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Ethnographic Reflections of K–12 Distance Education in Saudi Arabia: Shaping the Future of Post-Pandemic Digital Education

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Abstract: The health, social, and economic challenges we have faced have contributed to the improvement of educational styles and learning environments. Globally, the reflections of COVID-19 have contributed to the re-perception of the future of education and the anticipation of new scenarios. This qualitative study aims to deeply examine and understand the repercussions of distance education—specifically K–12 education (kindergarten to twelfth grade) during the pandemic in Saudi Arabia—and, with the findings, build anticipated scenarios for future post-pandemic digital education. This study adopts an ethnographic approach to investigate the cultural perspectives of those whose education was and has been greatly affected by this transition. Qualitative large-scale data (comprising 36 observations, 387 individual interviews, and 177 focus groups) were collected for 7 months in 2021 from 600 participants, all of whom were connecting in various ways to the K–12 educational system and varied by gender, age, profession, and academic degree. The findings were categorized into four themes: (1) educational outcomes, (2) teaching landscape, (3) parental involvement, and (4) societal and life aspects. The findings are discussed in a style that presents the most crucial aspects that we must consider for anticipated scenarios of future post-pandemic education. Each presents critical implications for teachers, students, parents, researchers, and educational authorities.

Keywords: culture; educational outcomes; teaching style; parental involvement; qualitative research; education technology

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1. Introduction

The global spread of COVID-19 has caused major disruptions and interruptions in the education system, requiring governments and organizations around the world to rapidly enact changes in policy and procedures to ensure the permanence of the educational process. Online distance education was implemented as a pandemic response protocol in most countries [1]. However, this type of online education was considered an emergency response and differs from typical online distance education. That is, distance education during COVID-19 was applied abruptly, compulsorily, unreadily, and globally [2].

Distance education, while familiar in higher education, is relatively novel to K–12 education, especially in primary and pre-primary education [3]. Before the pandemic, utilizing the internet in K–12 education was a complementary or supportive tool in the education process. However, during the pandemic, it became a fundamental tool for delivering education. The K-12 system stands for 'from kindergarten to 12th grade'. In Saudi Arabia, the context of this study, the local education authority was established in 1926 to organize public mandatory education for male citizens; education for females began in 1960 [4]. The Saudi educational system is single-gender—boys and girls study in separate schools—except for preschool, which is mixed-gender and taught by female

teachers. In 2019, lower primary school grades have become mixed-gendered as well, and although boys learn separately from girls, they all attend classes in the same building employed by female-only staff [5]. The Saudi educational system is divided into four broad categories: (1) preschool education for children aged 3–6 years, (2) primary school education for children aged 6–11 years, (3) middle school education for children aged 12–14 years, and (4) high school education for children aged 14–16 years [5].

Prior to the pandemic, there were several attempts by the MOE to achieve a digital transformation in Saudi Arabia. For example, the National Educational Portal called (iEN) was launched in 2015 in partnership with Tatweer for Educational Services, a Saudi company, to support digital empowerment in K–12 education and provide reliable e-learning services to all students, teachers, educational leaders, supervisors, and parents [6].

In March 2020, Saudi schools were shut down to prevent the spread of COVID-19. The MOE then launched a learning management system connected to the iEN portal to support the education process called Madrasati ("My School") to deliver virtual classrooms to provide safe online lessons using Microsoft Teams software. Further, 23 local satellite channels were used for broadcasting to ensure that knowledge was available to all students, especially those who did not have access to the internet [7]. The Madrasati school day began at 3:00 p.m. and ended at 8:00 p.m. for primary school students and ran from 9:00 a.m. to 2:00 p.m. for middle and high school students [7]. With Madrasati, teachers could interact with their students, answer inquiries, and assign homework and electronic activities. Madrasati also provided more than 45,000 diverse educational resources (e.g., videos, educational games, augmented reality, 3D objects, interactive and fun experiences, educational stories, and books), tools for educational planning and design, and assessments, such as electronic tests and question banks [7].

Since the shutdown of schools and transfer to distance education, researchers have focused their studies on the new normal of distance education; however, there has been a lack of cultural studies on K–12 distance education in non-Western countries [3]. Thus, this research was designed to be a culturally ethnographic study to investigate the reflections of those in K–12 distance education during the COVID-19 pandemic and to shape the future of post-pandemic digital education.

2. Literature Review

Distance Education during COVID-19

Emergencies cause disruptions in people's lives, especially with education, as students and teachers cannot attend schools in person; therefore, emergency remote education is employed to continue learning and teaching by using virtual classrooms and online platforms [1]. The COVID-19 pandemic has, of course, been unrestricted to one geographical area; thus, numerous studies have been conducted to analyze the fallouts from the disruption in education. We conducted a literature review to identify the research gap and identified five specific features related to our research topic.

The first relates to the number of studies that investigated the educational impacts of COVID-19. Previous studies have investigated the impact of distance learning during the pandemic on students, teachers, other school leaders, and families [8]. Most of these studies focused on only one group, such as primary students [9], disabled students [10], K–12 teachers [11], and disadvantaged families [12]. However, we noticed a scarcity of research that extended the sample to include everyone involved in the educational process. This is what this study seeks to investigate.

Second, the focus of previous studies has predominantly concentrated on popular topics, such as general challenges faced in distance education, digital competence of teachers and students, the school–home connection, type of technology used, educational loss [13], and student engagement [8,14,15]. Few studies have investigated the total experience of participants. This study aims to investigate the entire educational experience, including some of the interrelated factors, during the pandemic.

Third, there was a dearth of studies that examined the cultural field that centered on things external to humans. In contrast, there was an abundance of research related to the internal and psychological impacts of the pandemic on human well-being and mental health [16,17]. This study was crafted to be culturally and ethnographically directed; we aimed to specifically study K–12 distance education in Saudi Arabia from a cultural perspective for several reasons. One is that Saudi Arabia is considered one of the most politically and economically influential countries in the world due to its religious position and economic wealth. It has a cultural and civilizational heritage that dates back thousands of years, and family and social closeness are deeply and significantly valued in Saudi society. Another reason is that Saudi people tend to react cautiously to unknown issues and worry about whether such issues may influence their traditions. The educational process forcedly shifted from school buildings to inside Saudi homes, infiltrating privacy and strict social norms [2]. Finally, the academic examination of the interaction between education and Saudi culture, and how each influences the other, is infrequent.

Fourth, while a diversity of methodologies has been applied in the literature [8], there has been a shortage of qualitative cultural ethnographic studies. Ethnography can assist in investigating very complicated or sensitive issues and provide researchers with broad viewpoints related to the topics under investigation.

Fifth, several studies have investigated aspects of the educational system during the pandemic involving educational policies, educational technology interfaces, teaching strategies, assessment systems, activities, and curricula [8,9,18]. However, there has been a lack of studies that add thoughtful contemplation to the findings to discuss anticipated scenarios of post-pandemic digital education.

Taking all this into consideration, the following question guided this study: What were the ramifications of implementing K–12 distance education during the COVID-19 pandemic in Saudi Arabia? Furthermore, how can these ramifications contribute to future post-pandemic education?

3. Methodology

3.1. Research Design

The aim of this study was to investigate the cultural reflections of K–12 distance education during the COVID-19 pandemic and how we can benefit from the findings to build anticipated scenarios for future post-pandemic education. Thus, qualitative ethnographic research, which focuses on studying the shared social and cultural characteristics of a group within its own environment, seems to be the best method for this study. As ethnographic researchers, we will provide robust descriptions and interpretations of the shared beliefs, values, behaviors, and patterns within this shared culture group [19].

3.2. Participants

This study aims to build anticipated scenarios for future post-pandemic education from an understanding of the cultural reflections of K–12 distance education. We sought to explore as many different views and experiences as possible to enrich the data. Hence, the maximum variation sampling method was considered appropriate [20]. We approached diverse participants learning or working in many areas of K–12 education. Participants varied in gender, age, profession, geographic location, and academic degree (see Table 1).

Table 1. Participant demographics (n = 600).

Category	Frequency	Percentage (%)
Gender		
Male	299	49.8
Female	301	50.2
Age		
≤6 years old	7	1.2
6–17 years old	173	28.8
18–29 years old	69	11.5
30–49 years old	294	49.0
≥50 years old	57	9.5
Profession		
Educational advisor	17	2.8
Administrative	43	7.2
Teacher	191	31.8
Parent/caregiver	106	17.7
Student	216	36.0
Relative	27	4.5
Geographic Location		
Eastern province	444	74.0
Western province	100	16.7
Riyadh province	29	4.9
Northern province	23	3.8
Southern province	4	0.7
Academic Degree		
Postgraduate	203	33.8
Graduate	173	28.8
High school	87	14.5
Intermediate	47	7.8
Elementary	90	15.0

3.3. Data Collection Methods

The most common methods of collecting ethnographic data are observation and interviews. However, the closure of school buildings created challenges for observing students and teachers. Because the educational process had transitioned to students' homes—domains that required us to invade the participants' private spheres—we conducted fewer observations (36) compared to individual interviews (387) and focus groups (177). We conducted all observations face-to-face. However, interviews and focus groups were held either face-to-face (174 times) or via online audio applications (390 times). Table 2 describes the data collection methods and means.

Table 2. Data collection methods and means.

Category	Frequency	Percentage (%)
Data Collection Methods		
Individual interview	387	64.5
Focus group	177	29.5
Observation	36	6
Data Collection Means		
Face-to-face	210	35
Online audio applications	390	65

3.4. Data Collection Procedure

We electronically sent invitations asking for participants who were connected in any way to K–12 education. The invitations were sent from our professional email addresses and shared via our social network accounts, such as Twitter, WhatsApp, and Telegram. We used a maximum variation sample, so we looked at the invitation responses and picked a wide range of variations in dimensions (e.g., parent dimensions included gender, different academic degrees, and various geographic locations). Our aim was to understand how the ramifications of implementing K–12 distance education during the COVID-19 pandemic in Saudi Arabia were seen and understood among different people and in different settings. We also used the snowball sampling approach and asked participants during interviews and focus groups to share the invitation link with others who met the sampling requirements and might be willing to participate in the study. The invitation link sent participants to a Google form that included an information letter and consent form, which was required to be signed before participating in the interviews, focus groups, and/or observations.

The data were collected from February 2021 to August 2021 (see Figure 1). The shortest interview and focus group lasted for 20 min, and the longest lasted for 35 min. Each researcher averaged 6 interviews and one focus group (including approximately five participants) per week. Furthermore, each researcher conducted nine face-to-face observations that took 15–30 min each. Participants were informed beforehand about how long the interviews, focus groups, or observations were expected to last. During the interviews and focus groups, we took notes and made audio recordings (using mobile phones) to improve the accuracy of the data and to acquire as much data as possible [20]. We also took field notes during the observations.

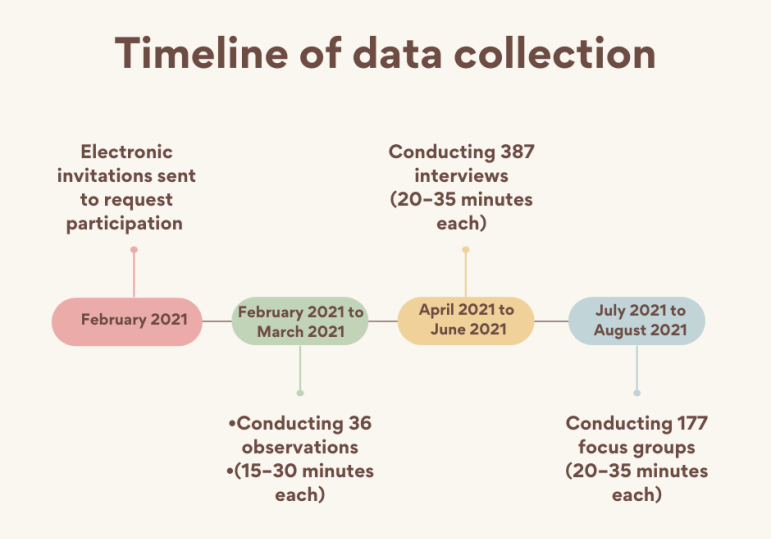

Figure 1. Timeline of data collection.

3.5. Data Analysis

The thematic analysis approach was applied to organize data around themes to make the data more meaningful [20]. We followed the phases of thematic analysis provided by Braun and Clarke [21]. First, each researcher transcribed her collected data into a Microsoft Word document, then read and reread it several times. Second, each researcher manually created initial codes from the data. We employed descriptive coding, which "summarizes in a word or short phrase—most often as a noun—the basic topic of a passage of qualitative data" [22] (p. 102). Each researcher started analyzing her data (observation field notes, interviews, and focus group transcripts) in the order in which they were created. In the first cycle of coding, each researcher coded the actual data extracts that seemed to be directly connected to the research questions, reviewed the initial codes, and converted them into themes [22]. After the initial analysis, the four authors met to discuss and form a consensus on the names of the themes and subthemes. In light of the researchers' decisions about the agreed-upon themes, each researcher conducted a second cycle of coding, which involved another review of each theme's extracts and ensured that they were coded correctly. For even better accuracy, the first author imported and analyzed all the data files using NVivo Version 12 (QSR International, Melbourne, VIC, Australia). NVivo assisted in looking across the data resources—observation field notes, interviews, and focus group transcripts—comparing them, and organizing the data by suitable codes and themes. The final phase of the thematic analysis involved producing an analytic narrative report, which is presented in the Section 4.

3.6. Trustworthiness

The term "trustworthiness" is used instead of the positivist theoretical perspectives of validity and reliability. It is defined as strategies and methods for convincing readers that research results are trustworthy and accurate [23]. We used a number of strategies to ensure the quality and reliability of the research procedures and results. To verify credibility, a triangulation strategy was used, meaning that multiple research sources were employed. Thus, there were multiple samples, data collection tools, and researchers conducting studies. In our study, we chose maximum variation and snowball samples. We collected data through observation, interviews, and focus group tools. We, four researchers, participated in data collection, analysis, and reporting.

Separate data analysis from each researcher assisted us in maximizing dependability and confirmability and helped minimize individual bias. As explained previously, each researcher analyzed her data independently, discussed the results with the others, and agreed on the final codes and main themes to be presented in the findings. Using NVivo for the final analysis also improved trustworthiness.

To ensure dependability and transferability, Audit Trail was used to maintain a complete record of applicable procedures, including raw data (e.g., observation field notes, audio recordings, and transcripts of interviews and focus groups), and in-depth descriptions of the data collection and analysis methodologies were provided to show how the data ultimately led to the construction of the findings [23].

4. Findings

The data analysis identified four themes related to the research question: (1) educational outcomes, (2) teaching landscape, (3) parental involvement, and (4) societal and life aspects. Each theme had several subthemes (see Figure 2), which will be discussed in detail.

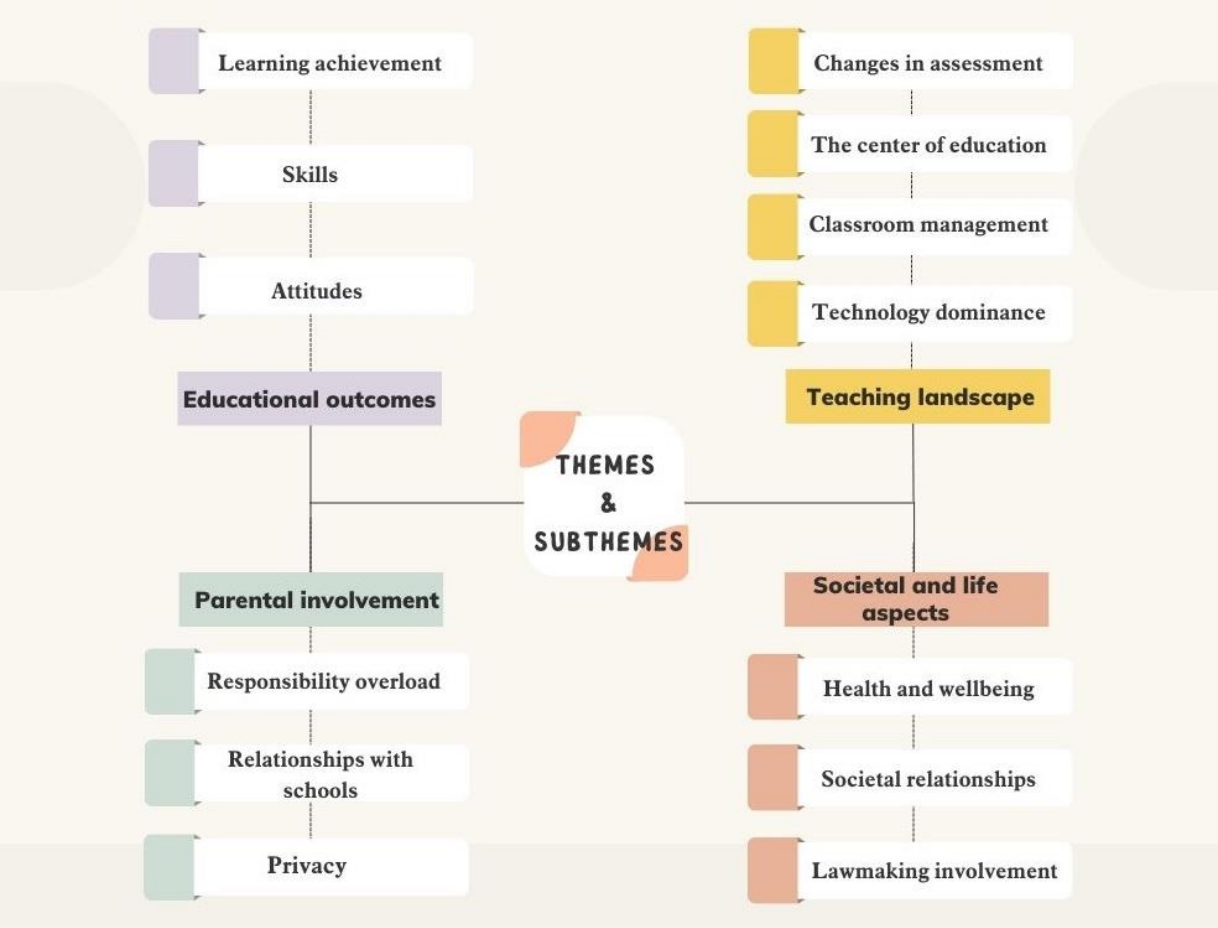

Figure 2. Themes and subthemes of the findings.

4.1. Educational Outcomes

4.1.1. Attitudes

The participants expressed positive and negative perceptions and attitudes toward distance education. Positive attitudes outweighed negative ones in the first few months of the pandemic, but negative attitudes increased gradually. Most of the positive attitudes came from students rather than, for example, parents or teachers. One student said, "I like distance education. I feel safe and comfortable on my bed, and exams are less stressful". On the other hand, one parent said, "This type of education is more advanced but less effective. It is exhausting". One teacher questioned the validity of the media's publicity regarding the great educational outcomes backed by statistics and numbers: "I am a teacher who works in the field. I do not believe these numbers; [they are] just flashy propaganda". Overall, participants explained that the "advanced education" was due to the improved technology that had been applied and the digital skills that had been acquired. In reality, the education was poor, as evidenced by the students' actual educational outcomes.

4.1.2. Skills

The data show skills acquired and lost during distance education. Digital skills acquired were mentioned the most by participants as a great benefit. The sudden transfer to entirely online education forced all academic members to improve their digital skills to meet new requirements. Immersion into the digital environment quickly improved the students', teachers', and parents' digital skills, which may have been subpar in pre-pandemic circumstances: "We were forced to improve our digital skills to be able to teach

our students, who improved their digital skills faster than we did", said teachers in a focus group.

Literacy, mathematics, communication, and social skills were mentioned by participants as the most lost skills, and Years 1 and 2 students were the most negatively affected by distance education. Parents, caregivers, and teachers agreed on the massive loss of literacy and mathematics skills among these students, who could not read well, write properly, or calculate equations. Students in Year 1 also lacked essential communication and social skills as they started their educational lives at a distance from physical school and its rules; they were confused between the real and virtual worlds. Moreover, students who transitioned from primary to middle schools demonstrated a lack of the communication and social skills necessary for them to start the next level of their education.

4.1.3. Learning Achievement

As mentioned previously, one participant described distance education as "less effective" than traditional school: the quality of distance education during the pandemic was put into question. The sudden closure of schools interrupted school schedules and the education process, resulting in a delay in curriculum progression. Furthermore, the quality of distance education was affected by changes in the educational environment. The participants appreciated traditional classes as fixed, manageable learning environments that helped students receive and understand information. However, the students' homes were filled with distractions, such as eating, sleeping, and playing. In a field note, a researcher observing her 8-year-old wrote, "Every time I enter her room, I see her playing Roblox with her friends during school time". Furthermore, not all curricula can be taught online; for example, science and sports must be taught in person. Moreover, weak school administration caused some teachers to be absent from virtual classes.

The absence of physical appearance and social interaction has negatively affected the quality of distance education, causing low motivation for learning in students who suffered from the social distance between them and their peers and teachers. Another reason for low motivation was technical issues, such as the unavailability of electronic devices, internet disconnection, and frequent damage to computer hardware. Low motivation and enthusiasm for learning also caused online school dropouts: "Students are joining online classes only for their attendance record; no one interacts in our online lesson. And sometimes a friend or another family member attends instead of them", said a focus group of teachers.

Another crucial issue raised by the participants was the discrepancy between students' high test scores and their actual learning performances, skills, and abilities. This high learning achievement was due to the "massive cheating process", a school administrator said. Parents, other family members, housemaids, friends, private tutors, and online search engines facilitated the process.

4.2. Teaching Landscape

4.2.1. Technology Dominance

Before the pandemic, technology was just a helpful tool in K–12 education. During the pandemic, it became the backbone of the entire educational process. This flip has both pros and cons. Technology dominance rearranged spatial and temporal notions; thus, teachers benefited from the time gained from not having to commute to and from schools. Additionally, the ready content and assessments on the official educational platform saved them time. The nature of emergency remote teaching positively forced teachers to rapidly enhance their digital skills so that they could assist their students in improving their skills and smoothly engage in a completely digital environment. Some teachers felt pressured to learn new skills in such a short time. One teacher said, "I must improve my digital skills and learn how to deliver online courses. There are a huge number of online teaching methods, platforms, and apps, and I feel lost"!

Technology dominance has also affected the cultural viewpoint of the female voice in Saudi Arabia. Saudi traditions require gender separation in schools, and female shyness in speaking in front of non-relative men is considered a positive characteristic. However, this cultural viewpoint has begun to wane because of distance education. In the beginning, female teachers felt shy when heard by non-relative men, such as their students' fathers or brothers. Over time, they grew used to it. Some female teachers even took the opportunity to teach male students online. Using online applications promoted women's engagement in several cases that were formerly restricted to men, such as parents' meetings and graduation ceremonies in boys' schools.

The dominance of technology and the absence of physical appearance, body language, and social interaction diminish the human dimension in education and limit teachers' understanding of their students' individual differences, thus reducing support for each student's needs. This interrupts bonds between teachers and their students and between students and other students, which are necessary to build positive attitudes and beliefs, as well as aspects of social and psychological identity.

As the online education environment relies on technology, any technical problem, such as internet disconnection, hardware damage, or software malfunction, stops the entire education process. In addition, excessive use of technology causes distractions for both teachers and their students. Online forms of communication also put stress on teachers, as their students and headteachers think they are available to contact at any time and receive prompt responses.

4.2.2. Classroom Management

The data show that teachers found classroom management to be out of their control due to the absence of physical and social appearance, crossing of boundaries between home and school, and the lack of self-discipline in K–12 students regarding distance education. Thus, teachers tried to impose order by creating new rules for their students, such as turning on webcams, muting microphones, raising virtual hands, and respecting other students' rights. However, these rules were insufficient to manage the classroom, as many students simply ignored them. Students believed that their teachers could not remotely monitor every student to know whether he or she paid attention to the lesson. Indeed, teachers could not be sure that it was their students who logged into their classrooms because parents, siblings, and friends could enter the classroom instead of the actual students. One teacher commented on this issue, saying, "This issue shook the confidence between teachers and students and caused a massive decrease in the students' real education".

With distance education, the boundaries between home and school were eliminated. Everything that happens inside the home and around the student becomes part of the school environment, and what happens in the classroom becomes part of the home environment. The transition from the school to the home environment reduced both the students' and teachers' privacy, as well as the school's prestige, as whatever would happen during class was observed by all those around the student at home, and there was the possibility that students would publish videos of their classes on social network sites without their teachers' permission. In a focus group of teachers, one remarked, "We feel uncomfortable during our online classes due to parents monitoring us or students recording . . . our teaching". As a result of this issue, the government issued strict policies aimed at punishing anyone who posted clips via social network sites of the classroom with the aim of ridiculing someone.

Other results of bad management included the disruptions made by the teachers due to their lack of virtual classroom management skills; the distractions they introduced, such as the sound of their own children or their engagement in other activities during lessons; or their complete absence during lessons (as the school administration would not notice)—all of which were not present or possible in traditional education.

4.2.3. The Center of the Education

In Saudi culture, teachers are usually the center of the education process, and textbooks are the only source of information. However, distance education changed this stereotype and flipped the educational axis. Students, especially those who were in high school, have found themselves to be the center of the education process, and their teachers have become only mentors and advisors. The textbook is no longer the only source of information, as students have discovered an enormous variety of information and knowledge on the internet. Thus, self-learning has been adopted by students as the prime learning method. They have realized that the teacher is no longer the exclusive resource of knowledge, as was the case with traditional education.

4.2.4. Changes to Assessment

The assessment landscape has changed because of distance education. One teacher said, "There is no longer [a requirement] for paper, as all the exams, worksheets, and assignments have transformed to be digital". This transformation gave teachers and school administrations a free space that was occupied by the traditional work of organizing exam times and spaces. Teachers are happy with digital exams because they do not need to go into school to mentor students during their exams, spend time correcting exam questions, give feedback, or record grades—digital tools do all this work and allow students to preview their grades immediately after exams. Although distance education reduces the usual fear of exams, it has produced some negative issues, such as the lack of social support from teachers to students during exams; the untrustworthiness of digital assessment results, as students get help from their family, friends, and the internet; and the shallowness of exam questions, as most exams use objective, easily graded questions.

4.3. Parental Involvement

4.3.1. Responsibility Overload

Parents, especially mothers, felt stressed with distance education because they lost the free time they enjoyed when their children attended school in person. Parents found themselves working as monitors for their children during their online classes because of the incidence of neglecting studies and dropouts. One mother said, "The absence of physical appearance and social interaction forced me to monitor my children during lessons, which should be the teachers' responsibility". Working parents suffered more, as they had to choose between the difficulty of working from home and the difficulty of leaving their children home alone. Furthermore, parents' phones received an endless stream of messages from school members regarding their children's education, causing extra hassle for parents, who then had to transfer the information to their children and ensure their implementation of it. Additionally, parents struggled with allowing their children to use electronic devices for the whole educational process, as their use before the pandemic was limited to certain assignments.

4.3.2. Relationships with Schools

The data show a fluctuation in parent–teacher relations, both positive and negative. On the positive side, parents increasingly attended online parent–teacher meetings, which strengthened the relationships between parents and schools. Moreover, the parents' monitoring of their children allowed them to personally evaluate their children's academic performance and behavior, which allowed them to discuss their children's education with the teachers better. Additionally, the stream of enriched multimedia, meant to support children's learning, that teachers sent to parents' phones via apps like WhatsApp and Telegram assisted parents with either remembering information that they had learned at school or learning new material, which was especially beneficial for those who did not pursue higher education. Parents not only monitored their children, but they also monitored and evaluated the teachers, which was, pre-pandemic, limited to the school's headteacher or educational supervisor.

On the other hand, parents' monitoring of teachers formed cracks in the relationships between parents and teachers, who saw this monitoring as a kind of gossip when it was delivered to authorities to harm them. Furthermore, some teachers blamed the parents for their children's poor academic performance or bad behaviors, which led to damaged relationships between parents and teachers.

4.3.3. Privacy

The sudden shift from the school building to inside Saudi homes threatened all privacy and strict social norms. Turning the cameras on inside the home produced challenges related to personal privacy. Participants—mothers and female teachers and students—described the fear they had of the possibility of webcams switching on without their knowledge; therefore, some women stayed in their hijabs inside their own homes, and others taped over the camera lens for extra security. Parents complained that cameras exposed houses, which caused a comparison of houses and properties, thereby deepening the social gap between the rich and the poor.

4.4. Societal and Life Aspects

4.4.1. Health and Wellbeing

The data show that distance education supported the students' safety and health in terms of not carrying heavy school bags that sometimes cause pain and problems in the back and neck, as well as protecting immunosuppressed students. In addition, distance education decreased the sexual harassment of private drivers. Furthermore, disabled students who were mobile benefited from distance learning, as they could attend classes without having to commute to and from school. A further positive aspect was a decrease in traffic jams and car accidents in the morning and noon rush hours.

On the other hand, distance education caused serious psychological and physical health problems. Feelings of stress, anxiety, and loneliness were widespread among participants due to social distancing, hearing disturbing news, and not knowing what would happen during or after each semester. Excessive use of the internet triggered internet addiction, inability to distinguish between the virtual and real worlds, and feelings of isolation. Furthermore, weight gain and back and/or eye pain were common complaints because of prolonged exposure to screens and sedentary behavior. Moreover, students with mental, aural, or visual disabilities suffered from distance learning because, as described by the participants, it did not meet their needs.

Distance education also brought to light other forms of bullying: cyberbullying and online sexual harassment. Moreover, many participants expressed concern regarding the students' immersion in the virtual world: they would be under attack from foreign cultures that collided with inveterate national traditions, causing the destabilization of affiliation and national identity. Overall, distance education has changed the lifestyle in Saudi Arabia. It reinforced nighttime habits, as the primary schoolchildren's day online started at 3:00 p.m. Families were forced to adjust times for lunch, visiting, and entertainment, depending on their children's online schedule. Furthermore, the rush hour's start shifted to around 7:30 p.m., when school online ended.

4.4.2. Societal Relationships

The data show the increase in community support among individuals during distance education. One educational advisor said, "Many charitable initiatives have been founded to provide financial, technical, and educational support for individuals in need, and numerous campaigns have been established on social network sites aiming to provide support to students, teachers, and parents".

However, distance education widened the social gaps and inequalities in educational opportunities. Participants from outlying areas, such as small villages or rural societies, suffered from poor internet quality and a shortage of money to supply distance learning equipment. Even in urban areas, some families could not provide necessities.

4.4.3. Lawmaking Involvement

Distance education caused people to become involved in lawmaking for the first time. Teachers, students, and families were able to convey their opinions via social network sites to the MOE to reshape the education system during the pandemic. Distance education contributed to the interest of students and parents in making decisions regarding examination policies and the mechanism of education, especially because of the increase in parents' involvement in their children's education.

5. Discussion and Implications

The study data were collected in 2021 during the school shutdown caused by COVID-19. In February 2022, during the analysis of this study and after the collection of its data, schools reopened in Saudi Arabia. Most likely, distance and blended learning will be one of the post-pandemic digital education scenarios to improve students' learning and meet their different needs. Therefore, as we aim to make the data the most beneficial, we discuss the findings in a way that presents the six most critical features that education stakeholders should consider for methods of future post-pandemic education (see Figure 3).

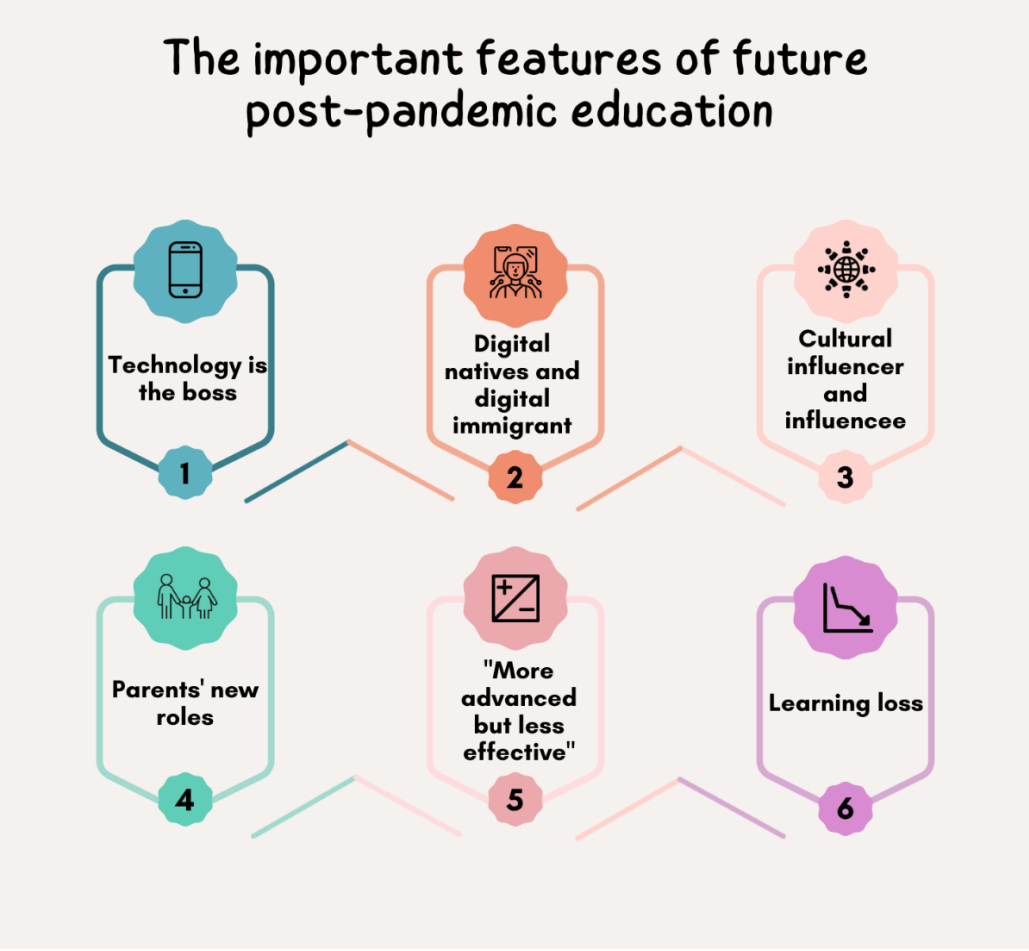

Figure 3. The features that should be considered for methods of future post-pandemic education.

5.1. Feature I: Technology Is the Boss

Before the pandemic, technology was pervasive in every aspect of human life. It tightened its control during and after the pandemic. Technology is a double-edged sword, which is important to consider in future education scenarios. The study findings show the positive and negative aspects of technology during distance education. Technology has proven its great worth in the continuity of education during the pandemic and in saving

time and effort for teachers and students, making education fun and engaging, providing educational resources in abundance, and encouraging self-learning. These findings are supported by those of Siddiki [24], who explained that twenty-first century skills and future work requirements in Saudi Arabia depend not only on the formal education system in schools but also the education that is found beyond the formal classroom and is more reliant on lifelong learning, which necessitates using technology as an intended enabler, not only as a tool to facilitate teaching students, but also to evolve educational institutions for re-skilling people based on employment requirements. Distance education boosted the digital literacy levels of all members of society. Thus, distance education has contributed to the achievement of the digital transformation of Saudi Arabia, which is part of the ambitious Vision 2030 agenda to develop e-commerce, e-government, and e-learning [25].

On the other hand, technology has caused many drawbacks for the individual and society, as the findings showed: the negative effects on the physical and psychological health of students and its ability to distract students from education and expand the digital gaps, especially for disadvantaged families [3]. The findings of this study also show some negative attitudes toward using technology in education, which may be due to the long period of distance education and its side effects during the pandemic. Similarly, Zuo et al. [3] found some negative perceptions due to the difficulties students faced in distance education.

An important implication of this feature is that educational authorities should believe in the importance of distance and blended education as new post-pandemic education methods. The findings of this study can be used to target the useful aspects of technology and avoid the negative ones when applying distance and blended learning in schools. Future studies should focus on the reinforcement of the benefits and importance of these types of digital education to educational stakeholders, including students, teachers, and parents.

5.2. Feature II: Digital Natives and Digital Immigrants

Despite many participants claiming that their digital skills greatly increased because of the pandemic, many teachers, administrators, and parents struggled a lot to improve their digital skills. They emphasized the urgent need for more training in technology. It is notable that students improved their digital skills faster than adults, which is consistent with the findings of Al Lily et al. [2], who found that Saudi students' digital skills were more advanced than those of their teachers. This discrepancy in the digital competency levels between generations may be due to the students' status as digital natives [26] or millennials [27], as these groups have grown up in fertile digital environments. Several Saudi studies emphasized that teachers' lack of digital competency affected their students' learning progress [12,24,28].

An implication of this feature is that those who aim to adopt distance or blended learning in the future should consider the digital skills that students rapidly acquired during the COVID-19 pandemic and thus work to integrate them into the future educational process. They also should provide adults with intense training workshops so that they can improve their digital skills to bridge the gap between themselves and the students.

5.3. Feature III: Cultural Influencer and Influencee

Saudi culture has profoundly influenced distance education and, conversely, has been affected by it. The findings of this study present the effects of Saudi culture and norms, such as the great value of family in Saudi society, the value of social support for each other, the power of social network sites to convey people's voices, women's status in society, privacy issues, and the Saudi lifestyle. Distance education affected this culture in the social reconfiguration of the male/female sphere, delaying people's schedules due to study times, exposing and expanding the gaps between social classes, and in the acceptance of the idea that aims justify means, even morally bad ones, as in cheating among students.

Culture is critical, and it should be carefully considered when preparing for future digital education scenarios. Saudi teachers wish to conserve their personal privacy, but

some teachers in, for example, China are more comfortable revealing their personal lives—like a chemistry teacher conducting an experiment in his own kitchen, or a music teacher inviting her family members to perform music for her students [3].

Importantly, future digital education scenarios must consider national cultures and societal norms. It is crucial to consider Saudi society's privacy preferences, the strengthening of the role of women in line with Saudi culture, and providing or improving digital equity for disadvantaged families. As social network sites give the power to convey people's opinions, the MOE can conduct research and surveys to discover people's opinions and get suggestions for the development of the educational process, thus encouraging local communities to get involved in the decision-making process. Further research could investigate the mutual influence of culture and distance education.

5.4. Feature IV: Parents' New Roles

Distance education has given new roles to parents that close the gap between students and their teachers. Waters et al. [29] discussed the role of parents whose students were involved in K–12 online learning. Parents work as (1) organizers who plan children's schoolwork, (2) instructors who teach children, (3) motivators who encourage student progress, and (4) managers who monitor student progress. The current study emphasized the massive increase in these roles because of and during the COVID-19 pandemic.

The findings of this study present both positive and negative consequences of an increase in parental involvement. From a positive perspective, parents learn more about their children's learning performance and behaviors, as well as their teachers' [12]. Parents also improved their digital skills and scientific knowledge due to their immersion in their children's distance education. They received rich information and needed support from the schools. On the other hand, school–parent conflicts increased [8]. To rectify this, Clausen et al. [30] suggested a professional development program that aimed to build relationships between teachers and students' families. Another negative result was the overload of responsibilities that burdened parents, especially those who struggled to balance job demands and meet their children's learning needs. As Misirli and Ergulec [31] explained, parents' responsibilities have increased because of distance education, because they must monitor their children during online classes. In Saudi Arabia, mothers are traditionally more accountable for their children's education than fathers. Thus, with pandemic-related distance education, they suffered from an overload of responsibilities.

This feature draws attention to the new roles of parents in their children's education if distance or blended learning is adopted in the future. Training courses and awareness events should be provided to parents regarding these roles, as well as information on how they can maximize the benefits and avoid the drawbacks of their involvement in their children's online learning. Other programs should be provided to students to teach them self-regulated learning skills and raise their competency learning in a digital environment without their parents' support. Parents' digital skills impact their supportive engagement in their children's learning. Therefore, the MOE should implement special plans to improve parents' technical, online interaction, and digital skills via training courses and events. Future studies could investigate the useful roles and behaviors provided by parents to their children enrolled in distance education.

5.5. Feature V: "More Advanced but Less Effective"

Several educational institutions have published and over-publicized statistical information about their distance-learning achievements. However, most of these announcements were considered "flashy propaganda" and did not reflect the frustrating reality. Despite the increase in digital infrastructure, most students' educational outcomes have been poor. The schools' unpreparedness for distance education has shed light on the weaknesses and fragility of the system elements of distance education. Although technology has been sufficiently applied, the basic components of education—teaching and learning methods, school and classroom management, curricula, and assessment approaches—are the same

ones designed for face-to-face education [3]. That is, they have simply been passively and uncritically translated online, without any essential modifications made.

An important element of this feature is improving the components of the educational system to be up to date with new digital education scenarios. The current curricula must be adjusted to fit digital education requirements. Teachers' digital skills must be developed through extensive training and proper motivation. Teaching methods must be modified or created in a way that fits the nature of blended learning, and transitions passive, lecture-centered learning to active, student-centered learning. Schools must be provided with the necessary equipment for blended learning, such as digital devices and sufficient internet networks, and develop strategies to compensate for functional deficiencies of online platforms. Further studies should aim to establish and/or apply artificially intelligent tools to assist teachers in developing digital educational environments.

5.6. Feature VI: Learning Loss

Post-pandemic educational scenarios must measure and consider K–12 students' information loss. Several reasons caused this learning loss, including dropout, cheating, neglect of studies, the effects of social distancing, and the nature of some curricula that should be taught in person. Face-to-face education supports the use of body language, which comprises multiple nonverbal cues, such as eye movements, gestures, and facial expressions—all vital for proper social and emotional communication and for enriching the educational environment [32]. The absence of these nonverbal cues may detract from the quality of learning, causing learning loss. Technical problems and inaccessibility to technology compound the issue [33]. In addition, distance education relies on the learner's self-discipline, self-regulation, and learning autonomy, which are usually lacking in K–12 students [8,13]. However, there may be possible benefits to using video cameras in synchronous online learning to address the problems caused by social distancing and a lack of self-discipline skills [34].

This feature draws attention to the seriousness of learning loss in children who studied remotely during the pandemic. Urgent actions are needed, such as implementing remedial plans to bridge the gap and developing others to prevent such losses in the future. Future studies could investigate the suitability of distance and blended education for K–12 students, as our findings revealed several negative impacts and limitations. However, these disadvantages may be due to the health, social, and economic effects of the pandemic and the period of mandatory distance education. Regardless, it is worth conducting more studies that focus on blended learning and applying technology in a way that improves—not deteriorates—children's education.

6. Limitations and Conclusions

The main limitation was the absence of close involvement with members of the community. Ethnographic research requires emotional involvement between the researcher and participants over time through face-to-face interaction, such as living among the participants and partaking in their social lives [35]. Due to the pandemic and its resultant protocols, we could not be present in the field at all times. Most of the interviews and focus groups were conducted online, which limited our close involvement with the participants. In-person observations were conducted only with participants with whom we had prior trust and rapport. This was because the entire educational process had transitioned to homes—that is, private domains that were not easily accessed.

This research aimed to investigate and help us understand the repercussions of distance education on K–12 education in Saudi Arabia from a cultural perspective, as well as to offer suggestions based on the findings for future scenarios in digital education. The findings of the study contribute and add to the literature on distance and blended education, and can also be used to build contingency plans if something stops the education process, such as war, natural disasters, or health emergencies.

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