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Exploring Kuwaiti School Teachers' Challenges in the Post-COVID-19 Era

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Abstract
This study explores the evolving difficulties faced by educators in the transition from traditional to digital teaching methods during and after the COVID-19 pandemic. Drawing on Bronfenbrenner's ecological systems theory, the study examines how various levels of influence—including direct classroom interactions, institutional policies, and broader societal factors—have impacted teachers' ability to adapt to hybrid and online teaching models. The research highlights significant challenges, such as a lack of digital literacy, inadequate training, and limited support systems, which have exacerbated teachers' workloads and affected their well-being. Through a mixed-method approach combining secondary literature and primary data collected via questionnaires, the study uncovers distinct patterns of teacher adaptation and stress. It emphasizes the need for ongoing professional development, mental health support, and the integration of both digital and traditional pedagogical methods. Moreover, the findings reveal disparities in resources and infrastructure, particularly for teachers in underfunded schools, further stressing the necessity for educational reforms that address systemic issues. The research offers valuable insights into how Kuwaiti schools can better support teachers in navigating the post-pandemic educational landscape.
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Introduction

The COVID-19 pandemic led to the closure of educational institutions globally, forcing educators and learners to adopt remote learning with minimal preparation and, in many cases, without prior digital experience (Croucher & Locke, 2020).. This unforeseen shift presented significant challenges and opportunities, compelling the educational community to rethink pedagogical aims and methodologies. One critical aspect of this reevaluation is the training and support of teachers in adapting to the post-pandemic era.

The COVID-19 pandemic prompted a significant transformation in global education systems, leading to rapid changes in teaching and learning practices. The sudden shift from traditional in-person teaching to online learning had a profound effect on both students and educators across all levels of education. An earlier study by Alenezi et al. (2022), which examined the sudden transition to distance learning and the challenges faced by teachers in Kuwaiti schools, revealed that while teachers were willing to embrace technology, they lacked the necessary technological and pedagogical skills and were unprepared for the abrupt change to remote education. The study underscored the critical need for professional development in distance education and called for

innovative and adaptive strategies in teaching. However, the lessons learned during COVID-19 period have not yet fully influenced changes in teaching, learning, and assessment practices.

Continuing this line of research, the current study will explore the present situation in Kuwait. It will review existing literature and conduct a survey to investigate the lived experiences of teachers in Kuwait, with a particular focus on the challenges they are facing as they transition from face-to-face to remote learning. The research involves gathering perspectives from school teachers across various disciplines, including electricity, arts, home economics, and science, through questionnaires. This methodology aims to provide insights into the current instability and additional professional demands teachers are facing. The study seeks to understand how these educators are interpreting policy measures designed to ensure equity in learning and how these policies are impacting vulnerable students..

To examine these transformations and their implications, this study utilizes Bronfenbrenner's ecological systems theory as a lens. This theory provides a comprehensive framework for understanding the complex, multilayered interactions between individuals and their environments. The theory's five nested systems—microsystem, mesosystem, exosystem, macrosystem, and chronosystem—offer valuable insights into the various factors influencing teachers' experiences during the transition to online learning.

In this emerging situation, there is a lack of research on the challenges teachers face when delivering distance learning in the aftermath of the pandemic, especially as online learning, face-to-face instruction, blended learning, and hybrid learning are all being recommended and utilized. To better understand the situation, teachers' experiences and challenges with hybrid instructional approaches are invaluable. Their perspectives can guide and contribute to the adaptation process. Therefore, the current study aims to provide a deeper understanding of the challenges teachers face, how they are overcoming these barriers, and how they are evolving their approaches over time. The following sections synthesize the existing research on these challenges.

Literature review

The transition from remote instruction during the pandemic to the post-pandemic era has emphasized a consensus that e-learning will continue to play a significant role in education. Hybrid learning models, which combine online and traditional methods, are becoming increasingly prevalent (Al Najadah, 2022).

Research from Kuwait suggests that the Ministry of Education's swift adaptation to distance education, which involved training teachers in technology use, has revealed a high level of positive attitudes among Kuwaiti teachers towards this mode of learning (Al-Houli, Al-Mesad, & Al-Kandari, 2022). The study found significant differences across educational stages, with teachers in primary, intermediate, and secondary levels exhibiting more positive attitudes compared to those in kindergarten. This discrepancy could be attributed to the different pedagogical approaches and the greater technological adaptability required at higher school levels (Al-Houli et al., 2022). The positive reception of distance education by Kuwaiti teachers highlights the effectiveness of the Ministry of Education's initiatives in providing the necessary training and resources. Furthermore, the study's findings align with other research indicating a mix of positive and moderate attitudes towards distance education globally (Rahayu & Wirza, 2020; Wang et al., 2020).

It is important to note that the study by Al-Houli et al. is a standalone one, and further research is needed to examone teachers challenges in Kuwaiti schools. The following sections will explore research from the woder world and Kuwait, to bettern understand the challenges facing teachers.

Pedagogical Adjustments

One of the most significant challenges that teachers face in the post-COVID era is related to technology. The rapid shift to online teaching required educators to quickly adapt to new digital tools and platforms. Many teachers lacked adequate training and experience in using these technologies, leading to difficulties in effectively delivering online instruction. According to a study by David and Ali (2022), teachers encountered numerous technical problems, including issues with internet connectivity, unfamiliarity with online teaching platforms, and insufficient digital literacy skills. These challenges were compounded by the lack of institutional support and resources needed to facilitate this transition smoothly.

During the pandemic, teachers had to quickly adapt to unfamiliar teaching methods, including online and hybrid models, which eroded their professional confidence and posed significant challenges (Fray et al., 2023). The abrupt shift to digital platforms led to stress, uncertainty, and a steep learning curve as teachers navigated new technologies and methods for delivering instruction remotely (Pokhrel & Chhetri, 2021). Teachers also had to manage changing pupil needs and unclear directives from educational authorities, which compounded the difficulties of maintaining effective teaching practices. The reduction in authentic interaction and the absence of in-person teaching spontaneity were particularly challenging, impacting teachers' ability to engage students meaningfully (Besser, Lotem, & Zeigler-Hill, 2020).

One of the primary challenges highlighted by Tarc (2020) is the need for teachers to adapt to online teaching platforms, which often lack the multi-sensory communication feedback loops present in face-to-face (f2f) classrooms. These feedback loops are crucial for gauging student comprehension, engagement, and emotional well-being. In the virtual classroom, teachers struggled with the reduced ability to read body language, facial expressions, and other non-verbal cues, essential for spontaneous and dynamic teaching interactions (Tarc, 2020).

Post-pandemic, integrating these tools into traditional face-to-face classrooms remains a challenge. Educators need to balance the benefits of digital resources with the dynamics of in-person instruction (Stoian et al., 2022). The continued use of online educational platforms for resource access and testing has been recommended, but teachers struggle to find the right blend. The shift back to face-to-face education requires significant pedagogical adjustments, as teachers need to incorporate the interactive and engaging methods developed for online education into their traditional teaching practices (Stoian et al., 2022).

Adapting pedagogical approaches to fit the online format posed another significant challenge. Traditional teaching methods often did not translate well to virtual classrooms, requiring teachers to redesign their lesson plans and instructional strategies. Engaging students and maintaining their attention became more difficult in an online setting, necessitating innovative approaches to teaching. Assessing student performance became complex due to the lack of physical interaction and the potential for academic dishonesty (David & Ali, 2022). David and Ali (2022) highlight that teachers struggled with creating interactive and engaging online lessons that could replicate the in-person learning experience. The lack of immediate feedback and the inability to gauge student comprehension in real-time added to the complexity of teaching online.

Although many teachers relied on alternative forms of instruction and experienced changes in delivery models, they reported low instructional effectiveness (Namkung et al., 2022). While asynchronous learning offers flexibility and can be an effective instructional tool, it presents several challenges for teachers. Developing and delivering content suitable for asynchronous learning environments requires substantial effort and adjustment (Madanat et al., 2023).

Rapidly transitioning to online teaching, many educators struggled with internet connectivity, unfamiliarity with digital platforms, and insufficient training. Traditional teaching methods needed significant adjustments to maintain student engagement and comprehension in virtual classrooms. Additionally, the abrupt shift increased stress, anxiety, and burnout among teachers, who had to juggle professional and personal responsibilities simultaneously. The pandemic also highlighted existing educational inequalities, as students from disadvantaged backgrounds faced greater difficulties in accessing online learning. Addressing these multifaceted challenges requires comprehensive support, including professional development, adequate resources, and mental health assistance (David & Ali, 2022).

Maintaining Student Engagement

The transition to online learning during the COVID-19 pandemic posed significant challenges for teachers, particularly in maintaining student engagement and accurately assessing their performance. The lack of physical presence and face-to-face interaction hindered the establishment of a strong teacher-student connection, making it difficult for teachers to keep students motivated and participative during virtual classes (Tarc, 2020; Ondras & Alvero, 2023).

In the online environment, teachers had to develop new strategies to maintain student interest and involvement in learning. This was often met with mixed success due to the limitations of virtual interaction, such as the absence

of non-verbal cues, which are crucial for gauging student understanding and engagement (Zheng & Zheng, 2023). The sense of isolation and disconnection inherent in online learning further diminished students' motivation and participation (Tarc, 2020). The preference of students for recreational activities over academic tasks, coupled with the lack of a supportive home environment, compounded the difficulties in maintaining engagement (Ondras & Alvero, 2023).

Teachers found it necessary to innovate and employ various methods, including interactive presentations, digital course materials, and even virtual reality and gamification, to foster interaction and keep students motivated (Hogdal, Rasche, Schoeneborn, & Scotti, 2021; Blaine, 2019).

Assessing student performance in an online environment was another significant challenge. The absence of direct interaction made it difficult for teachers to monitor students' progress and provide immediate feedback (Zheng & Zheng, 2023). To address this, studies suggested the use of machine learning models to predict student performance and provide personalized feedback, which could help manage cognitive load and improve learning outcomes in online settings (Wang, Zhang, & He, 2022).

The return to physical classrooms post-pandemic revealed passive learning habits and reduced engagement among students, which posed additional challenges for teachers. Re-establishing active and participatory learning environments required a hybrid approach that integrates both traditional and online methods to effectively address these issues (AlAjlan & Ani, 2023). The challenges highlighted by various studies underscore the need for a blend of traditional and online strategies to create a supportive and interactive learning environment (Stoian et al., 2022).

Exacerbated Educational Inequalities

The COVID-19 pandemic exacerbated educational inequalities, particularly affecting students from disadvantaged backgrounds who faced significant challenges in accessing online learning. Teachers had to navigate diverse student needs, ranging from those without digital access to those requiring extra support due to pandemic-related disruptions (Zancajo et al., 2022). Disparities in technology access, such as the availability of devices and reliable internet, created barriers for many students, highlighting and worsening existing inequalities in the education system.

The digital divide poses a significant challenge in the post-COVID educational landscape. Not all students have equal access to digital devices and reliable internet, which can exacerbate existing educational inequalities. Teachers must find ways to ensure that all students, regardless of their socioeconomic status, have the resources and support they need to succeed in a digital learning environment (Nwagwu, 2020; Babbar & Gupta, 2022). The pandemic highlighted these disparities, with students from disadvantaged backgrounds struggling to keep up with online classes due to limited resources, placing an additional burden on educators who had to find ways to support and accommodate these students (David & Ali, 2022).

The reopening of schools brought specific challenges in supporting pupils with Special Educational Needs (SEN). Teachers reported difficulties in providing adequate support due to stringent health measures, such as smaller class sizes and reduced interaction opportunities (Glessner & Johnson, 2020). The need to balance health precautions with effective educational practices was a significant concern, as it often limited the personalized attention required by SEN pupils.

Despite these challenges, some teachers identified positive opportunities for adapted education. Smaller class cohorts allowed for more focused attention on individual pupils, enabling teachers to tailor their approaches to meet diverse needs (Havik & Ingul, 2022). However, the overall effectiveness of these adaptations was hindered by the lack of consistent support and resources.

Digital inclusion, encompassing access to hardware, networks, and the proper use of technology, has emerged as a critical issue. Many teachers and their students were disadvantaged due to unequal access to necessary technological resources. Tang, Gu, and Xu (2022) discussed the creation of a digital competence evaluation framework aimed at assessing and improving teachers' online teaching skills. This framework is essential for identifying and addressing disparities in digital access and usage, thereby promoting more equitable educational opportunities.

Tackling these complex issues necessitates comprehensive support, including professional development, sufficient resources, and mental health assistance (David & Ali, 2022). Educational institutions must prepare for future disruptions by developing resilient and adaptable systems, investing in technology, and fostering a culture of continuous improvement and innovation in teaching and learning. Distance education remains a necessary alternative to traditional classroom settings, relying on technology to bridge the gap between educators and learners and facilitating continuous education (UNESCO, 2020).

Policy and Resource Constraints

The abrupt switch from online to face-to-face instruction has introduced several policy-related, infrastructure, academic, and financial challenges (Zhao & Xue, 2023). Policy constraints and conflicts have significantly impacted teachers, particularly in aligning new teaching strategies with existing institutional policies. The reduction of digital support, which had been heavily relied upon during remote teaching, has presented another major obstacle. Teachers now must manage with fewer digital tools and resources that facilitated flexible, engaging, and accessible learning experiences during the pandemic (Zhao & Xue, 2023).

Additionally, the readjustment to traditional classroom environments has highlighted the inadequacy of campus facilities to support a seamless transition, further complicating teaching efforts (Zhao & Xue, 2023). Financial constraints, such as the costs associated with upgrading technological infrastructure and resources, have also added to the burdens on educators. These compounded challenges underscore the need for comprehensive support and strategic planning to facilitate a smooth transition and ensure effective teaching in the post-pandemic era (Zhao & Xue, 2023).

Navigating Digitalization: Overcoming Barriers and Enhancing Teachers' Technological Proficiency

One major challenge in the post-COVID educational landscape was the need for technological proficiency. Teachers who were not well-versed in digital tools found it challenging to create engaging and effective online lessons. This proficiency gap often led to a decrease in teaching quality and student engagement (Jacques, Ouahabi, & Kanetaki, 2023).

The study by Zancajo, Verger, and Bolea (2022) delves into the effects of COVID-19 on post-pandemic educational policy and delivery in Europe, with a focus on digitalization and teacher development. One of the primary responses to the pandemic was an accelerated push towards digitalization. International organizations like the OECD and the European Commission have underscored the need for substantial investments in digital infrastructure and skills. Consequently, most European countries in the study responded by enhancing technological resources in schools and improving digital competencies among teachers and students. However, the authors highlight that this push for digitalization primarily builds on pre-existing policies rather than introducing new paradigms, representing an incremental change rather than a radical shift (Zancajo et al., 2022).

In the context of teacher challenges in post-pandemic education, this study sheds light on several key issues. Teachers faced a rapid transition to digital learning platforms, often with limited training and support. This swift digital shift required teachers to not only adapt to new technologies but also to integrate these tools into their teaching practices effectively. The existing digital divide became more apparent, with some educators struggling due to varying levels of pre-pandemic digital proficiency. Moreover, the incremental nature of policy changes meant that many schools were only marginally better prepared for digital education than before the pandemic. Teachers were often left to bridge the gap between policy intentions and practical implementation, leading to increased workloads and stress. They had to ensure that all students, regardless of their digital access and skills, received a quality education, which was a significant challenge. The focus on digital competencies also overshadowed other critical aspects of teacher development, such as pedagogical strategies and emotional support for students. Zancajo, Verger, and Bolea's study underscores the need for a comprehensive approach to educational policy that enhances digital infrastructure and addresses the broader spectrum of teacher development and support.

The increased reliance on digital tools and platforms during the pandemic highlighted both barriers and opportunities for teachers. Initially, there was significant skepticism and resistance to adopting new technologies, which were seen as complex and challenging to integrate into existing teaching practices (Whalen, 2020). Over time, teachers began to recognize the potential benefits of digital tools for enhancing learning experiences and

supporting differentiated instruction. The use of digital educational programs provided opportunities for greater flexibility and innovation in teaching methods (Glessner & Johnson, 2020). However, the effectiveness of these tools was contingent on teachers' proficiency with technology and the availability of adequate training and support.

One of the most significant challenges for teachers in the post-COVID era is adapting to digital learning technologies. During the pandemic, there was a sudden and mandatory shift to online learning platforms, such as Zoom and Google Classroom, which required educators to rapidly acquire new digital skills. This shift has continued into the post-pandemic period, necessitating ongoing professional development to keep pace with technological advancements (Barnes, 2020; Ratten, 2021).

Balancing Traditional and Hybrid Modality of Instruction

Teachers have faced significant challenges in balancing traditional teaching methods with modern technological approaches in the post-COVID educational landscape. The pressure to innovate while maintaining proven educational practices has created a complex teaching environment, often leading to increased stress and burnout (Robinson et al., 2023).

Research highlights the need for increased flexibility and the adoption of hybrid models in education (Al Najadah, 2022; Croucher & Locke, 2020). To ensure the effectiveness of e-learning, there is a critical need for robust technological infrastructure and training for both students and educators. Hybrid teaching models, which combine online and face-to-face instruction, offer flexibility and accessibility. However, they also require teachers to design and deliver content that is effective in both formats. This dual approach can be demanding and time-consuming, often resulting in an increased workload and stress for educators (Ferreira, Fayolle, Ratten, & Raposo, 2018; Haslam, 2021).

To address these challenges, it is essential for educational institutions to provide comprehensive support, including professional development and adequate resources, to help teachers navigate the demands of hybrid teaching. This support is crucial for ensuring that teachers can effectively integrate both traditional and modern instructional methods, ultimately enhancing the learning experience for students.

Assessment and Evaluation

Assessing student learning in an online setting posed unique challenges. Traditional assessment methods were often not feasible, requiring teachers to develop alternative strategies for evaluating student progress. Issues such as academic dishonesty and the reliability of online assessments further complicated this task (David & Ali, 2022).

Developing fair and effective assessment methods that leverage both online and offline tools remains a significant challenge. During the pandemic, many universities adopted flexible, project-based, and open-book assessments. Teachers now face the challenge of integrating these methods into face-to-face settings while maintaining academic integrity and rigorous standards (Stoian et al., 2022).

Traditional assessment methods did not easily translate to the online environment, leading to concerns about the accuracy and fairness of online assessments (Zayeb et al., 2022). Teachers were unsure how to effectively evaluate student learning and provide meaningful feedback. Additionally, there was a perception that students did not take online assessments as seriously as in-person exams, further complicating the assessment process.

To address these challenges, educators need to develop innovative assessment strategies that ensure fairness, integrity, and rigor. This includes combining online and offline tools to create a comprehensive evaluation system that accurately reflects student learning and progress. Comprehensive support, including professional development and adequate resources, is crucial for helping teachers navigate these complex assessment and evaluation challenges in the post-COVID educational landscape.

Inadequate Online Interaction

One of the significant challenges for teachers during the transition to online learning was maintaining effective communication with students. Non-verbal communication cues, such as eye contact and body language, are crucial in traditional classroom settings and were difficult to replicate online. Teachers reported difficulties in keeping students engaged and providing the necessary support for students with special needs or disabilities (Zayeb et al., 2022). The lack of face-to-face interaction also led to feelings of isolation among both teachers and students, which hindered the learning process.

The quality of student-teacher interaction needs to be redefined in the post-COVID era. While online education facilitated easier and more individualized communication, replicating this in a face-to-face environment poses a challenge. Teachers need to find ways to maintain the openness and accessibility that technology provided during the pandemic (Stoian et al., 2022).

Post-COVID, teachers are tasked with re-evaluating their pedagogical priorities. Tarc (2020) suggests that teachers should focus more on relationship building and less on merely delivering curriculum content. The pandemic has underscored the importance of slowing down and investing time in student-teacher interactions that foster deeper understanding and stronger attachments to knowledge. This shift requires teachers to balance curriculum delivery with activities that promote social and emotional connections among students.

To address these challenges, educators must develop strategies that combine the benefits of online interaction with the strengths of face-to-face communication. This includes creating an inclusive classroom environment that supports all students and prioritizes building strong relationships. Comprehensive professional development and institutional support are essential to help teachers navigate these changes and enhance the quality of student-teacher interactions in the post-pandemic educational landscape.

Lack of Training and the Need for Professional Development

The abrupt transition to online learning during the pandemic required teachers to adapt quickly to new technologies and teaching methods. Many educators experienced difficulties in this shift due to a lack of prior training and experience with online platforms (Ratten, 2023). The pressure to maintain educational standards while navigating unfamiliar digital tools added significant stress to teachers' workloads.

Research by Huang, Qi, and Xie (2022) revealed that many teachers struggled with the effectiveness of interactive whiteboards due to insufficient technical support and training. This gap highlights the critical need for ongoing professional development to ensure that teachers are equipped with the necessary skills to utilize digital tools effectively.

Despite the rapid implementation of online learning, many teachers felt unprepared due to insufficient training. While some training was provided, it often focused on the technical aspects of online teaching rather than pedagogical strategies for effective online instruction (Zayeb et al., 2022). The training materials were not always comprehensive or accessible, leaving teachers struggling to adapt to the new teaching environment. This lack of preparation was exacerbated by the need for immediate implementation, leaving little time for teachers to familiarize themselves with new tools and methods.

Teachers' adaptation to normal instruction and the use of hybrid methods has faced significant challenges, underscoring the necessity for continuous professional development and support to effectively use new technologies and teaching methods (Al Najadah, 2022). Concerns are also being raised about the impact of these changes on educational outcomes, particularly for students in practical and hands-on disciplines (Al Najadah, 2022). Wehmeyer and Zhao (2020) argue that educational institutions in the post-COVID-19 world will need to embrace hybrid course delivery strategies to ensure that science students receive hands-on laboratory experiences and face-to-face contact to remain motivated.

A significant challenge was the need for ongoing professional development. Many teachers did not receive sufficient training to effectively integrate technology into their classrooms. This gap in knowledge and skills led to frustration and decreased effectiveness in teaching (Ratten, 2023).

Ongoing professional development and support are crucial for teachers to effectively navigate the post-COVID educational environment. The rapid shift to digital learning highlighted the need for continuous training in new technologies and teaching methods. However, providing adequate professional development opportunities and support systems remains a challenge for educational institutions (Eringfeld, 2021; Bridgman, Cummings, & Ballard, 2019).

Continuous professional development is crucial for teachers to adapt to the evolving educational landscape. Post-pandemic, teachers require training to effectively blend traditional teaching with new digital tools and methodologies. Institutions must support educators through targeted professional development programs focusing on blended learning strategies (Stoian et al., 2022).

The transition to e-learning has also highlighted the importance of support systems, including mental health resources, technical support, and professional development for educators to manage the new demands of online education (David & Ali, 2022; Madanat et al., 2023). Maintaining the quality of education, especially in practical and hands-on fields, remains a significant challenge.

Increased Workload and Stress

The transition to online and hybrid learning environments required significant pedagogical adjustments, which in turn increased teachers' workloads. Teachers were tasked with redesigning curricula and developing new instructional strategies to engage students in virtual settings. The study by Kanetaki et al. (2022) highlighted the additional burden on teachers to predict and support student performance in hybrid learning environments, emphasizing the need for simplified and sustainable teaching models.

Administrative policies requiring detailed documentation of student progress add to the workload and stress faced by teachers. These challenges have significant potential risks for students' learning outcomes, including academic underachievement and increased dropout rates (Ondras & Alvero, 2023). The findings highlight the urgent need for comprehensive support systems involving parents, school administrators, and the community to help mitigate these challenges and support teachers in their essential role of educating the next generation (Ondras & Alvero, 2023).

The post-COVID era saw teachers experiencing high levels of stress, anxiety, and burnout due to increased workloads and the need to constantly adapt to new safety measures and teaching formats (Chang, Gaines, & Mosley, 2022). The implementation of Transmission Control Measures (TCMs) in schools required additional planning and resources, further straining teachers' capacities.

Overlapping tasks, such as administrative duties and professional development, have left teachers with insufficient time to focus on remedial education. Additionally, the complexity of students' learning needs has posed a significant challenge, as many students returned with gaps in foundational skills like reading, writing, and numeracy (Ondras & Alvero, 2023).

Studies have shown that teachers experienced heightened stress and burnout during the pandemic, which has continued into the post-COVID era. The demands of managing both online and in-person instruction, along with the ongoing uncertainties, have significantly impacted teachers' mental health (Robinson et al., 2023). Teachers felt overwhelmed by the demands placed on them, with many working tirelessly with limited resources during prolonged periods of uncertainty (Fray et al., 2023). The physical and emotional exhaustion experienced by teachers during this time highlights the need for adequate support systems to ensure their well-being and sustainability in the profession.

Emotional, Psychological Effects, and Work-Life Balance

The lack of adequate support systems has exacerbated the challenges faced by teachers during the pandemic. Many educators felt isolated and unsupported as they navigated the complexities of pandemic-era education, highlighting the urgent need for robust support networks and mental health resources (Robinson et al., 2023). The abrupt shift to online teaching increased stress, anxiety, and burnout among teachers, who had to juggle professional and personal responsibilities simultaneously (David & Ali, 2022).

Research by AlAjlan and Ani (2023) found that the pandemic's psychological and social impacts on teachers and students were significant. Teachers observed increased anxiety and social awkwardness among students, hindering their ability to engage and participate in classroom activities. This aligns with findings from other studies on the emotional and psychological effects of online learning during the pandemic (Pawlack et al., 2022; Resnik & Dewaele, 2022).

The abrupt transition to online teaching and the ongoing uncertainties of the pandemic have taken a toll on teachers' mental health. Many educators experienced increased levels of stress, anxiety, and burnout due to the added workload and the pressure to meet new teaching demands. The literature reveals that teachers had to balance their professional responsibilities with personal challenges, such as caring for their own families and managing household disruptions while working from home. This dual burden exacerbated the emotional strain on educators, leading to a decline in their overall well-being (David & Ali, 2022).

The pandemic has had a significant impact on the emotional and mental well-being of both students and teachers. Teachers face the challenge of addressing these issues while managing their own stress and workload. Creating a supportive and empathetic classroom environment is essential for the successful transition back to face-to-face education (Stoian et al., 2022).

The integration of digital technologies into teaching has blurred the boundaries between work and personal life for many educators. The expectation to be constantly available for virtual meetings and communications can lead to burnout and stress. Finding a sustainable work-life balance is essential for teachers' well-being and effectiveness but remains a challenging goal to achieve (Schaufeli, Bakker, & Salanova, 2007; Palumbo, 2022).

Theoretical framework: Bronfenbrenner's Ecological Theory

Bronfenbrenner's Ecological Theory, initially developed in developmental psychology, has proven valuable in educational studies, particularly for creating better educational environments (Tong & An, 2024). This theory emphasizes the dynamic relationships between learners and their environments, challenging traditional research methods that rely solely on laboratory experiments (Bronfenbrenner, 1977). Bronfenbrenner advocated for a more holistic and ecologically valid approach to studying educational systems (Tong & An, 2024).

At its core, Bronfenbrenner's theory posits that teachers operate within a network of nested systems, ranging from direct, face-to-face settings to broader social and cultural contexts (Bronfenbrenner, 1993). These interconnected systems significantly influence teaching practices. The theory offers a nuanced framework that helps educators and policymakers understand and respond to the complexities inherent in education, particularly in international and intercultural settings (Tong & An, 2024).

Microsystem

The microsystem refers to the immediate environment in which teachers interact directly with students, colleagues, and subject matter experts (Bronfenbrenner, 1979). This level includes the physical and material characteristics that shape instructional practices. In the post-COVID-19 era, teachers face new dynamics within this microsystem, particularly in managing classroom interactions and adapting to hybrid learning environments. Balancing face-to-face and virtual interactions has become essential for maintaining effective teacher-student relationships and managing classroom time and workload.

Mesosystem

The mesosystem involves the interrelations between various microsystems, such as interactions between teachers, colleagues, administrators, and parents (Bronfenbrenner, 1994). These relationships are crucial for adopting innovative teaching practices. However, in the post-COVID-19 era, conflicting demands from different stakeholders, limited resources, and increased administrative responsibilities can hinder the implementation of new pedagogical approaches. For instance, integrating technology into lesson plans requires not only access to resources but also time for teachers to learn and implement new tools.

Exosystem

The exosystem encompasses external factors that indirectly influence teachers, such as school policies, funding, and professional development opportunities (Bronfenbrenner, 1994). Teachers in underfunded schools often struggle with a lack of resources, making it challenging to adopt innovative teaching methods. Additionally, changes in school leadership or policies can affect the support teachers receive for professional growth. The post-COVID-19 shift to online learning highlighted gaps in digital infrastructure, complicating teachers' efforts to effectively use technology in their classrooms.

Macrosystem

The macrosystem includes broader cultural and societal influences on education, such as national education policies, cultural attitudes towards technology, and socioeconomic factors (Bronfenbrenner, 1994). The post-COVID-19 era has underscored disparities in access to educational resources, with teachers in lower socioeconomic areas facing greater challenges. Cultural resistance to adopting new digital tools can also affect how teachers implement innovative practices. Navigating these broader influences is essential for teachers seeking to enhance student learning.

Bronfenbrenner's ecological systems theory provides a comprehensive framework for understanding the challenges faced by intermediate school teachers, particularly in the post-COVID-19 era. The theory highlights the complex dynamics within the microsystem, mesosystem, exosystem, and macrosystem that shape teaching practices. By recognizing and addressing these interconnected challenges, educators can better support teachers in integrating technology and adopting innovative pedagogical practices, fostering a resilient and effective educational environment.

Methodology

To gain a comprehensive understanding of the current landscape, secondary analysis was employed before collecting primary data via questionnaires. Given the novelty of the research topic, secondary analysis provided crucial background context, helping to identify existing information and fill knowledge gaps (Wickham, 2019). This approach supplemented the researcher's learning and added depth to the study.

In this research, secondary analysis (literature review) was integrated with primary research. As an initial step, secondary research highlighted areas where additional primary data collection was necessary. This approach ensured that specific information could be uncovered and that the findings from primary research could be supported or verified. By comparing secondary data with the results from the questionnaires, this study aims to triangulate the data and thoroughly address the research questions.

Research Questions

What are the primary challenges faced by school teachers in Kuwait during the transition from traditional face-to-face teaching to online learning amidst the COVID-19 pandemic?

How can the application of Bronfenbrenner's ecological systems theory inform the development of effective strategies to support teachers in adapting to the post-pandemic educational landscape?

To address these questions, a mixed-methodology approach was employed, combining secondary data collected through literature reviews and primary data collected from questionnaires.

Research Design

The study employed a cross-sectional design to collect primary data from intermediate school teachers. The questionnaire which is based on Bronfenbrenner's ecological systems theory. The responses were analyzed using descriptive statistics, reliability analysis (Cronbach's alpha), and cluster analysis to identify patterns within the data. The questionnaire items were categorized into four clusters representing the microsystem, mesosystem, exosystem, and macrosystem.

Justification for the use of cross-sectional study

A cross-sectional study design is a type of observational study, or descriptive research, that involves analyzing information about a population at a specific point in time (Simkus, 2023). This design measures the prevalence of an outcome of interest in a defined population. It provides a snapshot of the characteristics of the population at a single point in time. Although the cross-sectional design is often used for descriptive prevalence studies (Simkus, 2023). Results from the cross-sectional design are merely associations, and they do not imply causation (Li et al., 2018). However, these caveats do not necessarily dismiss the utility of cross-sectional studies.

Data Collection and Analysis

The data for this study was collected using a structured questionnaire. The questionnaire was designed to capture self-reported information from participants on various aspects of their experiences and perceptions related to the study topic. The questionnaire included both closed-ended questions, allowing for quantitative analysis, and a few open-ended items to capture additional qualitative insights.

The collected data was analyzed using a range of statistical techniques to provide a comprehensive understanding of the results:

Descriptive statistics, including frequency distributions, means, and standard deviations, were utilized to summarize the demographic characteristics of the participants and their responses to the questionnaire items. These statistics provided an initial overview of the data, highlighting central tendencies and variability.

To explore the data within the framework of Bronfenbrenner's ecological systems theory, System-Level Comparisons were conducted. This involved calculating the average mean scores for different ecological systems (Microsystem, Mesosystem, Exosystem, Macrosystem) to determine which system was most impacted. Additionally, standard deviations were compared across systems to assess variability and consensus among respondents.

Principal Component Analysis (PCA) was applied to reduce the dimensionality of the data and identify key components that explained the variance in responses. This technique helped in simplifying the dataset and highlighting the most influential factors in the respondents' experiences.

Cluster analysis was performed to identify groups of respondents with similar response patterns. This method allowed for the segmentation of the participant pool into distinct clusters, providing deeper insights into different respondent profiles and how they relate to the study's key variables.

Results

Demographic data

Frequency distribution was used to examine the demographic data.

The following bar chart (Figure 1) shows the gender distribution among the participants. Out of 182 participants, 29.1% are male, and 70.9% are female.

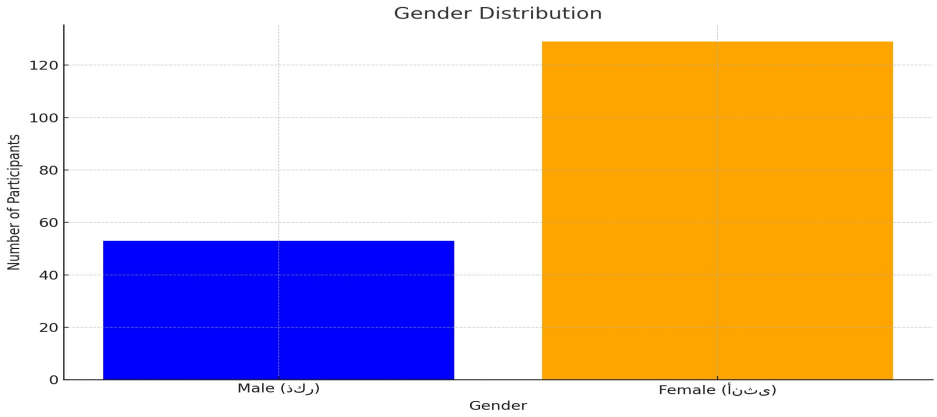

Figure 1. Gender Distribution

The following bar chart shows the teaching stage distribution among the participants. Out of 182 participants, 26.4% teach at the primary level, 45.6% at the intermediate level, and 28.0% at the secondary level.

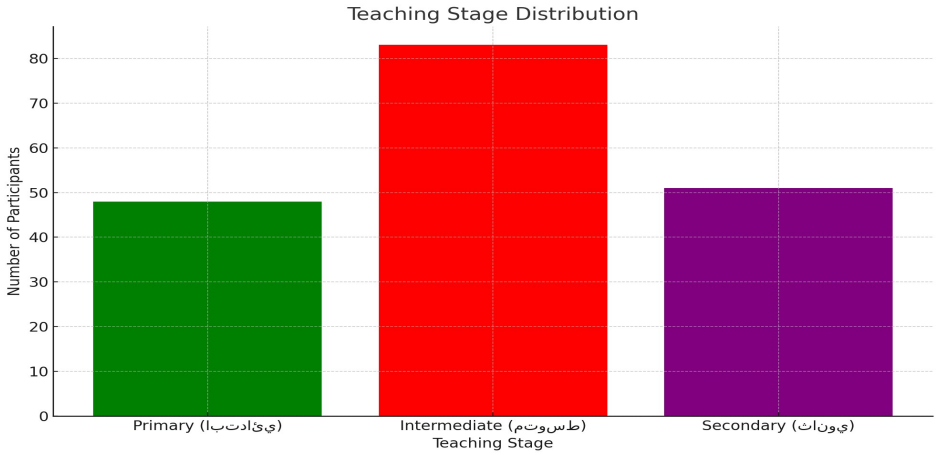

Figure 2. Teaching Stage Distribution

Descriptive Statistics

Descriptive statistics were calculated to summarize the central tendency and dispersion of the responses (Table 1). The mean and standard deviation for each question is presented below.

Table 1. Descriptive statistics

	Items clustered using Bronfenbrenner's ecological systems	Mean	SD
	Microsystem		
1	I encounter specific challenges while migrating to online learning for arts, science, electricity, and home economics.	4.08	0.67
2	The lack of face-to-face interaction in virtual classrooms hinders my ability to teach practical subjects effectively.	3.77	0.91
3	The absence of non-verbal communication in virtual settings affects my overall communication with students.	3.59	1.08
4	Not being able to see all students simultaneously in a virtual environment presents significant challenges.	3.75	0.98
5	Managing diverse teaching methods, including both digital and face-to-face interactions, is difficult.	3.79	0.92
6	Adjusting to the coordination of digital and face-to-face interactions has increased my workload.	3.76	0.90
7	The use of digital materials has facilitated more individualized teaching.	4.23	0.68
8	My traditional classroom setup is particularly well-suited for teaching electricity, arts, home economics, and science.	3.92	0.82
9	I have adapted my teaching methods to effectively teach electricity, arts, home economics, and science in the post-COVID-19 era.	4.19	0.70
10	I am effectively adjusting my teaching methods to suit the online learning environment.	4.01	0.67
11	The shift to online learning has affected student engagement in my specific subject classes.	3.95	0.76
12	There are significant differences in student participation compared to traditional classroom settings.	3.84	0.73
13	The transition to online teaching has impacted my well-being as a teacher.	3.91	0.65
14	I need strategies to maintain my mental	3.93	0.70

4	and emotional health in the post-pandemic era.	.878	.975
	Mesosystem		
15	Virtual classrooms provide valuable educational experiences through interaction between students and teachers.	.779	.902
16	The flexibility of virtual classrooms reduces peer pressure and gives students more autonomy.	.944	.662
17	My teaching experience before the pandemic has significantly influenced my current teaching approach.	.810	.100
18	I am overcoming both technological and pedagogical challenges in delivering online lessons.	.776	.861
19	I handle assessments and feedback effectively in online teaching environments for my specific subjects.	.779	.902
20	I have developed successful strategies for assessments and feedback in the post-COVID-19 era.	.775	.958
21	The flexibility of virtual classrooms enables learning to take place anytime and anywhere.	.779	.902
	Exosystem		
22	Incorporating written resources and website links in real-time is effective in virtual classes.	.775	.958
23	The use of social media and interactive technology enhances the learning experience in virtual classes.	.141	.772
24	I face technological barriers when delivering online lessons for specific subjects.	.405	.870
25	The shift to online learning has impacted the learning outcomes of students in specific subjects.	.409	.873
26	Continuous professional development is essential to better support teachers in the post-COVID-19 era.	.161	.771
	Macrosystem		
27	The broader societal context has influenced my ability to integrate technology into my teaching practices.	.402	.876
28	National education policies impact my implementation of innovative teaching methods.	.933	.772
29	Cultural attitudes towards technology use in education affect how I teach my subjects.	.939	.038

		6	3
3 0	The overall educational agenda influence my teaching strategies.	3 . 8 8	0 . 7 0

Reliability Analysis

Reliability analysis was conducted using Cronbach's alpha to determine the internal consistency of the questionnaire items within each cluster. The Cronbach's alpha values for the microsystem, mesosystem, exosystem, and macrosystem were 0.85, 0.88, 0.82, and 0.81, respectively. According to conventional standards, a Cronbach's alpha value above 0.7 indicates acceptable reliability, while values above 0.8 are considered good. Therefore, the questionnaire demonstrates good reliability across all clusters, indicating that the items within each cluster consistently measure the same underlying constructs.

System-Level Comparisons

A comparison across different ecological systems was carried out. The table below summarizes the average mean scores and standard deviations for each system, which were calculated from the provided dataset. This comparison helps identify which ecological system is most impacted and where the most variability in responses occurs.

Table 2. System-Level Comparisons

System	Average Mean	Average SD
Exosystem	4.04	0.77
Macrosystem	3.95	0.75
Mesosystem	3.66	0.90
Microsystem	3.90	0.82

The data shows that the Exosystem has the highest average mean score, suggesting it is the most impacted system (Figure 3). The Mesosystem has the highest average standard deviation, indicating more variability and less consensus among responses within this system. These insights could inform strategies for addressing the challenges associated with each system in the context of online learning and teaching.

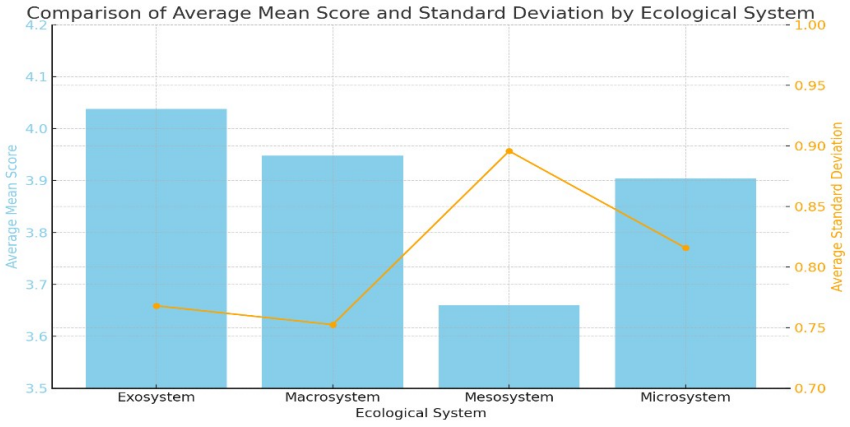

Figure 3. System-Level Comparisons

Cluster Analysis

Cluster analysis was performed to identify distinct groups of teachers based on their responses. The data were standardized, and Principal Component Analysis (PCA) was used for

dimensionality reduction to facilitate visualization. Subsequently, K-Means clustering was applied, which identified four distinct clusters. Each cluster corresponds to one of Bronfenbrenner's systems, offering insights into the specific challenges and needs of teachers within each ecological context. The scatter plot below (Figure 4) shows the results of the cluster analysis using K-Means and PCA.

Figure 1: PCA and KMeans Clustering

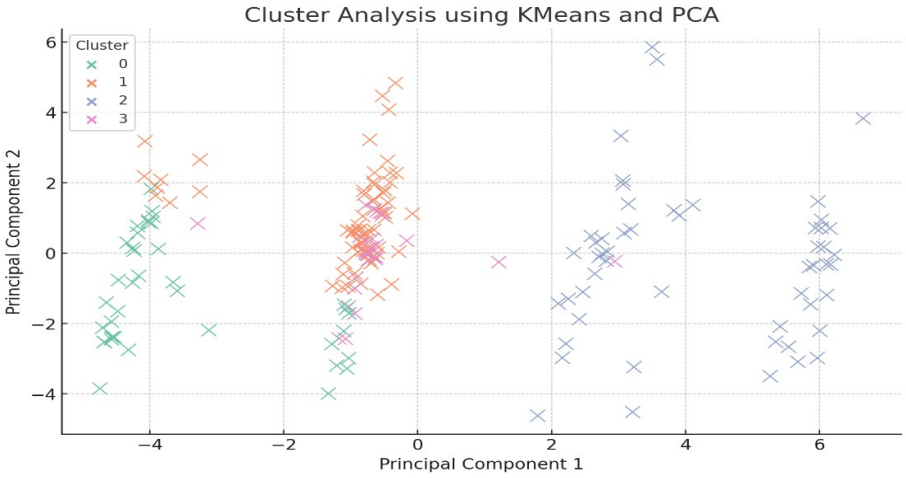

Figure 4. K-Means Cluster Analysis

Cluster 1: Microsystem
The first cluster comprises teachers who face significant challenges in transitioning to online teaching. These challenges include difficulties in virtual classroom management, lack of face-to-face interaction, and the impact on their well-being. Teachers in this cluster report high levels of stress and frustration due to the abrupt shift to online environments. The reliability of the microsystem cluster (Cronbach's alpha = 0.85) indicates that the questionnaire items consistently capture the nuanced difficulties within this immediate environment. These teachers need additional training on virtual classroom management, mental health support, and strategies for effective online communication and engagement to mitigate these challenges.

Cluster 2: Mesosystem
The second cluster includes teachers who have adapted relatively well to online teaching. They effectively use digital materials and have developed strategies for assessments and feedback. This cluster values the interaction between students and teachers facilitated by virtual classrooms. The high Cronbach's alpha value (0.88) for this cluster suggests that the items reliably measure the interconnected experiences within the mesosystem. Continued professional development and opportunities to share best practices and mentor other teachers are essential for supporting these teachers. They also require assistance in integrating more advanced digital tools and resources into their teaching practices.

Cluster 3: Exosystem
The third cluster consists of teachers who view the shift to online learning more positively, noting reduced peer pressure and increased autonomy for students. These teachers experience fewer technological issues but are more concerned with broader systemic or policy-related aspects that affect their teaching. The reliability of the exosystem cluster (Cronbach's alpha = 0.82) confirms the consistency of the questionnaire items in capturing the external influences on teaching practices. Encouragement for innovative teaching methods, engagement with policymakers, and continued access to interactive digital technologies are crucial for these teachers.

Cluster 4: Macrosystem
The fourth cluster includes teachers influenced by societal attitudes and national education policies. They feel constrained by systemic issues rather than immediate classroom challenges. The Cronbach's alpha for the macrosystem cluster (0.81) indicates good reliability in measuring the broader context's impact on teaching practices. Advocacy for changes in educational policies, support for addressing cultural attitudes towards technology, and resources to navigate and influence the broader educational agenda are necessary for these teachers.

General Insights

The cluster analysis reveals that teachers' challenges and needs vary significantly depending on their ecological context. Microsystem challenges involve direct classroom management and student engagement issues. Mesosystem interactions emphasize the value of virtual classroom experiences and the importance of professional development. Exosystem support focuses on overcoming technological barriers and advocating for systemic changes. Macrosystem influences highlight the impact of societal attitudes and educational policies on teaching practices.

Employing a grounded theory approach enabled the identification of procedural modes, forms of support, and types of resolution encountered in the challenges faced by intermediate school teachers in the post-COVID-19 era. Cluster analysis provided a framework that streamlined the data, making it more manageable (Macia, 2015). This new analytical structure allowed for a thorough re-examination of the data, highlighting overarching concerns and considerations that teachers might have had when dealing with various challenges and stakeholders. This framework was instrumental in identifying themes that were meaningful both within and across different cases.

Discussion of Findings

The study's findings offer critical insights into the challenges faced by Kuwaiti school teachers in the post-COVID-19 era, particularly through the lens of Bronfenbrenner's ecological systems theory. These findings are best understood in the context of the existing literature, which helps frame the broader implications of these challenges on educational practices.

Exosystem: Broader External Influences
The Exosystem, representing external factors like school policies, professional development opportunities, and technological infrastructure, emerged as the most impactful system in this study. This finding is consistent with the literature, which highlights the significant influence of educational policies and infrastructure on teachers' ability to adapt to new teaching environments. For instance, Zancajo et al. (2022) discuss how the rapid push towards digitalization during the pandemic exposed critical gaps in resources and support, which directly impacted teachers' ability to effectively implement online learning.

Furthermore, the emphasis on policy-related challenges aligns with the work of Zhao & Xue (2023), who argue that the lack of cohesive and supportive policies during the post-pandemic transition has left many teachers struggling to integrate new technologies into their teaching practices. This underscores the need for systemic support and well-developed policies that consider the practical realities faced by educators.

Macrosystem: Societal and Cultural Context
The Macrosystem, which includes broader societal and cultural influences, also had a significant impact on teachers. The findings suggest that societal attitudes towards technology and education, as well as national education policies, have constrained teachers' ability to innovate and adapt. This is consistent with the literature, particularly the work of David & Ali (2022), who highlight how cultural resistance to change can hinder the adoption of new teaching methods.

In many cases, societal expectations and cultural norms around education have not evolved as rapidly as the technological advancements necessitated by the pandemic. This mismatch has placed additional pressure on teachers, who must navigate these broader societal influences while trying to implement effective educational practices.

Mesosystem: Interactions and Support Networks

The Mesosystem, which involves interactions between teachers, colleagues, administrators, and parents, was found to be highly variable in its impact. This variability suggests that some teachers benefited from strong support networks, while others experienced isolation and a lack of collaboration. The literature supports this finding, with Rahayu & Wirza (2020) noting that institutional support and collaborative networks are crucial for teachers as they adapt to new methods of instruction.

The challenges in the Mesosystem are particularly relevant when considering the sudden and often uncoordinated shift to online learning. As Fray et al. (2023) observe, the degree to which teachers were supported by their colleagues and institutions played a critical role in their ability to manage the transition and maintain effective teaching practices.

Microsystem: Classroom Dynamics
The Microsystem, focusing on the immediate classroom environment, highlighted significant challenges related to maintaining student engagement and managing classroom dynamics in virtual settings. These challenges are well-documented in the literature. Tarc (2020) and Besser, Lotem, & Zeigler-Hill (2020) emphasize how the lack of non-verbal cues and real-time feedback in online environments has made it difficult for teachers to effectively gauge student comprehension and engagement, leading to increased stress and reduced teaching effectiveness.

Moreover, the abrupt transition to online learning disrupted the traditional teacher-student relationship, making it harder to establish and maintain the personal connections that are crucial for effective teaching. This disruption, as noted in the literature, has had a profound impact on both teachers' well-being and students' learning outcomes.

In conclusion, the findings of this study, when viewed in light of the existing literature, highlight the intricate interplay between different ecological systems in shaping teachers' experiences during the transition to online learning in the post-COVID-19 era. To address these challenges effectively, it is essential to develop targeted interventions that support teachers at all levels—ranging from the classroom to the broader societal context. By doing so, educational stakeholders can help create a more resilient and adaptable educational system that is better prepared for future disruptions.

Limitations

Limited Scope of Educational Systems: he experiences and challenges of teachers in public schools may differ significantly from those in private schools. Private schools often have different resources, curricula, and administrative support, which can affect teaching effectiveness and adaptation to post-COVID-19 challenges.

Cultural and Regional Specificity: The study's findings are specific to Kuwait and may not be applicable to other countries or regions with different educational policies, cultural norms, and responses to the COVID-19 pandemic.

Homogeneity of the Sample: Since the sample includes only public school teachers, the data may not capture the diversity of experiences and challenges faced by teachers in different types of schools (e.g., private, international, special education).

Generalizability: The findings may not be generalizable to all teachers, particularly those in private schools or in different countries. Be cautious when extrapolating results beyond the studied population.

Subjectivity: The data is based on self-reported responses, which can be subjective and influenced by personal biases or current mood.

Honesty and Accuracy: Participants may not always respond honestly or may interpret the Likert scale differently, affecting the accuracy of the data.

Generalizability: Findings may be specific to the context in which the study was conducted (e.g., specific educational systems, regional practices) and might not be generalizable to other settings.

Analysis Limitations: The regression model explains about 39.6% of the variance in teaching effectiveness, indicating that other unmeasured factors might be influencing the outcomes.

Potential Confounding Variables: There may be other variables not included in the survey that affect teaching effectiveness (e.g., personal circumstances, school resources).

Policy Recommendations

Policy recommendations based on this study should consider that they are tailored for the public school system in Kuwait. Private schools or schools in other regions might require different approaches and solutions.

Recommendations for Practice

Develop Resilient and Adaptable Educational Systems: Educational institutions should proactively prepare for future disruptions by building systems that are resilient and adaptable. This preparation includes significant investments in technology, the development of comprehensive e-learning strategies, and fostering a culture of continuous improvement and innovation in teaching and learning. These actions will help ensure that institutions can maintain high-quality education, even in the face of unforeseen challenges (Croucher & Locke, 2020).

Emphasize Distance Education as a Viable Alternative: Recognizing the ongoing importance of distance education, educational institutions must continue to refine their use of technology to bridge the gap between educators and learners. This approach is essential for ensuring that education can continue uninterrupted, regardless of circumstances, and that learners have access to the resources they need to succeed (UNESCO, 2020).

Provide Ongoing Support and Training for Teachers: To facilitate the effective integration of technology into teaching practices, it is crucial to offer continuous support and professional development for teachers. This training should focus on enhancing teachers' digital pedagogy skills and enabling them to utilize technology effectively in their classrooms. Additionally, further research should be conducted to explore the long-term impacts of distance education on both teachers and students. Comparative studies among Gulf Cooperation Council (GCC) countries could also provide valuable insights and help share best practices (Al-Houli et al., 2022).

Enhance Digital Pedagogy and Curriculum Adjustments: Teachers should receive enhanced training in digital pedagogy to ensure they are equipped to deliver effective online education. Curricula may need to be adjusted to prioritize essential language skills, particularly in the context of online learning. Implementing interactive and engaging assignments is also recommended to boost student motivation and engagement.

Address Psychological and Social Impacts: It is critical to address the psychological and social impacts of the pandemic on students, such as increased anxiety and social awkwardness. Educational institutions should implement strategies to support students' mental health and social well-being. By focusing on these areas, educators can help mitigate the adverse effects of the pandemic on language learning and support students in regaining their proficiency in English

Future Research

Future studies should aim to include a broader range of participants, including teachers from private schools and other regions, to provide a more comprehensive understanding of the challenges and adaptations in the education sector post-COVID-19. This could include studies that include private school teachers to compare and contrast the challenges and adaptations between public and private schools. The research can be expanded to include teachers from different countries to understand how regional differences influence the post-COVID-19 teaching landscape. Conducting longitudinal studies will enable tracking changes over time and identifying long-term trends and outcomes in teaching effectiveness and well-being. Using a mixed-methods approach by incorporating qualitative data (e.g., interviews, focus groups) to gain deeper insights into the experiences and perspectives of teachers could be another alternative.

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