronous timing involves alternating online access between students or between students and teachers or instructors, asynchronous timing allows all participants to post communications to any other participant via the internet. With the synchronous type, students can use online resources like chat rooms and video conferences to simultaneously communicate with their teachers and each other. Almosa & Almubarak (2005) claimed that this type has the benefit of immediate feedback. Additionally, Almosa and Almubarak, (2005); Algahtani, (2011) stated that students can interact with their teachers and instructors online at different times thanks to the asynchronous mode. As a result, it involves interaction later, using tools like emails and thread discussions, rather than simultaneously. Almosa and Almubarak (2005) described that one advantage is that students can learn at their own pace, but the disadvantage is that they won't be able to receive immediate feedback from their teachers or classmates.

Usage Of E-Learning

According to Wang et al., (2007), as multimedia and information technologies have advanced and the internet has emerged as a new teaching tool, the traditional teaching process has experienced substantial changes. The options for education in the modern era have increased due to information technology advancements (Yang & Arjomand, 1999). The agendas of educational institutions, including schools, have recognized the potential of e-learning to improve people's

performance, knowledge, and skills (Henry, 2001). Higher educational institutions, colleges and universities are competing to improve the courses capability which is provided online in the rapidly expanding cyber education market (Love and Fry, 2006). E-learning is going to be more important for higher education institutions.

According to Dublin (2003), since the introduction and expansion of e-learning tools, higher educational institutions have been going through a lot of changes, particularly in the areas of education delivery and support. Like the different types of e-learning, there are different ways to use the method in the classroom. In his evaluation of the effectiveness and experience of e-learning in Saudi Arabia, distinguished three distinct e-learning models, namely "adjunct, blended e-Learning, and online" (Algahtani, 2011). Three e-learning technology uses were identified by and are described below (Algahtani, 2011). When e-learning is used as a supplement to traditional classrooms instruction, it provides students or learners with a greater degree of independence (Algahtani, 2011). According to Algahtani (2011); Zeitoun (2008), when using blended e-learning, the traditional learning method and the e-learning method share the delivery of course materials and explanations in the classroom setting. According to Algahtani (2011); Zeitoun (2008), there is no traditional classroom or learning participation in the third one, which is online. With this type of use, e-learning is comprehensive to give students or learners the greatest amount of independence possible. The online model is separated into two categories: collaboratively as well as individually and learning. The second contains both asynchronous as well as synchronous learning (Zeitoun, 2008). Traditional classroom instruction may eventually be replaced by e-learning, a potent tool for knowledge transfer. Both teachers and students gain from e-learning training in an educational setting. As a result of instructors focusing more on their students' needs, universities and colleges are implementing learning systems into their own training programs. According to the study's findings, e-learning has provided numerous advantages to its users. One of the most noteworthy aspects of e-learning is that it helps students improve their skills and communicate with their teachers. Presenting scientific material to students in an interesting way is also beneficial. However, e-learning has a negative impact on students since it promotes social isolation through more screen time (Dumford and Miller 2018).

According to Jelfs and Richardson (2013); McLoughlin and Lee (2010), the advancement of (ICT) is introducing innovative behavioral forms into a variety of societal contexts, including academic institutions. To provide students as well as curriculum support, higher education institutions primarily utilize the limited patterns of ICT that supports the learning, such as web-based applications, virtually learning environment and course management systems. Some colleges offer distance learning, and more recently, some offer online courses and video lectures. It is more difficult to integrate new ICT technologies in formal learning settings due to the rapidity and character of technological advancements. The current official curriculum of university now places emphasis on developing the capacity of student to set up their self-directed learning environments, and their capacity for self-control, goal-settings, and responsibility. It is anticipated that students will be more active and creative in their use of ICT to enhance learning

because universities are not offering proper e-learning environment. Accordingly, the literature identifies a few individual characteristics linked to personal innovation (Agarwal & Prasad, 1998). The students at universities claim that using ICT is anticipated of them, even though formal training for these skills is frequently lacking (Conole, de Laat, Dillon & Darby, 2008). Thus, ICT skills, which are useful for education, are frequently acquired in non-formal ways, such as through leisure use of ICT, self-initiated inquiry, and media, family, or peer information (Straub, 2009). Utilizing online learning resources to fulfill individual learning requirements Various types of media (artifact, text, sound and image) and other media types (cooperative, adaptives, productive as well as narratives) are available for online learning (Moore & Kearsley, 2019; Laurillard, 2002). A knowledgeable user can use a variety of online learning tools to design a learning environment that meets his unique learning requirements, including motivation, learning styles, and individual accessibility needs. Understanding each person's unique learning needs is crucial, in addition to being knowledgeable about the various forms of ICT. According to the Conole et al. (2008) survey, college students are choosing the right technologies to meet their individual learning requirements. Additionally, students whose use of ICT is essential to the organization and focus of their learning are the ones who gain the most from using it for educational purposes. Student teachers who possess this awareness may even become more capable of developing an inclusive learning environment for the future. To support students in selecting the best technology for their needs, educators must be knowledgeable and proficient in the available technologies. To meet the requirements for accessibility and the needs of different students, educators need to be knowledgeable about the various types of ICT that are currently available, including specialized and assistive technology in addition to mainstream ICT. When it comes to using ICT for learning, personal factors are crucial because the individual is becoming more and more involved. One such element is personal innovativeness (PI), which is defined as the "willingness of an individual to try out any new information technology" (Agarwal & Prasad, 1998). As a moderator between personal traits and behavior, personal innovativeness is not strictly defined as a stable personal trait. People with higher PIs are more likely to adopt IT earlier because they typically have more positive views about innovation and the effects of its use than others who work with the same information. People with higher PI are also less dependent on other people's opinions and often take the initiative in their environment, claim Agarwal and Prasad (1998).

ICT-assisted Educational Activities

Conole et al. (2008); Sedek, Mahmud, Jalil, & Daud, (2012); Thompson, (2013) stated that various scholars have identified numerous sets of ICT/online educational activities that are frequently carried out by university students: using online resources, using university e-environments, using ICT for communication and collaboration for learning, and using tools for production. Online resources are used by students for general inquiries, learning topic exploration, and information searching. Listening to podcasts, reading e-books, online articles, slides, online documents, blogs, and watching instructional videos and video lectures are a few examples of this. Levy (2008) classified online learning activities such as reading, watching, and

listening as passive learning. According to Conole et al. (2008), using university e-learning environments is another pertinent ICT activity. Software for learning management systems, such as Moodle, Blackboard, and others, "offers students an inclusive environment for interacting with teachers, turning in assignments, reviewing course objectives, downloading course materials, taking part in class discussions, and monitoring course progress" (Thoms & Eryilmaz, 2014, p. 113). In Slovenia, "e-classroom" is the accepted term for learning management systems. Additionally, technology for collaboration and communication is used by students to learn. They facilitate online social network development, communication, content sharing, user interaction, and teamwork. Wiki software, social networking sites, online forums, chat programs, collaborative document management systems, video/audio conferences, and more are examples of such tools. Conole et al. (2008); Sedek et al. (2012); Thompson (2013) claimed students create multimedia products and study assignments using technology, including creation/productivity tools. There are numerous online educational activities, for example use of virtual environment, playing educational games for learning, taking online courses, self-assessment through ICT, and utilizing ICT for learning process planning, but they are not as common among college students and are therefore not included in the studies mentioned above.

Research Objectives

- To share the reflections and experiences of Prospective Teachers (PTs) about the use of E-Learning while pursuing B. Ed degree.
- To highlights the difficulties which PTs come across during the E-learning process.

Research Questions

- What are the reflections and experiences of Prospective Teachers (PTs) regarding the use of E-Learning while pursuing their B. Ed degree?
- What specific difficulties do Prospective Teachers (PTs) encounter during the E-Learning process in their B. Ed studies?

Literature Review

According to recent studies, the use of e-learning has significantly enhanced and broadened the scope of instruction in higher education (E- Campus News, 2024; Full Fabric, 2023). "E-learning is a term that encompasses all forms of technology-enhanced learning (TEL), wherein technology is utilized to facilitate the learning process (CAST, 2023). Researchers claimed that e-learning and technology use have a significant impact and help many educational institutions establish a niche in the market (University of Minnesota, 2023; Full Fabric, 2023). While some students who use e-learning perform better academically and have a more positive attitude, others have a less favorable opinion of e-learning because of its challenges, workload, lack of technological skills, and lack of in-person interactions (Brookings Institution, 2021; Nature Communications, 2023).

Numerous earlier researchers have investigated university students' use of e-learning activities, either qualitatively or quantitatively (Brookings Institution, 2021; Nature Communications, 2023; SpringerLink, 2024). E-learning activities have recently been positioned within the Universal Design framework (CAST, 2023; Center for Universal Design, 2023). Universal Design (UD) is the process of creating an environment that is as accessible, intelligible, and usable as possible for everyone, regardless of age, size, ability, or disability (Center for Universal Design, 2023). This method benefits all users, not just those with disabilities, by considering their varied needs and abilities throughout the design process. It is applicable to services and ICT design in addition to tangible items like products and the built environment. UD presents seven design principles that, with some modification, can be helpful in certain domains, like creating inclusive learning environments or web accessibility (Centre for Excellence in Universal Design, 2023). According to Rao, ok, and Bryant (2018), there are several Universal Design educational models that concentrate on lowering barriers in classrooms, expanding curriculum accessibility, and offering instruction to a diverse student body. Universal Design for Learning is one of the most well-known models. It is a set of guidelines for curriculum development and a framework for directing educational practice that provides equal learning opportunities for all people (National Center on Universal Design for Learning, 2023). UDL's three fundamental tenets are: 1) multiple representational channels; 2) multiple action and expression channels; and 3) multiple engagement channels. According to Principle 1, learners have varying ways of perceiving and understanding information, depending on their learning styles, language or cultural differences, sensory or learning (dis)abilities, etc. Different ways of navigating learning environments (due to physical disabilities, for example) and expressing knowledge (spoken versus written) are recognized by Principle 2. According to Principle 3, affect is the root cause of student differences, including varying priorities for routine, group projects, intrinsic and extrinsic motivators, etc. In accordance with UDL guidelines as well as principle, instructors are encouraged to use appropriate ICT and provide a variety of activities to meet the students' different needs.

E-Learining in Pakistani Context

A survey conducted in universities of Jamshoro reported that only 8.9% of students were satisfied with e-learning. While 44.4% appreciated the quality of learning material, 82.4% expressed concerns regarding teacher-student interaction, indicating a need for more engaging online pedagogies (Shah et al., 2021).

Experiences During Online Practicum: A phenomenological study was conducted in Fatima Jinnah women university Rawalpindi and findings revealed that while prospective teachers initially had positive experiences with online teaching practicum, they faced challenges such as internet connectivity issues and limited time for lesson presentations. These findings underscore the need for comprehensive training and support (Kanwal et al., 2023).

Limited Internet Access and Infrastructure: Many rural areas in Pakistan lack stable internet connectivity and essential infrastructure, making online learning difficult. The high cost of internet data further exacerbates the issue for low-income families (Teacheducator, 2025)

Research Methodology

Design of Research

This study employs a descriptive phenomenological technique to analyze prospective teachers' reflections regarding the use of E-learning resources for self-learning in a public sector university of Rural Sindh. According to Creswell (2013), the empirical investigation used a phenomenological methodology for research, a qualitative technique ideal for exploring persons' daily experiences. The phenomenology provides insight into a phenomenon via the perspective of individuals who experienced the program (Neubauer et al., 2019).

Study Participants, Sampling Methods, And Context

Ten B.Ed. honors students participated in the study, five of whom were male and five of whom were female, and who were selected using the purposive sampling technique to examine the role of e-learning resources in self-learning. To be chosen, candidates had to be enrolled in the university's B. Ed honors program and have used e-learning resources for independent study.

Research Tool

Researchers used focused group discussion (FGDs) to learn more about the experiences of prospective teachers. The objectives of phenomenological research are aligned with this methodology. Following a predetermined protocol, the discussions focused on issues, coping mechanisms, and living conditions. To produce intricate narrative, open-ended questions were used. Rich storytelling emerged from open-ended questions. Participant-driven discourse was prioritized in the conversational approach, giving their opinions weight. The focused group discussion (FGD) handbook was evaluated by experts to make sure the data was clear and consistent with the study objectives. Until all the data was collected, focused group discussions (FGDs) were held, which allowed for a wide range of viewpoints. To help collect data, participants agreed to use electronic tools, such as voice recording devices.

Data Collection Procedure

The collection of detailed data from respondents in such a narrative phenomenological study depended on open discussion and self-assurance. According to Creswell (2014), the research team requested permission from the university authorities to reach the target population. To identify potential offers who met the study standards, a Pre-Survey Questionnaire was distributed at the designated times following authorization. After choosing eligible participants, written consent was needed to make sure they understood the study's goals and their rights, which included the confidentiality of their answers. As part of the process, the researcher practiced "bracketing" (Moustakas, 1994). The investigation concentrated on the real experiences of the

respondents, putting aside personal biases and preconceptions. Using focused group discussions (FGDs) that offered variability while adhering to a pre-planned structure, data was gathered. The focused group discussions (FGDs) had scheduled at university on specific days of the week based on accessibility and confidence level. Adaptability was aimed at minimizing disturbances and encouraging open discussion. According to Guest et al. (2006), the focused group discussion (FGD) methodology was used until the data was saturated, meaning that no other significant themes emerged after further discussions. Throughout the conversation, deliberate probing techniques were used to clear up misunderstandings and gain a deeper understanding. Respondents were given the chance to express what they had learned in their own words, which made an honest and unfiltered conversation possible. Participants were given the chance to express concerns and provide additional information after focused group discussions (FGDs). As a result, the process of gathering data was both courteous and interactive. A thoughtful conversation has been held to wrap up the data collection process. Conversations have been meticulously recorded to capture people's complex emotions and thoughts.

Analysis of Data

The narrative phenomenological technique developed by Colaizzi (1978) was used in this study to organize and extract meanings from the experiences that were typical of prospective teachers. The researcher employed "bracketing" after coding and transcription, which lessens bias and gives people's actual viewpoints priority. Important observations regarding the use of e-learning resources and self-learning of prospective teachers have been meticulously recorded. To maintain consistency throughout the original, those have been adjusted toward tentative interpretations. A theme framework with both internal consistency and external dispersion was produced by an iterative research process that categorized and grouped ideas.

This framework, which outlined each topic in detail, served as the foundation for a comprehensive analysis of prospective teachers about the use of e-learning resources and self-learning. The story was rewritten to remove repetition and reveal the deeper structure of the phenomenon to communicate its essence. The research's findings were validated by participant verification, which also improved its credibility by accurately representing respondents' viewpoints.

Data Reliability

The study focused on reliability, which is a crucial aspect of qualitative research (Lincoln & Guba, 1985). Methods for ensuring dependability, flexibility, and verification were put into place. Members confirmed that the results supported their beliefs by validating them. People are better able to evaluate adaptability in similar situations when they have a thorough description of the phenomenon and environment. A thorough audit path that includes evaluation and techniques enhances reliability. Effective evaluation of the study enhanced research validity and decreased researcher bias.

Data Saturation

In this qualitative study, data saturation was used as the guiding principle to determine the adequacy of the sample size**.** Saturation was assessed during the process of thematic analysis using Colaizzi's method, particularly in the stages of extracting significant statements and formulating meanings. After analyzing the reflections and interview data from approximately [insert number] participants, it became evident that no new codes, themes, or insights were emerging from the additional responses. At this point, the data began to show repetition in ideas and experiences, particularly regarding access to e-learning resources, internet challenges, and strategies for self-learning.

Ethical Concerns

The study's phenomenological inquiry focused on moral processes to protect respondents' dignity and well-being. This commitment was predicated on a comprehensive consent-informing process. The purpose, risks, and benefits of the study were explained to the subjects, and they were free to withdraw from the study at any time. By using fictitious identities and safe information handling practices, researchers were able to guarantee anonymity. To encourage independence, participants were offered the choice of recording sound, the clip, or nothing during conversations. Respondents were able to openly discuss the realities of their lives because of the polite approach's creation of a trustworthy study environment.

Results

The aim of the current study was to analyze the reflections and experiences of prospective teachers about the usage of e-learning resources and self-learning in the public sector universities of rural Sindh. Therefore, three main themes such as E-learning experiences of prospective teachers, existing facilities available for students to use online resources and issues and challenges emerged from the data.

Table 1

Participants' Gender

	Frequency	**Percentage**
Male	5	50%
Female	5	50%
Total	10	100%

The table presents the gender of the respondents that were included in the research study. It shows that total respondents were $N = 10$. However, from ten (10) respondents, five (05) were male and five (05) were female. Therefore, male and female respondents participated equal.

Table 2
Participants' Year of Study

	Frequency	**Percentage**
Third Year	5	50%

Fourth Year	5	50%
Total	10	100%

The above table presents the respondents' year of study that were included in the research study. It shows that total respondents were *N* = 10. However, from ten (10) respondents, five (05) were from third year of B. Ed and five (05) were fourth year of B.Ed. Therefore, students of third year and fourth year participated equally.

Theme 1: E-learning Experiences of Prospective Teachers

The participants in the study had their own experience with e-learning. Participants shared their experience, most of them shared their positive experiences and they shared that e-learning resources and materials assist them to learn new concepts and things as well as also support to learn regarding self-learning.

One of the participants said that "I had used online videos and lectures from the home, and it helped me to make me clear all the concepts that's why I haven't more need to go campus for attending the class." As another participant said that "e-learning resources and materials helped me to learn at my own pace. If I feel any difficulty, then I have an opportunity to review that material as many times as I needed. So, it really helped me to clear my all the concepts appropriately." As, the group discussion was going on and some of the participants claimed that "I appreciate and like online lecture and the reason is that I can pause and reverse them so many times for better understanding about any topic." Moreover, some participants revealed that "according to their point of view e-learning materials and resources are beneficial for those students who live in the village side and away from the universities because they can do online courses and attend the lectures".

On the other hand, participants revealed some challenges using e-learning resources. As, some participants revealed that "while listening lecture online, many of the questions arise in our mind that needs more clarifications, but we are not able to ask the questions because questions can be asked face to face classrooms easily from the teachers and it can be difficult to clear all the misconceptions of doubts." Some of the respondents claimed that "they faced difficulty to logging in the online platforms and they also face issues in videos because the videos were not able to play appropriately." The participants also revealed that online learning can be the cause of isolation due to lack of face-to-face interactions. Therefore, findings of the prospective teachers regarding e-learning experiences and resources are mixed because they revealed some benefits and some challenges.

Theme 2: Existing Facilities Available for Students to Use Online Resources

The second theme of the findings was existing facilities availability to use online resources. Therefore, prospective teachers shared their experiences about the facilities that are provided by them from the university.

Most of the prospective teachers reported that "university providing the Wi-Fi connection lab facilities." During the focused group discussion prospective teachers revealed that "university providing the facility of the labs and computers, but the student ratio is high, and the computers

are not enough in quantity so the lab was mostly overcrowded, or some prospective teachers cannot use the computers." Prospective teachers reported that "university uses the online entry tests and also gives the e-portals to the prospective teachers as they can see their entry test results and also see their attendance online, so it is a good because we are aware about our attendance record." Some of the prospective teachers revealed that other physical objects such as multimedia, projectors are provided by the university that supports to enhance the e-learning."

On the other hand, some prospective teachers reported that "university is providing Wi-Fi, but university has to work on the speed because the speed is slow and difficult to access anything." Some participants revealed that "university has needed to work on IT infrastructure." So, prospective teachers have some resources that help to enhance learning through online education and still there are some IT areas that need to improve.

Theme 3: Issues and Challenges

The third theme is issues and challenges that are faced by the prospective teachers. So, participants were facing some issues and challenges regarding e-learning.

Majority of the participants revealed that "the Wi-Fi internet of the university is very low, so we feel always difficulty to access anything. It can be sometime frustrating for us. If we want to watch the video so it takes more time to loading." Prospective teachers reported that "they face difficulty to manage the time as well as demotivated because online education and resources has not proper structure, so we feel proper guidance and structure." Some respondents claimed that "university provides proper support and guidance about the online resources as well as manage the training sessions as we being a prospective teacher can develop our skills." Majority of the participants claimed that "we feel isolation in online education because our face-to-face interactions suffer." It was also claimed by the students that "low speed of the internet we feel always difficulty to access anything which we have needed."

Hence, prospective teachers claimed that university provides some facilities and resources. They claimed that some facilities were given to them and some are still required. They have both positive and negative experiences about online education. Prospective teachers also face some challenges and issues in online education and not proper availability of resources.

Conclusion and Discussion

In conclusion, the results of this study highlight the need for improving the e-learning infrastructure, providing technical support, and offering guidance and support to PTs as they navigate online learning environments. The study's findings also emphasize the importance of addressing the issues and challenges faced by PTs, including technical issues, lack of face-to-face interaction, difficulties in managing time and staying motivated, and concerns about the quality and relevance of online resources.

Recommendations

Based on the study's findings, the following recommendations are made:

- University should increase the number of Computers in the computer lab. Every Students should have access to computers
- Separate space should be reserved for PTs in Computer labs to maintain concentration.
- Laptop facilities should be provided for senior students.
- The study recommends designing existing B.Ed. courses, keeping in view, the balanced approach i.e. face to face and online.
- The university should establish virtual classrooms in the Departments of Education.
- By implementing these recommendations, the university can improve the online learning experience for PTs and support their academic success.

Future Research Directions

This research delivers important insights into the analyzing reflections of prospective teachers about the use of E-learning resources for self-learning in a public sector university of Rural Sindh. This research was qualitative in nature, but mixed research can be used to investigate the depth understanding about the differences among the urban and rural areas about e-learning, their advantages and barriers.

References

Abbad, M. M., Morris, D., & de Nahlik, C. (2009). Looking under the Bonnet: Factors Affecting Student Adoption of E-Learning Systems in Jordan. *The International Review of Research in Open and Distance Learning.*

Adedoyin, O. B., & Soykan, E. (2020). COVID-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 1–13. https://doi.org/10.1080/10494820.2020.1813180

Agarwal, R., & Prasad, J. (1998). A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology. Information Systems Research, 9(2), 204–215. doi:10.1287/isre.9.2.204

Algahtani, A.F. (2011). *Evaluating the Effectiveness of the E-learning Experience in Some Universities in Saudi Arabia from Male Students' Perceptions*, Durham theses, Durham University.

Ali, W. G. (2018). Nursing students' readiness for e-learning experience. *Gynecology & Obstetrics*, 8(4), 1-6. https://doi.org/10.4172/2161-0932.1000471

Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). Faculties and students' perceptions of online learning during COVID-19. *Education and Information Technologies*, 26, 5881–5905. https://doi.org/10.1007/s10639-021-10482-1

Almosa, A. & Almubarak, A. (2005). *E-learning Foundations and Applications*, Saudi Arabia: Riyadh.

Almosa, A. (2001). *Use of Computer in Education*, (2nd ed), Riyadh: Future Education Library.

Al-Samarraie, H., & Saeed, N. (2018). A systematic review of cloud computing tools for collaborative learning: Opportunities and challenges to the blended-learning environment. *Computers & Education*, 124, 77-91. https://doi.org/10.1016/j.compedu.2018.05.016

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2018). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 18(1), 50. https://doi.org/10.1186/s41239-021-00282-x

Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, 15(1), 1-20. https://doi.org/10.1186/s41239-018-0130-1

CAST. (2023). Universal Design for Learning. Retrieved from https://www.cast.org/what-we-do/universal-design-for-learning/

Center for Universal Design. (2023). Universal Design: Process, Principles, and Applications. Retrieved from https://www.washington.edu/doit/universal-design-process-principles-and-applications

Centre for Excellence in Universal Design. (2023). The 7 Principles. Retrieved from https://universaldesign.ie/about-universal-design/the-7-principles

Colaizzi, P. F. (1978). Psychological research as the phenomenologist views it. In R. S. Valle & M. King (Eds.), *Existential-phenomenological alternatives for psychology* (pp. 48–71). Oxford University Press.

Conole, G., de Laat, M., Dillon, T., & Darby, J. (2008). "Disruptive technologies", "pedagogical innovation": What's new? Findings from an in-depth study of students' use and perception of technology. Computers & Education, 50(2), 511–524. doi:10.1016/j.compedu.2007.09.009

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approach* (4th ed.). SAGE Publications.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. https://doi.org/10.1177/0047239520934018

Dublin, L. (2003), If you only look under the streetlamps…. Or nine e-Learning Myths. *The e-learning developers journal* http://www.eLearningguild.com.

eCampus News. (2024). What is the future of online learning in higher education? Retrieved from https://www.ecampusnews.com/newsline/2024/12/12/what-is-the-future-of-online-learning-in-higher-education/

Full Fabric. (2023). 11 Advantages of E-Learning and Advanced Technology in Higher Education. Retrieved from https://www.fullfabric.com/articles/11-advantages-of-e-learning-and-advanced-technology-in-higher-education

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, *18*(1), 59–82. https://doi.org/10.1177/1525822X05279903

Henry, P. (2001). E-learning technology, content and services. *Education + Training*, *43*(4/5), 249–255. https://doi.org/10.1108/EUM0000000005485

Jelfs, A., & Richardson, J. T. E. (2013). The use of digital technologies across the adult life span in distance education. British Journal of Educational Technology, 44(2), 338–351. doi:10.1111/j.14678535.2012.01308.x

Kanwal, N., Khan, S. N., Jabeen, F., Imtiaz, F., Batool, A., & Fatima, B. (2023). Experiences of Prospective Teachers About Online Teaching Practicum during Covid-19: A Phenomenological Study from Pakistan. *Journal of South Asian Studies*, 11(3). https://doi.org/10.33687/jsas.011.03.4662

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and challenges for teaching successful online courses in higher education. *Journal of Educational Technology Systems*, 46(1), 4-29. https://doi.org/10.1177/0047239516661713

Laurillard, D. (2002). Rethinking university teaching: A conversational framework for the effective use of learning technologies (2nd ed.). London: Routledge.

Levy, Y. (2008). An empirical development of critical value factors (CVF) of online learning activities: An application of activity theory and cognitive value theory. Computers & Education, 51(4), 1664–1675. doi:10.1016/j.compedu.2008.04.003

Liaw, S.S., Huang, H.M. (2007). Exploring the World Wide Web for on-line learning: a perspective from Taiwan. *Educational Technology* 40(3): 27–32.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Love, N. & Fry, N. (2006). "Accounting Students' Perceptions of a Virtual Learning Environment: Springboard or Safety Net?," *Accounting Education: An International Journal*, 15 (2), 151-166.

Martin, F., Polly, D., & Ritzhaupt, A. D. (2020). Bichronous online learning: Blending asynchronous and synchronous online learning. *EDUCAUSE Review*, 55(4), 46-55.

McLaughlin, C., & Lee, M. (2010). Personalised and self-regulated learning in the Web 2.0 era: International exemplary of innovative pedagogy using social software. Australasian Journal of Educational Technology, 26(1), 28-43.

Moore, J. L., Dickson-Deane, C., & Galyen, K. (2018). E-learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129-135. https://doi.org/10.1016/j.iheduc.2010.10.001

Moore, M., & Kearsley, G. (2019). Distance Education: A System View of Online Learning (3ed). Wadsworth: Cengage Learning.

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage.

National Center on Universal Design for Learning. (2023). Universal Design for Learning Guidelines. Retrieved from https://udlguidelines.cast.org/

Nature Communications. (2023). Online vs in-person learning in higher education: effects on student engagement and performance. Retrieved from https://www.nature.com/articles/s41599-023-02590-1

Naveed, Q. N., Muhammad, A., Sanober, S., Qureshi, M. R. N., & Zafar, S. (2020). E-learning technologies in Pakistan: Challenges and opportunities for higher education. *International Journal of Educational Technology in Higher Education*, 17(1), 1-16. https://doi.org/10.1186/s41239-020-00218-x

Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education, 8*(2), 90–97. https://doi.org/10.1007/s40037-019-0509-2

Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on universal design educational models. *Remedial and Special Education, 35*(3), 153–166. https://doi.org/10.1177/0741932513518980

Rodriguez-Ardura, I., & Meseguer-Artola, A. (2020). E-learning continuance: The impact of interactivity and the mediating role of imagery, presence and flow. *Information & Management*, 57(8), 103292. https://doi.org/10.1016/j.im.2020.103292

Sedek, M., Mahmud, R., Jalil, H. A., & Daud, S. M. (2012). Types and Levels of Ubiquitous Technology are used among ICT Undergraduates. Procedia - Social and Behavioral Sciences, 64, 255–264. doi: 10.1016/j.sbspro.2012.11.030

Shah, T., Warsi, J., Mahar, B., Shaikh, F., Ansari, S., & Sial, S. A. (2021). COVID-19 and the Challenges of E-Learning in Sindh Pakistan. *Journal of Peoples University of Medical & Health Sciences Nawabshah*, 11(2), 43–47. https://publication.pumhs.edu.pk/index.php/ojs/article/view/20

SpringerLink. (2024). Impact of online learning on student's performance and engagement. Retrieved from https://link.springer.com/article/10.1007/s44217-024-00253-0

Straub, E. T. (2009). Understanding Technology Adoption: Theory and Future Directions for Informal Learning. Review of Educational Research, 79(2), 625–649. doi:10.3102/0034654308325896

Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education: Research*, 15, 157-190.

Thompson, P. (2013). The digital natives as learners: Technology uses patterns and approaches to learning. Computers & Education, 65, 12–33. doi:10.1016/j.compedu.2012.12.022

Thoms, B., & Eryilmaz, E. (2014). How media choice affects learner interactions in distance learning classes. Computers & Education, 75, 112–126. doi:10.1016/j.compedu.2014.02.002

UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. https://unesdoc.unesco.org/ark:/48223/pf0000379707

University of Minnesota. (2023). How Online Education Is Shaping the Future Workforce. Retrieved from https://online.umn.edu/story/how-online-education-shaping-future-workforce

Wang, Y.-S., Wang, H.-Y., & Shee, D. Y. (2007). Measuring e-learning systems success in an organizational context: Scale development and validation. *Computers in Human Behavior*, *23*(4), 1792–1808. https://doi.org/10.1016/j.chb.2005.10.006

Yang, N. & Arjomand, L. H. (1999). "Opportunities and Challenges in Computer- Mediated Business Education: An Exploratory Investigation of Online Programs," *Academy of EducationalLeadership Journal*, 3 (2), 17-29.

Zeitoun, H. (2008). *E-learning: Concept, Issues, Application, Evaluation*, Riyadh: Dar Alsolateah publication.

Zhang, Y., Wang, J., Zhao, H., & Zhang, L. (2022). E-learning engagement and its influential factors in Chinese higher education. *Education and Information Technologies*, 27, 1543–1565. https://doi.org/10.1007/s10639-021-10659-8

Teacheducator. (2025). Remote Learning for Rural, Urban & Remote Areas in Pakistan - Latest 2025. https://teacheducator.com/remote-learning-for-rural-urban-remote-areas/