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Empowering E-learning: Solutions for Educational Continuity in the UAE during COVID-19

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Abstract: The COVID-19 pandemic resulted in extended school closures and unexpected disruptions to educational processes. The education system in the UAE was compelled to respond rapidly to ensure continuity of learning. This study investigates the impact of remote learning on the performance of educational institutions. Data were gathered from 307 schoolteachers and administrators across the UAE, and the empirical data were analysed using JASP version 0.19.0.0. The findings demonstrate that remote learning significantly influenced institutional performance within the UAE's education sector. The study offers recommendations for improving learning outcomes and fortifying the education system against future crises, providing valuable insights for policy formulation during emergencies.

Keywords: remote learning; distance learning; traditional classroom; educational institutes.

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1. Introduction

The coronavirus (COVID-19) was first identified on December 8, 2019, with its origin traced to Wuhan, China. However, public reporting of the virus did not occur until later that year (Lester et al., 2020). In the United Arab Emirates (UAE), the first confirmed case was recorded on January 29, 2020 (Moonesar et al., 2020). Following this initial case, the number of confirmed cases steadily increased. Consequently, global measures were implemented to curb the spread of the virus. In the UAE, a series of orders, laws, regulations, and directives were swiftly enacted to mitigate public anxiety, ensure safety, and maintain the healthcare sector's capacity to meet the rising demand (Moonesar et al., 2020).

The COVID-19 pandemic will be historically remembered as a critical global event that significantly disrupted nearly every facet of life. It emerged as a life-threatening illness, compelling individuals to drastically modify their daily routines to minimize the risk of infection (Temel et al., 2023). Shortly after the first confirmed case, healthcare professionals took the lead in educating the public about necessary precautions, particularly emphasizing the importance of social distancing (Srivastav et al.). Due to the highly infectious nature of the virus, which spread through physical contact, many countries adopted social distancing measures (Shamimi Abdul Aziz et al., 2023). However, the implementation of these measures varied according to local conditions and available resources, influencing the methods and channels used for public health interventions.

Despite the stringent social distancing policies, many educational institutions did not completely eliminate face-to-face teaching (Aderibigbe et al., 2023). However, these schools were required to implement significant modifications to their daily operations, ensuring compliance with updated hygiene standards and distancing regulations. According to the Survey on Responses to Educational Disruption (REDS), it was estimated that during the peak of school closures in early April 2020, over 90% of students globally were affected. This figure rose further when, by August 2020, students in more than 108 countries were unable to attend in-person classes. The aforementioned facts highlight the significant disruptions caused by the stringent measures implemented to mitigate the devastating effects of the COVID-19 pandemic. These measures posed considerable challenges for schools in monitoring students' academic progress. In response, educational institutions adopted alternative approaches, such as home-schooling and remote learning (Alarabi et al., 2022). Consequently, various pedagogical adjustments were introduced. For example, schools provided students with free access to internet resources, broadcast educational content via public media platforms such as radio and television, and distributed homework assignments in print form (Liao, 2023). As in other regions, the COVID-19 pandemic significantly impacted education in the UAE, necessitating the transition of many schools to virtual learning. In this context, students and teachers primarily interacted through digital platforms and internet-based communication (Chaaban et al., 2022). Public perceptions of the impact on the UAE's education sector during the pandemic vary, with debates arising over whether COVID-19 led to a disruption of educational institutions or merely an interruption of regular schooling. This study aims to investigate whether schools experienced disruption or interruption during the pandemic, while also exploring its effects and the mitigation strategies implemented.

This study investigates the impact of remote learning on the performance of educational institutions in the UAE. Data were collected from 307 schoolteachers and administrators,

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and the empirical analysis was conducted using JASP version 0.19.0.0. The findings indicate that remote learning significantly influences the performance of educational institutions in the UAE. Based on these results, the study offers recommendations for improving learning outcomes and strengthening the education system to better respond to future crises. Additionally, the study provides guidance for more effective policy responses during emergencies. The paper is organised into sections covering the literature review, methodology, data analysis, and discussion, followed by implications and directions for future research.

2. Review of Literature

2.1 The Impact of COVID-19 on Education

To this point, it is evident that the COVID-19 pandemic caused abrupt changes in various aspects of human life. In the education sector, policymakers and other key stakeholders were compelled to alter instructional methods (Pham & Hanh, 2023). Nearly every country implemented restrictions on public activities in response to the pandemic, including work-from-home policies, travel bans, and the closure of schools and workplaces. These measures had a profound impact on students' daily lives globally. With adequate support, adapting to these changes might have been easier, given the unpredictability of many aspects of daily life (Chaaban et al., 2022). Moreover, international students expressed concerns that the pandemic would have prolonged negative effects on their education, leaving them uncertain about managing both domestic and international challenges (Jia et al., 2022). Studies also revealed that students worldwide agreed that missing out on peer interactions was a significant issue (Garris & Fleck, 2022). However, nearly 50% of these students reported having at least one teacher they felt comfortable seeking help from.

The COVID-19 pandemic caused emotional challenges for educators, though many developed coping mechanisms and found some success. In over 70% of countries, more than 65% of teachers reported balancing work and personal responsibilities, with the work-from-home policy offering flexibility and autonomy (Chaaban et al., 2022). Many teachers appreciated the increased interaction with colleagues in this new setting (Besser et al., 2022). However, widespread uncertainty led to confusion, affecting both teachers and students (AlJhani et al., 2022). In the UAE, institutions shifted to distance learning following closures (Li & Che, 2022), raising questions about whether the pandemic caused educational disruption or interruption (Alismaiel et al., 2022). Understanding these effects is crucial for future preparedness and evaluating responses in the education sector.

2.2 Technical Hurdles and Human Solutions

There remains an inquiry into the specific measures schools have implemented to ensure students are prepared to resume regular schooling following the disruption. This concern is crucial due to its implications for future teaching and learning (Li & Che, 2022). A strong link exists between the actions taken during the disruption and future educational practices. Examining how schools managed during the pandemic is essential for preparing for similar future crises (Huang & Zhang, 2022). The rise of remote learning has been seen as a key strategy for instructional adaptation, with increased technical support to ensure its effectiveness. Teachers adapted their methods to enable learning

during the crisis, though their success was heavily dependent on the support provided by educational leaders (Alqahtani et al., 2022). For instance, education departments frequently supplied resources to help schools transition successfully (Sarfraz et al., 2022).

It is essential to investigate the various experiences and actions of leadership entities that, as previously noted, played a critical role during periods of disruption. In the UAE, several notable efforts by leaders are worth highlighting (Zhang et al., 2022). These initiatives aimed to enhance teachers' professional development and knowledge, enabling them to provide optimal instruction and support. Leadership is expected to take a prominent role during crises, as leaders are responsible for guiding curriculum changes in response to current challenges affecting education. According to Chaaban et al. (2022), leaders must oversee any alterations and ensure the adoption of appropriate teaching practices. However, the transition to distance education encountered limitations, primarily due to the slow pace of technological advancement (Veluvali & Surisetti, 2021). Many schools experienced delays in adapting to online education as key stakeholders struggled to navigate the technical challenges involved. With adequate technological support, schools could have transitioned more efficiently and successfully implemented virtual learning. In the absence of such support, some institutions were forced to suspend learning, resulting in students remaining at home and missing interaction with their teachers (Adeyeye et al., 2022). Therefore, educational and technical support were fundamental conditions for the successful implementation of online instruction.

2.3 Adapting to Remote Learning in the UAE During COVID-19

The outbreak of COVID-19 accelerated the adoption of virtual learning, necessitating the availability of resources to enhance this educational approach. Initially, most educators and institutions believed that traditional classroom methods could not be effectively replaced. While the shortcomings of traditional strategies were acknowledged—particularly their high costs and inflexibility regarding time (Hehir et al., 2021)—critical stakeholders in education began to embrace remote learning despite various challenges. Their perceptions of its effectiveness shifted significantly, with many considering it the preferred method prior to the conclusion of closures (Parker et al., 2021). In response to school closures and the emergence of new distance learning programmes, schools were compelled to revise their communication strategies with families and guardians (Petillion & McNeil, 2020). Prior to the COVID-19 disruption, classroom teaching and student learning were increasingly digitised. The pandemic underscored the necessity for educational organisations to adopt digital communication more extensively (Wallace et al., 2021). Consequently, institutions have progressively transitioned to internet-based resources for information dissemination and monitoring of student progress.

The transition to online instruction was adopted by the majority of schools in the UAE, a necessary measure aimed at maintaining social distancing protocols. This shift presented significant challenges, with some stakeholders expressing concerns regarding issues of inequality and inadequate preparation, particularly for students in rural areas (Gomez et al., 2020). Despite facing common obstacles such as limited internet access and insufficient resources, institutions that effectively implemented virtual education managed to sustain teaching and learning throughout the crisis (Nguyen et al., 2021). Moreover, Ho et al. (2021) emphasized the importance of parental involvement during this transitional period, as parents were expected to oversee their children's education while they engaged in remote learning.

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2.4 The Pandemic's Impact on Student Performance and Teacher Support

The integration of digital platforms and the Internet into the learning and teaching process represented a novel approach for most educators and students, given the traditional reliance on physical classroom environments worldwide. However, the challenges previously outlined resulted in inefficiencies in the learning process for both learners and instructors. Consequently, the academic experience suffered significantly due to the disruption of educational activities (Khlaif et al., 2021). Research indicates that many individuals faced emotional difficulties, including stress stemming from health issues and social restrictions (Pretti et al., 2020). Additionally, numerous students encountered difficulties in effectively engaging with online learning modalities (Giltenane & Dowling, 2024). Unlike the structured oversight typically provided by teachers in face-to-face classrooms, parents were often unable to adequately monitor their children's online learning experiences (Venton & Pompano, 2021).

To some extent, the online instruction provided was inadequate, leading to diminished academic performance among students, as evidenced by lower graduation rates and subpar test scores (Sutherland et al., 2022). Nevertheless, there is reason for optimism, as students' educational outcomes appear to improve with increased familiarity with remote learning environments (Toding et al., 2023). It is imperative for all stakeholders in school leadership to establish appropriate procedures that facilitate familiarity with essential technological tools. Giltenane and Dowling (2024) suggest that implementing flexible instructional schedules along with training for both teachers and students is crucial to ensuring a consistent application of learning strategies across all participants. The experiences encountered during the pandemic have reignited discussions regarding the importance of the teacher-student relationship. Chiu et al. (2024) indicate that positive interactions between teachers and students can significantly enhance academic, behavioural, and emotional development. Many students in the UAE agreed on the importance of teachers' timely availability for assistance, with a substantial number reporting a clear understanding of the feedback received from their instructors. Furthermore, research by Chaaban et al. (2022) revealed that at least sixty percent of students felt their teachers provided additional support to facilitate their learning.

2.5 Shifting Practices for UAE Teachers During the Pandemic

The outbreak of COVID-19 was unforeseen, revealing that many teachers were ill-prepared due to a lack of opportunities to enhance their technical competencies. As the pandemic unfolded, educators had no choice but to adapt their skills to accommodate new approaches and pedagogies (Nguyen et al., 2021). It is important to note that most schools and institutions lacked prior experience in distance learning. Consequently, many teachers were compelled to engage in professional development throughout the pandemic (Pretti et al., 2020). Thus, the effectiveness of learning was notably diminished in the initial stages of the global crisis. However, instructional practices improved significantly as teachers began to expand their knowledge and skills (Venton & Pompano, 2021). Prior to the disruption, teachers in the UAE generally had better access to professional training compared to their counterparts in other countries.

The outbreak of COVID-19 resulted in widespread and abrupt school closures, necessitating that the few remaining operational institutions seek alternatives to traditional teaching methods and ensure that students had access to essential educational

resources. Research indicates that over 50% of students in the UAE utilised at least video conferencing tools and computers to study and engage with others for educational purposes (Chaaban et al., 2022). During this period, more than 65% of students reported using other online platforms, such as email, to share information (Chaaban et al., 2022). However, opportunities for personalised video conferencing meetings with teachers were limited (Nguyen et al., 2021). Furthermore, according to Chaaban et al. (2022), 52% of students in the UAE indicated that they collected materials directly from their institutions rather than receiving them by mail. This situation suggests that many teachers encountered significant challenges in transitioning to distance learning, particularly concerning the provision of feedback on students' assignments.

For example, one study investigated how teachers provided feedback to students regarding their assignments during the pandemic (Chaaban et al., 2022). It was observed that remote educators in the UAE became increasingly inclined to offer oral feedback to their students during class, either in small discussion groups or in private settings. Furthermore, this feedback increasingly included students' perceived performance on practical tasks (Khlaif et al., 2021). Teachers in the region who utilised virtual classrooms reported delivering more digital feedback to their students compared to the previous year (Wallace et al., 2021). The findings from these studies highlight a significant challenge associated with this transition: the lack of a comprehensive understanding of what constitutes an effective online learning environment (Ho et al., 2021). Moreover, the unexpected onset of the pandemic meant that many educators had not adequately prepared for the demands of distance learning (Gomez et al., 2020). Another critical aspect to consider is the inadequate infrastructure present in many schools.

Many students faced challenges in obtaining laptops and reliable internet connectivity to maintain communication with their lecturers. The lack of support materials, such as e-books and study guides, hindered the transition to e-learning. Numerous students and teachers expressed dissatisfaction with this approach, citing insufficient assistance and its overall ineffectiveness. Consequently, resistance from schools delayed the proper implementation of the new strategy (Petillion & McNeil, 2020), leading to a lack of engagement and poor test scores. However, the model was ultimately well-received by many stakeholders due to its effectiveness and ease of use, with opposition diminishing as schools established the necessary infrastructure to support distance education.

2.6 Mitigating Strategies in the UAE

The UAE has made significant strides in addressing the challenges posed by the COVID-19 outbreak. This is evident in the manner in which numerous institutions adopted both online and on-campus learning while strictly adhering to established regulations (Hehir et al., 2021). In this context, most schools acknowledged the circumstances and gradually began to provide academic and emotional support for students. Consequently, distance learning systems were implemented, and educational institutions adopted instructional methods to facilitate the abrupt transition to virtual learning. These mitigation strategies have significantly supported learning during the pandemic (Parker et al., 2021). Chaaban et al. (2022) report that some teachers in the region effectively transformed the challenges posed by the pandemic into opportunities, embracing e-learning following school closures. As schools shut down, students were required to continue their education from home. Regulatory bodies, such as educational departments, swiftly acted to oversee online education, make informed decisions, and

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supply necessary instructional materials. The success of this teaching approach can be attributed to the collaboration among various stakeholders, facilitated by effective educational leadership in the region (Chaaban et al., 2022).

Despite their initial unfamiliarity with teleconferencing programs and related equipment, most students accepted and embraced the shift to virtual education. However, many learners, particularly in rural areas, face challenges accessing the Internet, a critical prerequisite for online instruction. Successful implementation of these internet-based educational methods requires collaboration among all stakeholders to ensure that every student has access to the necessary resources and expertise for digital learning. While acknowledging the drawbacks, it is essential to maintain flexibility to provide each student with a high-quality education (Alarabi et al., 2022). Teachers should adopt a student-centred approach to competency development, ensuring that educational needs are met through appropriate scheduling for ease of access. Furthermore, while practical assignments require visual oversight to verify proficiency, theoretical knowledge must be acquired through digital mediums. Teachers can develop strategies that promote student engagement, enhance knowledge acquisition, and provide adequate support (Alqahtani et al., 2022).

As previously noted, the conclusion of the pandemic has highlighted the ongoing necessity for collaboration among all stakeholders in the field of education. In essence, a holistic educational experience can be achieved through the cooperative efforts of teachers, students, parents, and other relevant parties (Sarfraz et al., 2022). Given that many universities have transitioned entirely to online learning, remote education will continue to play a significant role in the classroom. However, students will require targeted support even after the pandemic to help them recover lost learning time and readjust to their educational environments (Zhang et al., 2022). The inadequate infrastructure during the pandemic contributed to many students missing classes, underscoring the need for teachers to adapt their teaching strategies and schedules to facilitate students in catching up on missed content. Based on this discussion, the following hypothesis is proposed.

H1: There is a relationship between remote learning and educational institutions performance.

3. Methodology

This study aimed to examine the relationship between remote learning and the performance of educational institutions in the UAE, using a sample of schoolteachers and administrators to analyse the findings. The sample size was determined based on the recommendations of previous research. Hair et al. (2011) suggest that a smaller sample size is sufficient to analyse data and test relationships between variables. A cross-sectional method was employed to gather data, consistent with prior studies that utilised this approach to assess variable relationships. Additionally, the study adopted a simple random sampling technique, which is effective when the entire population shares similar characteristics and provides reliable data for researchers. The study employed scale items from prior research to measure its variables, with these items identified as significant based on previous findings. Sekaran and Bougie (2016) assert that an instrument is suitable for future studies if it achieves reliable coefficients, such as Cronbach's alpha. This study verified that the scale items from the source studies met the requisite Cronbach's alpha thresholds, confirming their reliability for data analysis.

A total of 500 questionnaires were disseminated, generating 332 responses. After a preliminary analysis to filter out biased responses, 307 responses were retained for the final data analysis. The data were processed using JASP version 0.19.0.0, which facilitated the examination of descriptive statistics, Pearson's correlations, model summaries, analysis of variance (ANOVA), and coefficients.

4. Data Analysis and Findings

The descriptive statistics were analysed using JASP version 0.19.0.0, which confirmed a valid sample of 307 respondents without any missing data. The mean values and standard deviations were computed, as presented in Table 1, demonstrating significance and achieving the thresholds of +3 and -3. To assess the normality of the distribution, the skewness and kurtosis of the data were examined. The results indicated that all data fell within the acceptable range of skewness and kurtosis values, between -3 and +3. Consequently, it was confirmed that the data in this research exhibited a significant normal distribution. The Pearson's correlations were subsequently analysed to assess the nature of the relationships between the variables. Findings are deemed significant when the p-value is less than 0.05 (Benesty et al., 2009). The results indicated a significant relationship between remote learning and the performance of educational institutions. The detailed findings of the Pearson's correlation analysis are presented in Table 2.

Table 1: Descriptive Statistics.

	Remote Learning	Educational Institutions Performance
Valid	307	307
Missing	0	0
Mean	3.208	3.137
Std. Deviation	1.197	1.199
Skewness	-0.029	0.031
Std. Error of Skewness	0.139	0.139
Kurtosis	-1.003	-0.976
Std. Error of Kurtosis	0.277	0.277
Minimum	1.000	1.000
Maximum	5.000	5.000
25th percentile	2.000	2.000
50th percentile	3.000	3.000
75th percentile	4.000	4.000

Table 2: Pearson's Correlations.

		n	Pearson's r	p	Lower 95% CI	Upper 95% CI
Remote Learning	Educational Institutions Performance	307	0.629***	< .001	0.556	0.692

* p < .05, ** p < .01, *** p < .001

The model summary findings were subsequently evaluated to ascertain the characteristics of the model. In this summary, the R-value indicates the correlation between the dependent and independent variables, with a value exceeding 0.4 deemed suitable for further analysis; this study yielded an R-value of 0.629. Additionally, the R-squared value represents the proportion of total variation in the dependent variable that can be explained by the independent variables. An R-squared value greater than 0.5 signifies that the model is sufficiently effective in elucidating the relationship, and

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this study recorded an R-squared value of 0.695. The adjusted R-squared reflects the generalizability of the results, specifically the variation of the sample outcomes in relation to the population in multiple regression analyses; a minimal difference between the R-squared and adjusted R-squared is preferred. The detailed results are presented in Table 3.

Table 3: Model Summary - Educational Institutions Performance.

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	1.199
M_1	0.629	0.695	0.693	0.934

Note. M_1 includes Remote Learning

The ANOVA findings were examined to assess the model's significance in measuring the relationship between variables, using a 95% confidence interval (5% significance level). The study found a p-value of less than 0.001, indicating significant results. Furthermore, the F-value reflects improvements in variable prediction by fitting the model while accounting for inaccuracies. An F-ratio greater than 1 indicates an efficient model, and the results presented in Table 4 confirmed that the F-value exceeded this threshold. The final analysis examined the relationship between remote learning and the performance of educational institutions in the UAE, with significance determined at a p-value of less than 0.05. As indicated in Table 5, the results confirmed a significant relationship between remote learning and institutional performance ($p < .001$). Consequently, the findings support the acceptance of Hypothesis 1 (H1).

Table 4: ANOVA.

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	173.964	1	173.964	199.254	< .001
	Residual	266.290	305	0.873		
	Total	440.254	306			

Note. M_1 includes Remote Learning

Note. The intercept model is omitted, as no meaningful information can be shown.

Table 5: Coefficients.

Model		Unstandardized	Standard Error	Standardized	t	p
M_0	(Intercept)	3.137	0.068		45.821	< .001
M_1	(Intercept)	1.116	0.153		7.308	< .001
	Remote Learning	0.630	0.045	0.629	14.116	< .001

5. Discussion

The findings of this research reveal a significant relationship between remote learning and the performance of educational institutions in the UAE. These findings are consistent with existing literature. Specifically, the results align with those of Pham and Hanh (2023), who argue that remote learning is essential during pandemics. Similarly, Khusanov et al. (2022) emphasize that online learning effectively addresses challenges such as lockdowns. Ng et al. (2022) note that during the COVID-19 pandemic, teachers began integrating audio and teleconferencing techniques into their online classes. Essel et al. (2021) explored how these strategies benefitted both teachers and

students in remote areas of Ghana, finding that students generally responded positively to various instructional methods. However, challenges arose as both teachers and students exhibited reluctance to adopt audio-visual teleconferencing due to a lack of understanding of digital tools. Additionally, Huang and Zhang (2022) identified barriers to home-schooling, while Jia et al. (2022) highlighted issues of internet accessibility and digital literacy, which hindered the transition to remote learning platforms.

Li and Che (2022) argue that online instruction necessitates the integration of urgent measures, effective communication, strategic investments, and student-centred solutions within the education sector. The global pandemic emerged as a historical event that introduced instability and unpredictability into the classroom environment. Furthermore, COVID-19 exposed the inherent weaknesses of existing educational systems, with countries possessing well-established economies facing similar challenges as less developed nations (Chiu, 2022). Alismaiel et al. (2022) noted that the pandemic severely disrupted smooth learning, with many universities failing to transition to online formats. Nevertheless, numerous educators contended that distance learning could serve as a viable alternative to traditional classroom settings (AlJhani et al., 2022). Additionally, the pandemic-induced disruptions resulted in significant hardships for minority group students and those with disabilities, as highlighted by (Garris & Fleck, 2022). Consequently, the unequal nature of global education systems was further revealed during the COVID-19 pandemic, with students experiencing both physical and psychological harm due to health threats (Damana, 2022). Besser et al. (2022) emphasize the importance of employing appropriate strategies to mitigate future disruptions that could adversely affect educational infrastructure. Therefore, stakeholders must identify areas of student struggle and provide structured support to facilitate recovery and alleviate challenges.

6. Conclusion

In conclusion, the research discussion highlights that the recent COVID-19 pandemic has caused significant disruptions in education both in the UAE and globally. The adjustments made in response to the pandemic have resulted in enduring transformations in teaching methodologies and pedagogical approaches. A notable shift includes the widespread adoption of remote learning. Consequently, educational institutions across all levels have continued to implement remote learning practices even after the lifting of lockdowns. Furthermore, many students have developed a preference for online learning due to its inherent convenience. Schools have also formulated strategies to address potential future disruptions.

7. Implications

This study has significant implications for enhancing the body of knowledge regarding remote learning. Although this educational approach was fully adopted in response to the pandemic, the study underscores the necessity of establishing appropriate laws and regulations to govern its implementation. Findings and literature reviews indicate that successful online learning cannot be achieved without adequate and modern infrastructure. Thus, it is recommended that more user-friendly digital tools and high-speed connectivity be prioritized to ensure the effectiveness of online education. Moreover, the study emphasizes the importance of collaboration among all stakeholders in the education sector to promote effective learning outcomes. The abrupt transition to online

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instruction occurred because educational institutions were compelled to implement courses without prior planning, resulting in many students falling behind, particularly those lacking the necessary resources for online learning. Additionally, evidence suggests that traditional classroom instruction is generally more effective than online formats. Therefore, with the resumption of in-person learning, efforts should be directed toward addressing the educational deficits incurred during the pandemic. In summary, students are likely to be lagging in knowledge and skills due to the disruptions caused by the outbreak. Consequently, blended learning should be adopted to maximize the benefits of both traditional classroom settings and online learning. However, proper infrastructure and well-trained educators are essential to ensure digital competence. Implementing these recommendations will be crucial for effectively addressing potential disruptions in educational institutions in the future.

8. Future Directions

This study yields valuable insights into enhancing educational institutions in the post-COVID-19 landscape. Employing cross-sectional data allowed for the examination of relationships between variables; however, there is a need for longitudinal research to more comprehensively assess these relationships over time. Future studies should focus on gathering data directly from students to gain a deeper understanding of their experiences with virtual learning in UAE schools. Such research would significantly contribute to the existing body of knowledge.

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