Spectrum of Engineering Sciences
ISSN (e) 3007-3138 (p) 3007-312X Volume 3, Issue 6, 2025

PERCEPTIONS OF PARENTS, STUDENTS, AND TEACHERS ON ONLINE LEARNING DURING COVID-19: EVIDENCE FROM A DEVELOPING COUNTRY PERSPECTIVE

Dr. Nasir Gul[*1], Arfa Khan[2], Danyal Sikandri[3], Muhammad Sadiq[4]

[*1,2,3,4]*Institute of Computer Science & IT, University of Science & Technology, Bannu, Khyber Pakhtunkhwa, Pakistan*

[*1]nasirgulpk@yahoo.com

DOI: https://doi.org/10.5281/zenodo.15736512

Keywords
Online learning, Higher education, Challenges, Opportunities

Article History
Received on 16 May 2025
Accepted on 16 June 2025
Published on 25 June 2025

Corresponding Author: *
Dr. Nasir Gul

Abstract
This study investigates the challenges and opportunities associated with online learning from the perspectives of 300 students, 200 teachers, and 100 parents from colleges and higher education institutions (HEIs) in the southern zone offering undergraduate and master's programs. Conducted during the COVID-19 pandemic, the research highlights several key issues, including technical difficulties, lack of engagement, distractions at home, inadequate support, and difficulties in understanding materials. These challenges frequently disrupted the online learning experience, with technical issues and the absence of face-to-face interaction being notably detrimental. Barriers such as poor internet access and limited device availability further exacerbated the situation. Despite these challenges, significant opportunities for improvement were identified. Teachers emphasized the need for more resources for creating multimedia-rich learning materials and regular professional development. Students highlighted the importance of clearer course materials, practical applications, and reliable access to digital resources. Parents stressed the need for accessible teachers, timely feedback, and better communication from institutions. Recommendations for enhancing online learning include establishing comprehensive technical support, improving instructional design, fostering better engagement through live sessions and peer collaboration, and enhancing communication channels between institutions and parents. Addressing these recommendations can significantly improve the quality of online education, creating a more effective and enjoyable learning experience for all stakeholders involved.

INTRODUCTION

Almost every country has experienced the effects of the COVID-19 pandemic, especially in the education sector where many educational institutions have closed and teachers, children and parents have been forced to put up with online classes. In doing this, it has changed people's attitude towards online learning, with regard to efficiency, open-door policy, and outcomes. The purpose of this research work is to compare different insights concerning attitudes towards online learning in the context of the COVID-19 outbreak, based on different sources.

The general attitude of the students about online learning that has been implemented during this pandemic can be described as giving equal numbers of pros and cons. On the one hand, a number of students said that they like it when doing their classes online because of the freedom and comfort. They have discovered that home learning has enabled them

to have an efficient timetable which they use to complete their lessons and carry out other activities which they could not manage when they had to attend educational institutions physically (Gonzalez et al., 2020). In addition, today's students leverage various digital assets and applications to acquire a variety of different materials, which contributes to the development of independent learning and individualized pace (Dhawan, 2020).

However, the challenge due to the shift of learning delivery online also has posed a test to students too. Some of which include teachers and peers through a physical classroom which many students have reported that they have missed due to the online learning system (Saif, et al., 2024). Therefore, lack of face-to-face communication has a negative impact through social isolation and reduced motivation resulting from desires to interact with peers and get direct feedback from teachers that is very essential for learners' success (Adedoyin & Soykan, 2020). Also, challenges that emanate from technology, namely, poor internet connectivity, absence of or access to suitable devices, and challenges in maneuvering in technology- enhanced learning platforms have impacted the learning process for several students especially those who come from marginalized backgrounds (Garbe et al., 2020).

Instead, the attitudes of the parents regarding learning online during the pandemic have also been diverse, which explains different experiences and concerns. Concerning the findings on the continuation of education, many parents have considered online education as a way of continuing their children's education. They recognize educational institutions and teachers' attempt to restructure their learning process and to maintain the learning continuity in the new conditions (Dong et al., 2020). Some parents have pointed out that with online learning they are able to contribute more to their children's learning, they are able to observe their progress and even assist in their learning at home (Coyne et al., 2020).

However, the new normal online instruction has also created stress for parents, especially for those that are working from home or those who are now home carers. Due to the parent's role in overseeing their children's learning, dealing with technological challenges, as well as managing multiple responsibilities, including paid work, many families have experienced a stressful and rather demanding situation (Andrew et al., 2020). However, parents have raised issues about the quality of online education, in as much as the usefulness of the teaching techniques carried out online and the way students are being engaged and assisted to learn (Bubb & Jones,2020). Some of the challenges parents also noted include eye strain, the challenge of having a structured educational institutions term, and social isolation.

Regarding the challenges teachers experienced to adapt to online learning during COVID-19 pandemic, the following challenges were reported. Gathering from the experiences of many, this has remained more of a fall back to the new world where many rushed to source new skills and make drastic changes in their delivery methods for which there was little training and convergence to the new platform. Notwithstanding, many teachers have displayed flexibility and ingenuity in ensuring learners' participation, and how to teach effectively online (Hodges et al., 2020).

Based on these facilitators of teachers' beliefs on online learning, the paper identifies four factors that can increase or decrease the chances of success of online learning and teaching, namely, teachers and personal computer competence, access to resources and support, students' feedback and other students respectively. Some of the working teachers have expressed positive views by saying that because of online learning they are able to try out new teaching technologies and approaches within teaching practices and more often than not given one-on-one feedback on students' works (Trust & Whalen, 2020). On the other hand, most of the teachers have also raised some concerns with the online learning system, especially on the level of students' interactions and participation. This form of delivery reduces direct student contact hence suggesting that establishing eye contact and comprehending the student's level of understanding is a challenge when adopting the delivery model (König et al., 2020).

In addition, teachers have also reported an increased inequity in students' access to technologies and the internet, which are sustained by current education disparities. This digital inequality has enabled many teachers to struggle in trying to make all students

have an equal chance of engaging in online learning as well as performing well academically (Lai & Widmar, 2021). Moreover, teachers have confirmed that they are experiencing additional pressure and workload when it comes to the implementation of the online classes, controlling students' activities, and considering the needs of each learner in the context of the distance learning environment (Kim & Asbury, 2020).

The nature of the perception concerning online learning during COVID-19 was compared and contrasted from the students' parents and teachers' view. All three groups agree that the continuation of the education process during the pandemic is impossible without the use of distance classes, and all the efforts are to be valued. However, each group also experiences certain weaknesses and questions that have to be discussed for enhancing the efficiency of online classes.

Most of the challenges that may affect students include lack of interpersonal interaction, technical hitches, and issues to do with motivation in the light of online leaning. These issues can be solved when it is made possible to increase the interaction with the student during online lessons, to provide adequate and available technological equipment, and to work on the students' well-being (Means & Neisler, 2020).

Thus, parents' concerns are related primarily to the quality of online education, adverse effects from the increased time spent online, and increased workload that parents have to bear to help their children study at home. Solutions involve educational institutions' appropriate communication and direction towards that, resources and training for parents regarding online learning, and proper understanding of the limitations of, as well as need for variation in, screen time for students (Kuhfeld et al., 2020).

Concerns raised by the teachers include lack of motivation to teach the students onset due to current mode of teaching, students' inequality in excess of devices for learning, and time and energy demanded of them. To solve these problems, it is necessary to carry out the continuing professional development for teachers, guarantee equal access for students to technology, and notice the increased stress on teachers during this period (Schleicher, 2020).

It is important to know the attitudes students, parents, and their teachers have towards online learning during the COVID-19 pandemic so as to inform good practices and policies. Educational decision-makers cannot disregard these views to improve their tele-work and prepare for future disruption. This includes stakeholders ensuring there is proper infrastructure on how to advance Internet connection or ownership of devices, ensuring teachers and parents are equipped with the necessary training on how to assist while at the same time developing strong programs to support students' learning and their psychological wellbeing (Van Lancker & Parolin, 2020).

At the same time, different levels of government, learning institutions as well as technology suppliers should join forces to foster the climate for online education. This ranges from having equal distribution of the technology in question to the spread of information on how to use each technology, encouraging the culture of innovation as well as resilience in regard to education (Selwyn, 2020).

From the analysis of the views and experiences of the students, parents, and teachers regarding online learning during the COVID-19 outbreak, some of the possible positives and negatives of remote learning can be seen. Though online learning platforms are an effective solution to the continuity of learning, in terms of pandemic and other issues, the online learning system has revealed key problems that should be solved for the effectiveness and equity of online systems. Thus, with the help of different viewpoints of significant stakeholders, not only quality of online learning but also equity for the students could be improved by coming up with certain policy interventions that are important to notice.

The following are the objectives of the study. Among the admission requirements for students in the social sciences is the possession of a social science degree from a reputable university.

To Analyze the Perceptions of Students Towards Online Learning During COVID-19:

This objective will help to identify the new experiences, perceptions, and difficulties students encounter concerning online learning during the pandemic. Students will give feedback on the performance of online education based on aspects

like engagement, motivation, technological equipment, and efficiency of online learning.

To Investigate Parents' Views and Concerns Regarding Online Learning:
Realization of this objective aims at unveiling the parents' perception regarding the conversion to online learning. It will explore how they are involved in their children's education and the care they take in influencing the process, views regarding the quality and effects of online learning, and responsibilities mobilized during this time.

To Evaluate Teachers' Adaptation and Experiences with Online Teaching:
This objective deals with the factors that teachers go through when they shift from face-to-face instruction to teaching online. It will explore the problems encountered, the approaches to teaching and learning used, their perception about the efficacy of online delivery, and the assistance and facilities provided to them during the COVID-19 outbreak.

Significance of Study
The relevance of this study can, therefore, be said to stem from having captured existing possibly informed, and potentially conclusive perceptions on the part of the students, parents, as well as the teachers, regarding online learning during the COVID-19 period. Hence, recognizing these perspectives the study aspires to reveal important insights to help guide educational policy and practices.
Further, the information obtained will enable us to reveal advantages and threats of online learning from the perspective of the primary interlocutors. For students, it is about how online learning is experienced and engaged; it is about this academic performance and wellbeing. In this case, the study will be informative to parents by highlighting their worries and the other burdens in their hands. It will help the teacher stakeholders by drawing attention to the problems encountered as well as the reinforcement they require in order to implement the online education system successfully.
Secondly, the present study will help advance the research for enhancement of provisions and effectiveness of online courses. Analyzing the methodologies and approaches of teaching and learning that have been portrayed online as well as the socio- emotional barriers mentioned and raised by students, parents, and teachers are key to improving policymakers and educational leaders' online learning environments. This is especially relevant in order to guarantee that all learners in sophisticated online learning environments irrespective of their socioeconomic statuses can achieve success.
Finally, the findings of the study will be imperative in planning and programming for future upheavals. The COVID-19 outbreak for the decade greatly underlined the imperative of robustness in the education structure. Knowledge regarding the life conditions and the view of significant participants in this process during this period will contribute to strengthening more durable kinds of educational paradigms within communities, which would be more capable of surviving in the next crisis.
In sum, this research is not only valuable for the insights it affords into students', parents', and teachers' experiences of the transition to online educational institutions but also useful preventive and responsive recommendations. The results are going to be valuable in terms of guidance for the future educational policies and activities that will enable us to leverage the advantages of online education and eliminate the aforementioned disadvantages.

1. Literature Review

1.1 COVID-19 Impact on Education Activities

The COVID-19 global health crisis significantly affected education activities globally (Saif et al., 2023), implying that teaching and learning approaches require novel alterations. The temporary shutdown of learning institutions in the first quarter of the year 2020 due to the ravaging virus led to the emergence of more than 1. impacts are said to have affected 6 billion learners in over 190 countries (UNESCO, 2020). This disturbance brought changes for most teaching and learning activities to be shifted online and this exposed certain benefits as well as certain weaknesses in the education sector.

Towards its immediate effects, the program significantly affected the method of learning from face-to-face instruction to remote learning. Even though this social transition was necessary, it exposed a major digital divide concerning the provision of technology and internet. For most learners situated in the several developing countries, a considerable proportion of them could not obtain the required devices, and adequate internet connection, which resulted in the enlargement of learning gaps (B cockpit, 2022, Dhawan, 2020). For example, Indian smokers were found to possess a mere 37% of the required set of academic, bureaucratic, and structural attributes. Currently only six percent of households are blessed with internet connection, this halves the ability of students to in-engage in remote learning (Azim Premji University, 2020).

Just as challenging for teachers, were the changing teaching practices to incorporate information technologies they received little preparation for although they did this willingly. Numerous studies reveal that the impact of COVID-19 on teaching and learning has been accompanied by higher job stress levels and workload pressures especially due to the concern of online teaching and students' engagement in remote learning as noted by Kim and Asbury (2020). Synchronous communication limited one-on-one contact that enables some form of assessment of how the students were grasping concepts and immediately correct them which in turned affected the teaching process (König et al., 2020).

In addition, there has been a dire psychological effect of this pandemic on learners in particular, and individuals in general. Loss of social contacts, difficulties related with home learning and just overall pandemic that impacts everyone in one or different ways have led to the levels of anxiety and stress among students (Wang et al., 2020). This has now led to questions arising over the repercussions mentally with relation to long-term and other extra support structures in the education system.

However, the crisis also contributed to the use of new technologies and heuristic approaches. Institutions of learning and instructors globally adopted different online platforms, various digital tools and methods and hybrid learning approaches to support education. Such a shift may advance education by enhancing the implementation of more desirable and novel instruction methods even after the pandemic (Means & Neisler, 2020).

All in all, it can be concluded that COVID-19 has influenced education activities comprehensively and has left both strengths and weaknesses in its wake (Saif, Goh, Rubin, Shaheen, & Murtaza, 2024). It has intensified and highlighted the inequity and disparities in education, enforced new burdens and challenges for educators and learners, and illustrated the necessity of strong and secure learning environments that can sustain future disruptions. Given the fact that the entire world is in the lingering process of recovering from the impact of the pandemic, it is in the post pandemic period that key lessons that may define the future of learning shall be learned.

1.2 The Importance of Online Learning Tools During COVID-19

Covid-19 has shown the necessity of using ICT gadgets to affect learning, especially in current events. The outbreak led to closures of educational institutions s and universities to help prevent the virus's spread, and in this context, the online learning means became crucial to furthering educational processes. These tools ensured provision of instructional interfaces that enabled the delivery of instructions and consequently learning when educational institutions s and other learning institutions were closed.

They appreciated the accessibility and flexibility during the pandemic, which was one more advantage of the use of online learning tools. Some examples of the applications that protected the interaction between educators and learners during the pandemic are Zoom, Microsoft Teams, and Google Classroom; as the students were able to participate in live classes and receive necessary materials regardless of their location (Dhawan, 2020). This was more so important given that many learners were completely disconnected from their previous learning settings. The choice of being able to attend recorded lectures and use the resources at one's own preferred time was also beneficial for students with caregiving responsibilities for their dependents (Saif and Shaheen., 2022).

In addition, methods of distance education also helped in delivering further differentiated instruction. Another feature that evolved with the use of technology was the use of adaptive learning technologies like Khan Academy and Coursera where contents that were individual to a learner as well as the progress of the student was recognized (Means & Neisler, 2020). Some of the benefits you got from this personalization are that there was able to meet the different learner's pace and mode, this would have improved on the understanding and the learning retention of the content. In addition, SM & A offered educators an opportunity to perform formative and summative assessments online by allowing the provision of provision of timely feedback and performance tracking of students so as to ascertain the achievement of students' learning goals efficiently (Saif Saqib, Arshad, Javed, & Khan, 2018). The application of interactive and collaborative technologies also benefited the learning process that occurs during online classes. Applications such as Padlet, Miro, and collaboration in Google Docs were used to implement teaching and group activities which encouraged the students' collaboration (Kim et al., 2020). That kind of interaction was critical in tackling the sense of loneliness and social alienation that learners went through during times of confinement. Virtual breakout rooms and discussion forums further enhance peer-to-peer learning and discussion.

Additionally, online learning tools played a significant role in professional development for educators (Saif, & Khan,2020). The pandemic necessitated a rapid transition to online teaching, and many educators had to quickly acquire new skills to use these tools effectively. Numerous online resources and webinars were made available to support teachers in this transition, enhancing their digital literacy and pedagogical approaches (Hodges, Moore, Lockee, Trust, & Bond, 2020). This professional development not only supported educators during the pandemic but also equipped them with skills that will continue to be valuable in future teaching contexts (Farooq, Saif, & Shaheen, 2022).

The pandemic also brought intensified recognition of online learning tools as one of the means to provide for inclusive education. Students with disabilities were able to access education through online platforms whereby educational tools provided options for learning including screen reader, closed caption, and others, making it easy for them (Burgstahler, 2020). These tools enhanced the ability to lessons discriminate against students with disabilities and provide equal means and opportunity to other students in the class.

Nevertheless, the pandemic also unveiled certain issues and disparity in the area of online learning. According to UNESCO's Global Education Coalition Survey in response to COVID-19, the major challenge that many students faced was the lack of reliable internet connection and suitable devices for learning, this affected students from poor families and from rural areas. This digital divide created the realization that there was need for funding regarding the infrastructures and polices regarding the provision of equal opportunities for all the students through the use of online learning tools. These disparities should be eliminated to allow for the proper realization of online learning and make sure that no group of learners is being left behind.

Therefore, online learning tools are essential in the COVID-19 situation by offering access, versatility, and customized delivery of learning. They have enhanced the learning-teaching process emphasizing interactive collaboration as well as providing professional development for teachers. But pandemic has also highlighted the need to reduce the digital gap to make sure that all can have equal benefits of these tools. Moreover, the regular application of online learning tools in education will remain very significant as the world advances in order to develop more effective and sustainable models for education that will be immune to future interruptions.

1.3 Perception of Students About Online Learning During COVID-19

The emergence of COVID-19 forced students globally to embrace new learning models which include online learning. Transition in students' perception regarding shift from face-to-face method has been mixed depending on aspects such as technological resources, students' learning style modes and the quality of online teaching.

It found that many students liked the kind of teaching and learning that is done through the online platform. That way, students do not lose much time

commuting to and from school, meanwhile classes can be attended from home, thus, time is not wasted here (Adnan & Anwar, 2020). Also, the flexibility of watching recorded lectures and documents allowed students to learn independently, revising difficult content and managing their academic and other activities (Dhawan, 2020).

But the move was not without some problems that characterize transitions to and from various systems. Many of those who participated in the study cited isolation arising from limited face to face contact with fellow students as one of their biggest fears when it comes to learning online. In my analysis, the students were deprived of interacting with peers and instructors face-to-face which they considered critical in enhancing learning and motivation (Garris & Fleck, 2020). This meant that there were no face-to-face group conversations, group and team work, and social interactions which resulted in students feeling that they are alone, and they lost motivation (Almendingen et al., 2021).

Technical difficulties were also an obstacle since they could hinder the process of assessing the students' achievements and allowing the educational institution to determine the areas that required improvement. Some of the challenges that most of the students experienced include erratic internet connection, access to relevant devices, and competent technical assistance (Gillett-Swan, 2017). These shocks were most evident in the low-income brackets and in regions pictured, the digital parity thinned by the Covid 19 (UNESCO, 2020).

Despite these challenges, the pandemic also fostered resilience and adaptability among students. Many developed new digital skills and became more self-directed learners, which are valuable competencies in the modern, technology-driven world (Means & Neisler, 2020).

In conclusion, students' perceptions of online learning during COVID-19 were mixed, balancing the benefits of flexibility and accessibility with challenges related to engagement, technical barriers, and instructional quality. These insights are crucial for educators and policymakers to enhance online learning experiences and address the disparities revealed by the pandemic.

1.4 Perception of Teachers About Online Learning During COVID-19

Forced by the COVID-19 pandemic, education went online and opened new possibilities but also posed great challenges for educators across the globe. Saying that, teachers' attitude towards such change has been influenced by the experiences, flexibility and the available tools.

At the beginning of the experiment, a lot of teachers struggled with distance learning and teaching. This disrupted them being forced to learn new technological skills, as well as having to change the format of their curriculum for technology within a very short period. This was quite rapid and much as many embraced it, there were challenges especially for those who had low levels of exposure to such online facilities (Trust & Whalen, 2020). Teachers had to find ways to effectively teach via various learning management systems, video conferencing applications and other digital tools which they were not prepared for and often received insufficient training on (Hodges et al., 2020).

Among all the issues that the teachers considered most crucial, one can single out the problem of students' motivation and interest due to the conditions created by COVID-19. A majority of the instructors complained of challenges in designing appealing and engaging MSs that could in a way contain the students' attention as it would be observed physically (Rapanta et al., 2020). This setting proved difficult for facilitating students' one-on-one meetings that are important for determining their comprehension of the content taught and providing feedback which is critical in learning (Gillis & Krull, 2020).

In addition, it was revealed that teachers have fears on how students are provided equally with online learning. Technology inequality that can be examined via the degree of difference in accessibility of fast and stable Internet connection and devices suitable for online classes also widened during the pandemic. That is why teachers were fully aware of the problems of children from low-income families and villages at different stages of online learning. This inequality posed a challenge to their teaching intervention as they had to consider approaches that could assist all the learners despite their technological connectivity status.

However, at the same time, many teachers also pointed out the positive aspects and opportunities of online education. The nature of the setting enabled the teachers to try out different new approaches and uses of technology. Some teachers adapt to the situation and use multimedia materials, practice quizzes, and unite the students in groups for projects (Dhawan, 2020). These tools apart from enriching learning also enabled the provision of differentiated instructions with reference to the needs of the students (Means & Neisler, 2020).

However, the transition to online learning caused professional development for many teachers and here they should be appreciated. Owing to the need to evolve, people became more resistant and receptive to change as well as open to novelty technologies implementing methodologies. Teachers obtained new professional competencies in the use of technology tools, instructional design skills, and online education that would be useful even after the outbreak (Kim et al., 2020). Educators also stressed that they became more collaborative with their peers as they discussed the sources and ideas for planning and learning how to address the difficulties connected with online classes (Trust & Whalen, 2020).

To remind, teachers also raised issues related to students' welfare and the health of the students' minds during the Covid-19 pandemic. The given deficit stemmed from the isolation and generalized uncertainty fostered by COVID-19; moreover, teachers dealt with these challenges directly. Most of the educators served both as guides and advisors. They always made sure that the students were engaged both socially and academically (Jones et al., 2020).

Therefore, the cross-sectional survey of teachers about online learning during COVID-19 has provided a complex picture characterized by both threats and opportunities. As seen above, the pressing move to implement online education brought challenging hurdles that circumscribed technology use, student participation, and equity; nevertheless, it occasioned innovation, personal development, and networking among teachers. Teacher findings during the pandemic most accurately convey the necessity of rehearse and support presented to assist improve and navigate online affliction, together with the fracture lines illuminated by this global emergency.

1.5 Perception of parents about online learning during COVID-19

The COVID-19 epidemic has changed the perception of parents for distance learning and placed them in new roles in the sphere of education. Various factors concerning the parental stance regarding this abrupt transition to online learning include their children's experiences, parents' technological literacy, and available social structures.

Another issue that was largely voiced by parents was the concern of the efficiency of online courses versus face-to-face. Regarding the parents' opinion, many parents were concerned that their children were not learning effectively and were deprived of the behind the scenes of learning processes that occur in a physical class (Garbe et al., 2020). The interruption of contact with teachers and peers was considered a major limitation which may influence their children's interpersonal interactions and motivation (Dong, Cao, & Li, 2020).

This was complemented by issues of parents questioning their adequacy in supporting their children's educational needs. In many ways, as well as for many students particularly those with low technological literacy or access, not only was the coordination of multiple online learning platforms and the troubleshooting of associated technical issues a major challenge (Borup et al., 2020). Working parents faced much greater difficulties in operating fully efficient home schooling, compromising their mental and emotional performance in relation to their working environment, which caused higher levels of stress and frustration (Garbe et al., 2020).

Another area regarded essential in consideration of parents' perceptions was the digital divide. On the side of the families, those that had functional and accessible internet connections as well as enough devices helped to support their children's learning, while others that did not have access to the internet as well as limited devices, were hindered (Vogels, 2020). This inequality made people realize how educational status differed from each other and parents in underprivileged schools' areas especially felt helpless (UNICEF, 2020).

Nevertheless, some parents noticed the advantages of online classes. The advantage of the kind developed in digital methods offered the children freedom and was self-paced, which also offered better access to resources and learning tools (Dong et al., 2020). It proved especially useful for children who needed special consideration in terms of learning because parents could customize the educational process to be more suitable for their child's learning needs (Borup et al., 2020).

Parental involvement also underwent a major shift during the pandemic, and it was no doubt largely affected. Some of the intended benefits that came out include Many parents got more involved in their children's learning processes getting to understand the curriculum as well as the process of their child's learning (Garbe et al., 2020). That being said, this increased involvement was not entirely a good thing as it had its perks and cons. Altogether, some parents appreciated to be able to pay more attention and help their children more some of them reported feeling stressed and overwhelmed facing new roles of both educating and supporting children (Dong et al., 2020).

Also, content regard and efficiency of online lessons and coursework were parents' perceptions about the educational institutions and teachers' support. Parenting became understandably challenging due to the emergence of COVID-19, and educators' proper communication along with the provision of frequent reports were essential for parents to overcome this new type of learning experience and gain more confidence in their parenting role (Borup et al., 2020). Facilities that offered systems, orientation, and help that combined core services, training sessions, and technology support catered the parents and helped in reducing many issues regarding learning through online facilities.

It was shown that parents' mental and psychological condition was of great concern during the period of the pandemic. Sporadic schedule and social isolation along with the challenges imposed by distance learning had negative impacts on many children's psychological well-being (Garbe et al., 2020). It was mainly observed that parents were precariously in the front line, struggling to reassure and comfort their children while they themselves were tense and stressed. Its impact was therefore double which highlighted the importance of intervention programs that not only target academic requirements, but also psycho-social ones (Dong et al., 2020).

In conclusion, the parents' perception of online learning during the COVID-19 outbreak was inclusive and exhaustive in the social dimension. They understood the advantages of using ICTs in education and the flexibility of the digital environment but experienced crucial issues concerning technology, equality, and assistance. They were valuable for educators and policymakers to take into account while they are trying to advance the online learning system and initiate methods to reduce the inequalities of the COVID-19 outbreak. Focusing on parents' experience and attitudes may help in the development of better, more adequate solutions encouraging equal integration of students into the educational process.

2. Research Methodology

Research Philosophy

In this research, the study employs a positivistic research philosophy, which is this approach favored in the natural sciences, where the focus is on reality, data, and the application of numerical methods. The positivist approach is pertinent to this research as it enables the collection and analysis of data systematically enabling generalization of results (Creswell, 2014). To achieve the objective of the study, it shall adopt quantitative approach, which seeks to find out the attitudes that students, parents, and teachers hold towards online learning in the course of the COVID-19 outbreak.

Population and Sample Size

For this study, the population consists of students, parents, and teachers who are affiliated with the government colleges and universities in and around Lakki Marwat providing the Bachelor of Science (BS) programs. Given the diverse perspectives needed for comprehensive analysis, the study targets three distinct groups within this population: Given the diverse perspectives needed for a comprehensive analysis, the study targets three distinct groups within this population:

Students: The sample of the study will be students, and the intention is to survey 300 students who are

studying in seven technical universities in their first year taking BS programs. This sample size is adopted so as to obtain a random sample of students from class; the sample includes students able to use computers and those who cannot, male and female, good performers, average performers, and poor performers, young and old students, students with access to internet and those without access.

Parents: A total of one hundred parents of learners studying in these particular BS programs will be given questionnaires. The sample used in this study is deemed reasonable to obtain a variety of parents' attitudes and experiences concerning online learning.

Teachers: The sample for the study will be 200 teachers, who are teaching BS programs at the said universities. Such sample size is selected to capture the variation in the teaching experience and perception towards the online education among the faculty members.

These sample sizes are estimated interestingly with the help of Krejcie and Morgan (1970) that envisaged an appropriate sampling size out of a given population size towards a statistically significant sample size.

Data Collection Method

Data for this study was collected through a structured questionnaire, which is an effective tool for gathering quantitative data from a large number of respondents (Groves et al., 2009). The questionnaire was designed to capture detailed information about the perceptions of students, parents, and teachers regarding online learning during the COVID-19 pandemic.

The questionnaire was divided into sections tailored to each respondent group (students, parents, and teachers). Each section will include a mix of closed-ended questions (e.g., Likert scale items) to quantify perceptions and open-ended questions to provide additional qualitative insights (Saif, Khan, Khan, & Adnan, 2022). The questionnaire will cover various aspects of online learning, including (Accessibility and usability of online learning platforms, Perceived effectiveness and quality of online education, Satisfaction with online learning experiences).

Data Collection Procedure: The questionnaire was distributed electronically via email and through online survey platforms such as Google Forms and Survey Monkey. Additionally, paper-based questionnaires will be provided for respondents who may have limited access to digital tools. To maximize response rates, multiple reminders will be sent, and the importance of the study will be communicated clearly to potential respondents.

Ethical Considerations: Informed consent was obtained from all participants before they complete the questionnaire. Participants were assured of the confidentiality and anonymity of their responses, and the data will be used solely for academic purposes. Ethical approval for the study was sought from the ULM review board.

Data Analysis: Quantitative data collected from the questionnaires was analyzed using statistical software such as SPSS. Descriptive statistics (frequency distribution) were used to summarize the data, (Braun & Clarke, 2006).

By adopting this structured and systematic research methodology, the study aims to provide a comprehensive understanding of the perceptions of students, parents, and teachers regarding online learning during the COVID-19 pandemic in government colleges and universities in the southern zone of KP.

3. Result And Discussions

Table 1. Response about Accessibility and Usability of Online Learning Platforms

	How easy is it for you to access and log into online learning platforms?				
	Very easy	Somewhat easy	Neutral	Somewhat different	Very different
Students	150	50	50	40	10
	50%	16.66%	16.66%	13.33%	3.33%
Teachers	100	20	40	20	20
	50%	10%	20.0%	10.0%	10.0%

Parents	40	10	10	15	15
	40%	10%	10%	15%	15%
	What are your thoughts on the user-friendliness and intuitiveness of online learning platform navigation?				
	Very user friendly	Somewhat user friendly	Neutral	Somewhat confusing	Very confusing
Students	100	50	50	60	40
	33.33%	16.66%	16.66%	20%	13.33%
Teachers	40	90	20	30	20
	20%	45%	10%	15%	10%
Parents	10	30	40	10	0
	10%	30%	40%	10.0%	0.00%
	How would you rate the availability and effectiveness of technical support when you encounter issues with online learning platforms?				
	Excellent	Good	Neutral	Fair	Poor
Students	50	60	40	100	50
	16.66%	20%	13.33%	33.33%	16.66%
Teachers	20	30	20	40	90
	10%	15%	10%	20%	45%
Parents	40	10	0	10	30
	In your experience, how well do online learning platforms work with the devices you use (e.g., laptop, tablet, smartphone)?				
	Very Well	Somewhat Well	Neutral	Somewhat poorly	Very poorly
Students	100	50	50	60	40
	33.33%	16.66%	16.66%	20%	13.33%
Teachers	40	90	20	30	20
	20%	45%	10%	15%	10%
Parents	40	20	10	10	20
	40%	20%	10%	10.0%	20.00%
	How often do you face issues with internet connectivity while using online learning platforms?				
	Never	Rarely	Occasionally	Often	Very often
Students	60	40	50	100	50
	20%	13.33%	16.66%	33.33%	16.66%
Teachers	30	20	20	40	90
	15%	10%	10%	20%	45%
Parents	10	20	10	40	20
	10.0%	20.00%	10%	40%	20%

Results from table (1) are explained in detail as

As much as concerned the Ease of Access and Login option, students, teachers, and parents experienced different issues when it came to accessing and logging in to online learning platforms. Very easy was reported by the majority of the students (50 %) and teachers (50 %), this implying that the platforms are easy to use for these stakeholders. However, 16. Twelve percent of students and 1% of teachers observed that counting the number of words was somewhat easy. Students' responses: 66% of, teachers' responses: 20% of, responses showed

neutrality. Some of the respondents encountered difficulties, further, 13% of the total number of respondents. Among students, 33% considered it somewhat or very difficult for them to learn bursts of information and among the teachers, 20. Parents too had a slightly better position, for the majority of the parents, only 40% professed to having very easily accessed the internet for the purpose of looking at their children's work, while 10% found it somewhat easy. However, 10% had a neutral perception; while 30% considered it as somewhat or very difficult; hence, there is a need for more organizations to make it easy for this category.

Likewise, regarding the User-Friendliness and Intuitiveness About Online Learning Platforms, students, teachers, and parents had some differences in their opinion. For students, 33. 33% of those using the platforms described it as very easy to use, while 20% said the platforms were somewhat confusing and 13% of the participants maintained that such items were very confusing to them. Talking about teachers' attitudes, 45 % of them stated the platforms were slightly easy to use, while 20% of them reported that the platforms were slightly or very complex. Parents' response was diverse, 40% of the parents gave a neutral response while 30% parents said that the platforms were somewhat easy to use with only 10% parents tagging them as very easy to use and none confusing it at all. These disparities reveal the discrepancy of the level of experience within the different groups of users.

Technical support was another factor where availability as well as the quality of the support provided affected students, teachers, and parents in different ways. Among students, 33, 33% considered it rather fair, and 16. 66% of the respondent rated it excellent while 16%@. 66% found it poor. Regarding the satisfaction level, teachers scored relatively low with 45 percent stating that it is poor while only 10 percent stating that the value is excellent. Parents had a mixed perception of the efficacy of the mechanism; while 40% scored it excellent the other 30% scored it poor. This shows that while there are users that consider technical support as useful, there are still many users who feel that it is a weak point especially the teachers.

As for the compatibility of the online learning platforms introduced with the devices, students and teachers' perceptions were mixed. For students, 33. 33% appreciated that the platforms were effective, but 20% indicated they were somewhat ineffective and 13. 33% reported them to be very poor. As for the teachers' respondents, 45 percent said that the platforms were somewhat well while 20 percent said that they were very well, however, 10 percent pointed to the platforms and said that they were very poor. Parents were more critical about them than the learners, indicating that 40% of them found the platforms very well but 20% of them found them very poor. These responses make it possible to note that, although most of the users observe compatibility of the platforms with their devices, it is still an issue that can be improved, for example for parents.

The level of internet connection disruption ranged from once every 5 minutes to once a day for some students, teachers and parents. For students, 33. 33% of respondents experienced issues frequently, on the other hand 20% of the respondents never experienced issues. Regarding connectivity issues this is breakdown by teacher 'Very often' 45% and 'Never' 15%. Indeed, parents also registered high levels of connectivity problems, revealing they frequently encountered problems as little as 10 percent of the time asserting that they never experienced these problems. Thus, it can be concluded that restricted connection to the Internet is a major issue for many users, especially teachers and parents, and solving it could bring a huge improvement to the online learning process.

Table 2. Challenges and Barriers Faced During Online Learning

What are the main challenges you have faced while using online learning platforms?							
S.N	**Response Category**	**Students (300)**	**%**	**Teachers (200)**	**%**	**Parents (100)**	**%**
1	Technical difficulties	90	30%	50	25%	40	40%
2	Lack of engagement	70	23.33%	40	20%	20	20%
3	Distractions at home	80	26.66%	60	30%	20	20%

4	Inadequate support	30	10%	30	15%	10	10%
5	Difficulty in understanding materials	30	10%	20	10%	10	10%
How have technical issues affected your experience with online learning?							
1	Frequently disruptive	80	26.66%	70	35%	30	30%
2	Occasionally disruptive	100	33.33%	60	30%	30	30%
3	Rarely disruptive	70	23.33%	50	25%	20	20%
4	Not disruptive	50	16.66%	20	10%	20	20%
What difficulties have you encountered in maintaining focus and motivation during online classes?							
1	Easily distracted	100	33.33%	80	40%	40	40%
2	Lack of motivation	90	30%	60	30%	30	30%
3	Boring content	60	20%	30	15%	20	20%
4	No difficulties	50	16.66%	30	15%	10	10%
How has the lack of face-to-face interaction with teachers and peers impacted your learning experience?							
1	Negatively impacted	150	50%	100	50%	50	50%
2	Somewhat impacted	80	26.66%	60	30%	30	30%
3	Neutral	40	13.33%	20	10%	10	10%
4	Positively impacted	20	6.66%	10	5%	10	10%
5	No impact	10	3.33%	10	5%	0	0%
What barriers, if any, have you experienced in accessing online learning due to personal circumstances (e.g., internet access, device availability)?							
1	Poor internet access	100	33.33%	80	40%	40	40%
2	Limited device availability	60	20%	40	20%	20	20%
3	Lack of a quiet space	80	26.66%	40	20%	20	20%
4	Personal responsibilities	40	13.33%	20	10%	10	10%
5	No barriers	20	6.66%	20	10%	10	10%

According to the results, **the main challenges encountered by students, teachers, and parents while using online learning platforms vary**, with each group highlighting different issues. Technical difficulties emerged as a significant challenge for all groups, affecting 30% of students, 25% of teachers, and 40% of parents. This indicates that technological barriers are a common obstacle across the board. Lack of engagement is another prominent issue, cited by 23.33% of students, 20% of teachers, and 20% of parents, suggesting that the online format struggles to maintain interest and participation. Distractions at home are particularly problematic for students (26.66%) and teachers (30%), but less so for parents (20%), reflecting the challenge of creating a conducive learning environment outside the traditional classroom. Inadequate support is noted by 10% of students, 15% of teachers, and 10% of parents, highlighting a need for better assistance in navigating online learning. Finally, difficulty in understanding materials affects 10% of students, 10% of teachers, and 10% of parents, pointing to the need for clearer instructional design and communication.

Maintaining focus and motivation during online classes is a significant challenge, with easily distracted being the most common difficulty for 33.33% of students, 40% of teachers, and 40% of parents. Lack of motivation affects 30% of students, 30% of teachers, and 30% of parents, emphasizing the struggle to stay engaged in a virtual setting. Boring content is a problem for 20% of students, 15% of teachers, and 20% of parents, indicating that the quality and delivery of online materials need improvement. On a positive note, 16.66% of students, 15% of teachers, and 10% of parents reported no difficulties in maintaining focus and motivation, showing that a segment of users is thriving in the online format.

Personal circumstances present several barriers to accessing online learning. Poor internet access is a major issue for 33.33% of students, 40% of teachers, and 40% of parents, reflecting the necessity of reliable connectivity for successful online education. Limited device availability affects 20% of students, 20% of teachers, and 20% of parents, underscoring the importance of having adequate technology. Lack of a quiet space is reported by 26.66% of students, 20% of teachers, and 20% of parents, indicating that many struggle to find an environment conducive to learning at home. Personal responsibilities are a barrier for 13.33% of students, 10% of teachers, and 10% of parents, which suggests that balancing home and educational duties is a challenge. Finally, a smaller group reported no barriers (6.66% of students, 10% of teachers, and 10% of parents), indicating that some individuals have managed to adapt without significant issues.

Table 3. Response to Suggestions for improving online learning in the future

	How do you think the quality of online education could be improved		
Teachers Response	Enhance instructional design with more interactive and engaging content.	50	25%
	Provide regular professional development on effective online teaching strategies.	50	25%
	Implement better assessment tools for tracking student progress.	10	5%
	Increase collaboration and communication among educators.	30	15%
	Offer more resources for creating multimedia-rich learning materials	60	30%
Students Response	Improve clarity and organization of course materials and instructions.	100	33.33%
	Increase interaction with instructors through live sessions and office hours.	10	3.33%
	Provide more hands-on activities and practical applications.	90	30%
	Ensure reliable access to digital resources and learning tools.	50	16.6%
	Enhance peer collaboration opportunities through group projects and discussions.	50	16.66%
Parents Response	Ensure teachers are accessible and provide timely feedback on student progress.	50	50%
	Improve transparency in grading and assessment methods.	10	10%
	Offer resources and support for parents to assist with online learning at home.	10	10%
	Enhance communication between educational institutions and parents about online learning expectations.	05	5%
	Provide additional tutoring or academic support for struggling students.	15	15%
	What additional support or resources do you believe would enhance the effectiveness of online learning?		
Teachers	Access to comprehensive technical support for troubleshooting.	10	5%
	Professional development on integrating new digital tools and platforms.	30	15%
	Support for creating accessible and inclusive learning environments.	60	30%
	Collaborative planning time with colleagues to share best practices.	50	25%
	Resources for addressing student engagement and motivation challenges.	50	25%
Students	Access to high-speed internet and reliable devices for all students.	50	16.6%
	Availability of digital textbooks and resources at no cost or reduced cost.	50	16.66%
	Online tutoring and academic support services.	50	50%
	Opportunities for virtual study groups and peer collaboration.	100	33.33%

	Access to simulations, virtual labs, and multimedia resources for interactive learning.	10	3.33%
Parents	Clear guidelines and expectations for online learning from educational institutions s.	50	50%
	Communication channels for accessing support and resources for parents.	10	10%
	Workshops or training sessions for parents on supporting online learning at home.	10	10%
	Access to educational software and tools for monitoring student progress.	05	5%
	Opportunities for parental involvement in educational institutions decision-making related to online	15	15%
	In your view, what strategies could be implemented to overcome the challenges faced during online learning?		
Teachers	Establish regular communication channels with students and parents.	50	25%
	Create flexible lesson plans and assignments to accommodate diverse learning needs.	10	5%
	Provide recorded lectures and materials for asynchronous learning.	30	15%
	Implement strategies for maintaining student engagement during online classes.	60	30%
	Offer individualized support and feedback to students based on their needs.	50	25%
Students	Develop time management skills and routines for online learning.	50	16.66%
	Advocate for clear communication with teachers about assignments and expectations.	50	50%
	Utilize online resources and tutorials for additional support.	100	33.33%
	Seek out peer collaboration and study groups for interactive learning.	10	3.33%
	Participate actively in virtual class discussions and activities.	90	30.00%
Parents	Establish a dedicated study space and routine for online learning at home.	10	10%
	Support students in managing their time and staying organized.	10	10%
	Communicate regularly with teachers to monitor progress and address concerns.	05	5%
	Encourage participation in extracurricular online activities and clubs.	15	15%
	Provide emotional and academic support to children during online learning challenges.	60	60%
	What specific improvements would you propose to enhance the overall satisfaction of students with online learning experiences?		
Teachers	Increase engagement through interactive polls, quizzes, and discussions.	50	25%
	Provide personalized feedback on assignments and assessments.	60	30%
	Offer virtual office hours for one-on-one student support.	30	15%
	Incorporate student feedback in course design and instructional methods.	10	5%
	Organize virtual social events and activities to build a sense of community.	50	25%
Students	Ensure clarity and consistency in communication from teachers.	50	16.66%
	Improve access to digital resources and materials required for learning.	50	50%
	Enhance the accessibility and usability of online learning platforms.	100	33.33%
	Implement fair and transparent grading practices.	10	3.33%
	Offer flexibility in assignment deadlines and exam schedules	90	30.00%
Parents	Ensure transparent communication from educational institutions s about online learning expectations.	10	10%
	Advocate for additional academic support and resources for students.	10	10%

	Participate in parent-teacher conferences and feedback sessions.	05	5%
	Provide opportunities for students to engage in extracurricular online activities.	15	15%
	Support efforts to create a positive and inclusive online learning environment.	60	60%

Results from Table 3 indicate various responses from teachers, students, and parents regarding improving the quality of online education. To enhance online education, 30% of teachers suggested offering more resources for creating multimedia-rich learning materials. Additionally, 25% each emphasized enhancing instructional design with interactive content and providing regular professional development on effective online teaching strategies. Collaboration among educators was suggested by 15%, while 5% called for better assessment tools.

Parents' top priority was ensuring teachers are accessible and provide timely feedback, as suggested by 50%. Additionally, 15% proposed more academic support for struggling students, while improving grading transparency, providing parental support, and enhancing educational institutions -parent communication was each suggested by 10%.

In terms of additional support and resources, 30% of teachers emphasized creating accessible and inclusive learning environments. Resources for addressing student engagement and collaborative planning were each suggested by 25%. Professional development on digital tools and comprehensive technical support were essential to 15% and 5%, respectively.

Among students, 33.33% highlighted the need for virtual study groups and peer collaboration. Online tutoring services and access to digital resources at reduced costs were each suggested by 16.66%. High-speed internet and reliable devices were a priority for 16.6%, with 3.33% emphasizing interactive learning tools.

Parents suggested that clear guidelines and expectations from educational institutions were critical, with 50% emphasizing this point. Opportunities for parental involvement in educational institutions decisions

were called for by 15%, while communication channels for support, workshops for parents, and educational software tools were each suggested by 10%.

Regarding strategies, 50% of students advocated for clear communication with teachers. Developing time management skills and utilizing online resources were suggested by 33.33% and 16.66%, respectively. Active participation in virtual class discussions and peer collaboration were important to 30% and 3.33%.

Parents recommended providing emotional and academic support to children (60%). Encouraging extracurricular activities was suggested by 15%, while establishing study routines, supporting time management, and regular communication with teachers were each recommended by 10%. Lastly, parents emphasized supporting a positive and inclusive online environment (60%) and providing opportunities for extracurricular activities (15%). Transparent communication from educational institutions and advocating for additional academic support were each suggested by 10%, while participating in feedback sessions was mentioned by 5%.

4. Conclusion and Recommendations

The responses from students, teachers, and parents highlight significant challenges and opportunities within the realm of online learning. Key issues include technical difficulties, lack of engagement, distractions at home, inadequate support, and difficulty in understanding materials. These challenges have negatively impacted online learning experience, with technical issues frequently causing disruptions and the lack of face-to-face interaction hindering effective learning. Additionally, barriers such as poor internet access, limited device availability, and personal responsibilities have further complicated the online learning environment.

Despite these challenges, there are clear opportunities for improvement. Suggestions from teachers, students, and parents emphasize the need for better instructional design, enhanced resources, improved communication, and greater support for both educators and learners. Specific

recommendations include creating multimedia-rich learning materials, providing professional development for teachers, ensuring reliable access to digital resources, and fostering peer collaboration.

4.1 Recommendations

To address the technical challenges, it is essential to establish comprehensive technical support services to address and resolve issues promptly. Collaborating with internet service providers to ensure high-speed internet access for all students and educators can mitigate connectivity issues. Providing necessary devices for students and teachers and ensuring they are updated and functional is also crucial.

Improving instructional design involves developing and implementing interactive and engaging content to maintain student interest and motivation. Regular professional development sessions for teachers focused on effective online teaching strategies and new digital tools should be offered. Additionally, enhancing the clarity and organization of course materials and instructions is necessary.

To increase engagement and support, more live sessions and office hours should be facilitated to boost interaction between students and instructors. Encouraging peer collaboration through group projects and virtual study groups can enhance learning experiences. Ensuring teachers provide timely and constructive feedback will support student progress.

Overcoming personal barriers requires encouraging the creation of quiet, dedicated study spaces at home to minimize distractions. Supporting students in developing effective time management skills and routines is important. Providing resources for emotional and academic support can help students cope with online learning challenges.

By addressing these recommendations, the quality of online education can be significantly improved, leading to a more effective and enjoyable learning experience for students, teachers, and parents alike.

References

Adedoyin, O. B., & Soykan, E. (2020). "Covid-19 pandemic and online learning: the challenges and opportunities." Interactive Learning Environments, 1-13.

Andrew, A., et al. (2020). "Learning during the lockdown: real-time data on children's experiences during home learning." IFS Briefing Note BN288.

Azim Premji University. (2020). Field Study Report on the Impact of COVID-19 on Education. Retrieved from https://azimpremjiuniversity.edu.in

Borup, J., Jensen, M., Archambault, L., Short, C. R., & Graham, C. R. (2020). "Supporting students during COVID- 19: Developing and leveraging academic communities of engagement in a time of crisis." Journal of Technology and Teacher Education, 28(2), 161-169.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77- 101.

Bubb, S., & Jones, M. A. (2020). "Learning from the COVID-19 home-educational institutions ing experience: Listening to pupils, parents/carers and teachers." Improving Educational institutions s, 23(3), 209-222.

Burgstahler, S. (2020). "Ensuring Access to Online Learning for Students with Disabilities." Educause Review. Retrieved from https://er.educause.edu/articles/2020/3/ensuring-access-to-online-learning-for-students-with- disabilities

Coyne, L. W., et al. (2020). "First Things First: Parent Psychological Flexibility and Self-Compassion During COVID- 19." Behavior Analysis in Practice, 13(4), 799-809.

Creswell, J. W. (2014). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (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.

Dong, C., Cao, S., & Li, H. (2020). "Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes." Children and Youth Services Review, 118, 105440.

Dong, C., et al. (2020). "Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes." Children and Youth Services Review, 118, 105440.

Farooq, U., Saif, N., & Shaheen, I. (2022). Mediating Role of Transformational & Transactional Leadership in Understanding Mclean & Delone Information System. Journal of Social Research Development, 3(1), 9-21.

Garbe, A., et al. (2020). "Parents' experiences with remote education during COVID-19 educational institutions closures." American Journal of Qualitative Research, 4(3), 45-65.

Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). "COVID-19 and remote learning: Experiences of parents with children during the pandemic." American Journal of Qualitative Research, 4(3), 45-65.

Gillis, A., & Krull, L. M. (2020). "COVID-19 remote learning transition in Spring 2020: Class structures, student perceptions, and inequality in college courses." Teaching Sociology, 48(4), 283-299.

Gonzalez, T., et al. (2020). "Influence of COVID-19 confinement on students' performance in higher education." PLoS One, 15(10), e0239490.

Groves, R. M., Fowler Jr, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). Survey Methodology (2nd ed.). John Wiley & Sons.

Hodges, C., et al. (2020). "The difference between emergency remote teaching and online learning." Educause Review. Retrieved from https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching- and-online-learning

Hodges, C., et al. (2020). "The difference between emergency remote teaching and online learning." Educause Review, 27.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). "The difference between emergency remote teaching and online learning." Educause Review. Retrieved from https://er.educause.edu/articles/2020/3/the-difference- between-emergency-remote-teaching-and-online-learning

Jones, K., et al. (2020). "The impact of COVID-19 on teacher education and professional development." Journal of Education for Teaching, 46(4), 457-460.

Kim, J., Hong, H.-Y., Bonk, C. J., & Lim, K. Y. (2020). "Online Education and Collaborative Tools." Interactive Learning Environments, 28(5), 577-579.

Kim, L. E., & Asbury, K. (2020). "'Like a rug had been pulled from under you': The impact of COVID-19 on teachers in England during the first six weeks of the UK lockdown." British Journal of Educational Psychology, 90(4), 1062- 1083.

Kim, L. E., & Asbury, K. (2020). "'Like a rug had been pulled from under you': The impact of COVID-19 on teachers in England during the first six weeks of the UK lockdown." British Journal of Educational Psychology, 90(4), 1062- 1083.

König, J., et al. (2020). "Adapting to online teaching during COVID-19 educational institutions closure: Teacher education and teacher competence effects among early career teachers in Germany." European Journal of Teacher Education, 43(4), 608-622.

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. European journal of teacher education, 43(4), 608-622.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607-610.

Means, B., & Neisler, J. (2020). "Suddenly online: A national survey of undergraduates during the COVID-19 pandemic." Digital Promise. Retrieved from https://digitalpromise.org

Presser, S., Couper, M. P., Lessler, J. T., Martin, E., Martin, J., Rothgeb, J. M., & Singer, E. (2004). Methods for testing and evaluating survey questions. Public Opinion Quarterly, 68(1), 109-130.

Rapanta, C., et al. (2020). "Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity." Postdigital Science and Education, 2(3), 923-945.

Saif, N., & Khan, S. (2020). Impact of job insecurity on general strain issues of employees through moderated meditation analysis. SMART Journal of Business Management Studies, 16(1), 80-89.

Saif, N., & Shaheen, I. (2022). Investigating the Relationship between the Big Five Personality Traits model and Selfie Posting behavior with the moderating role of Culture and Marital status among University Students. Journal of Innovative Research in Management Sciences, 1-15.

Saif, N., Goh, G. G. G., Rubin, A., Shaheen, I., & Murtaza, M. (2024). Influence of transformational leadership on innovative work behavior and task performance of individuals: The mediating role of knowledge sharing. Heliyon, 10(11).

Saif, N., Khan, M. T., & Ali, S. (2019). Laohavichien Model of Leadership And Quality For Pakistan. What It Is And Why It's Important For SME's. IBT Journal of Business Studies (JBS), 2(2).

Saif, N., Khan, M. T., Khan, I. U., & Adnan, M. (2022). Designing and validating customer loyalty construct for the banking sector (evidence from Pakistan). International Journal of Business Excellence, 28(3), 397-418.

Saif, N., Khan, S. U., Shaheen, I., ALotaibi, F. A., Alnfiai, M. M., & Arif, M. (2024). Chat-GPT; validating Technology Acceptance Model (TAM) in education sector via ubiquitous learning mechanism. Computers in Human Behavior, 154, 108097.

Saif, N., Saqib, N. A., Arshad, J., Javed, A., & Khan, S. U. (2018). The role of EI as a mediator between leadership styles and its effectiveness among the employees of banking sector. Sarhad Journal of Management Sciences, 4(1), 72-96.

Saif, N., Shaheen, I., Khan, S. U., Khan, F., Lee, Y., & Khan, J. (2023). Investigating the dynamic relationship between stigma of fear, discrimination and employees performance among healthcare workers during Covid-19 pandemic. Cognition, Technology & Work, 25(4), 385-395.

Tahira, B., Saif, N., Haroon, M., & Ali, S. (2019). Relationship between big five personality model and abusive supervision. Abasyn University Journal of Social Sciences, 12(2), 265-276.

Trust, T., & Whalen, J. (2020). "Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic." Journal of Technology and Teacher Education, 28(2), 189-199.

UNESCO. (2020). Education: From disruption to recovery. Retrieved from https://en.unesco.org/covid19/educationresponse

UNICEF. (2020). "COVID-19 and its implications for protecting children online." Retrieved from https://www.unicef.org

Vogels, E. A. (2020). "59% of U.S. parents with lower incomes say their child may face digital obstacles in educational institutions work." Pew Research Center. Retrieved from https://www.pewresearch.org

Wang, G., et al. (2020). "Mitigate the effects of home confinement on children during the COVID-19 outbreak." The Lancet, 395(10228), 945-947.