

An Investigation of Parental Perspectives on the Efficiency of Online Schooling in Primary Schools During the COVID-19 Outbreak

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ABSTRACT

This paper aims to explore parents' satisfaction and awareness towards online schooling efficiency using Saudi online learning platform (Madrasati) in the first three grades of primary schools during the COVID-19 pandemic and to potentially alternate face-to-face classroom learning post-pandemic. It focuses on the advantages and disadvantages. A survey-based questionnaire is used to collect data from 99 parents and a mixed-method of qualitative and quantitative is applied. The descriptive statistical method is used to analyse the data. The findings indicated that, however, this modality has disadvantages and is stressful for parents as their kids' progress relies heavily on their support; the parents and their kids generally had positive beliefs about online schooling and highly recommended the implementation of online learning after the pandemic. It is recommended for successful and efficient online schooling, the Ministry of Education policymakers should enhance and support online pedagogical methods, teachers' training courses, and appropriate curricula.

KEYWORDS

Children Education, COVID-19, Online Learning, Online Schooling, Parental Perspectives, Primary School, Qualitative and Quantitative Analysis, Validity and Reliability

INTRODUCTION

Unexpected situations change the world rapidly, requiring critical thinking, collaboration, and creativity to confort and adjust to these changes and maintain the continuity of life's activities. The COVID-19 Pandemic is one of those unexpected situations that severely constrained people's behavior worldwide (Hale et al., 2020). In March 2020, the onset of the COVID-19 pandemic brought learning to a screeching halt worldwide, causing the most severe international education disruption in history (Algaraady & Mahyoob, 2022; Mahyoob et al., 2022). According to the latest report from the OECD's International Student Assessment Program (PISA) (OECD, 2020), this crisis hits when most education systems are not ready for the world of digital learning.

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This pandemic obliged the whole world to switch to online education abruptly to halt the virus outbreak. This learning modality early appeared in Great Britain in the 60s, where the online teaching process was conducted using radio and television. At that time, the “National Council for Distance Education” was established, and it was converted later in 1982 to the “International Council for Distance Education,” pursuing financial support from the International Development Bank (Atallah & Bou Melhem, 2020). Due to the rapid development in technology, this modality has taken its rightful spot in the instructional process.

Over time many universities embraced this learning modality and started offering online classes in different majors and degrees. They assembled all the required electronic resources such as eBooks, journals, videos, recorded/live lectures, discussion, quizzes, sessions, and forums (Guthrie et al., 2020).

Now, despite endorsing online learning, assessing students is one of the many challenges that obstruct the success of online learning. Moreover, the students can cheat in online exams easily. Fortunately, some institutions achieved excellent online learning by providing their students with the content and the interaction required for a better learning environment and guaranteeing that cheating is impossible.

Due to the pandemic, online learning emerged as a practical option and compulsory mode to maintain the education process in public, private, and international schools, institutes, and universities, whereby teaching is performed remotely and on digital platforms.

Each country has devised its way of adopting an educational mechanism that matches its capabilities and the coronavirus outbreak. Due to the emergent demand, many countries launched online learning platforms or channels to manage the educational process. Those platforms offer free access to their services, such as the E-learning portal in Kuwait, Educational lessons broadcasted live on TV in Yemen, CNTE - Watania Educative in Tunisia, ECE Platform/ Syrian Educational Platform in Syria, Iraq educational platform/ Newton in Iraq, Ien National e-portal and Madrassati platform in KSA, and many others.

In KSA, the Ministry of Education immediately transformed from actual in-person learning to distance learning after the suspension. And to maintain the instructional process without disruption, it has established several instructional alternatives to guarantee the continuity of the learning process remotely through the Madrasati platform. In addition to the Madrasati platform, the Ministry has launched a virtual kindergarten application and prepared 23 educational channels, “Ien channels,” to broadcast lessons according to the study schedule.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) reported that more than 1.5 billion students and youth across the globe representing 91 percent of the world’s school population, are or have been affected by school and university closures due to the unprecedented disruption of the COVID-19 pandemic¹. They become virtual-school learners as they shelter in their homes. In contrast, parents and family members have engaged in new roles.

Indeed, parents play a fundamental role as key learning agents in supporting their children emotionally, academically, and technically; and making more beneficial digital learning during remote learning. Parental engagement prompts school children to be active and autonomous and assists them in tackling the main challenges caused by online learning. However, many difficulties may hinder parents’ engagement, such as their jobs and family obligations, negative attitudes towards the material, lack of parents’ digital skills, or parents’ inequalities in educational levels. Moreover, less-educated parents have been less supportive of their children’s efforts during the lockdown (Bol, 2020).

Very few studies have explored parents’ experiences (Lau et al., 2021; Ribeiro et al., 2021), struggles, involvements, and engagements in their children’s activities (Novianti & Garzia, 2020) during COVID-19. This research attempts to fill the gap by introducing a more comprehensive study and investigating the parents’ perspectives on the advantages and disadvantages of online learning in the first three primary classes (children aged 6-9) as they become essential and effective contributors to this learning mode.

Furthermore, the researchers attempt to measure parents' satisfaction and opinions on whether implementing this learning mode can substitute face-to-face learning even after this pandemic and convey their views to the policymakers. On a methodological plane, an online survey-based questionnaire was established via Google and distributed among 99 parents using WhatsApp groups to elicit their perspectives. For checking the validity and reliability, the study instrument's face validity was checked by consulting a panel of experts on the research subject who reviewed the questionnaire. The Factor Analysis (FA) was used by applying Principle Component Analysis (PCA) method in addition to Pearson correlation (r) to assess the construct validity. Finally, the tool and results reliability was checked by applying Scale Reliability Statistics using Cronbach's α and McDonald's ω measures. The authors organized the article as follows: First, they discuss the study's theoretical framework and state the study problem, hypotheses, objectives, and significance. Second, the related work is concerned. Third, they describe the proposed methodology, including the research population, sample, and data collection instruments. Forth, they discuss the results with their implications and visualizations. Fifth, they concluded and introduce the future work.

THEORETICAL FRAMEWORK

A theory refers to beliefs, statements, or principles related to a particular subject. It tries to explain and predict a specific phenomenon and respond to its questions, such as why something is happening now or later (Picciano, 2017). Theories of learning attempt to demonstrate how people learn by considering aspects such as people's educational background, social status, multiple disciplines, and psychological state. Moreover, the scientific studies and neuroscience the of humans' nervous system are considered (Picciano, 2017).

The learners' engagement in online learning is the most significant issue that many researchers have discussed, mainly during the pandemic. Many frameworks discuss engagement and motivation in e-learning and how to achieve these principles during teaching and learning. The engagement theory of Kearsley and Shneiderman (1998) addressed the relationship between parents and the learning process during online learning. The involvement of the parents and their contribution is essential to enhance the learners' active participation during distance education. The role of the parents in online primary education is more important than in secondary or tertiary education. Parents' involvement is needed, where it enables learners in two phases. The first is to facilitate online education by ideally using digital devices and apps. The second is to keep their kids engaged and motivated during the teaching and learning.

The pandemic converted the entire education process worldwide to being online. The authors attempt to enlighten the advantages and disadvantages of this learning modality during COVID-19 from parents' perspectives, and to elicit their opinions, which helps in improving this modality and provides policymakers with parents' concerns. In addition, it sheds light on the parents' role and contribution in guiding and facilitating the online learning process. The parents' involvement could assist the learners in being successful during the sudden shift to online learning for the first time.

STATEMENT OF THE PROBLEM

The COVID-19 pandemic suddenly obliged the world to switch to online education to mitigate the virus's spread. That sudden shift without earlier experience from teachers, students, and parents resulted in different responses and real challenges to the educational process. Many studies have been conducted on the role of online education in schools and higher education and introduced its effects on teachers and students. Many studies are still carried out in the interim, and many approaches and techniques have been applied in different contexts. This study explores the parents' perception of the efficiency of online schooling as they are considered the prominent supporters of their kids' learning

during this pandemic. It attempts to assess online schooling from the parents' views and whether it can be an optimal substitute for face-to-face schooling for the first three primary classes.

Hypotheses

Hypothesis 1: Parents and children are not satisfied with online schooling during COVID-19.

Hypothesis 2: Parents' engagement facilitates online education during COVID-19.

OBJECTIVES OF THE STUDY

This study aims:

- To explore the advantages and disadvantages of online schooling in the first three primary classes.
- To examine the parents' satisfaction with their kids' performance in online schooling.
- To examine the extent to which online learning can substitute face-to-face learning in the 1st, 2nd, and 3rd primary grades based on parents' responses.

SIGNIFICANCE OF THE STUDY

This study has added to the literature by revealing how the parents of the children in the first three primary school classes experienced and evaluated online learning in KSA for the first time. Furthermore, it explores the parents' awareness of online learning efficiency and conveys their perceptions to the policymakers. It attempts to measure whether implementing this learning modality can substitute face-to-face learning even after this pandemic. It is significant, theoretically and practically, since it handles online learning as an essential topic in the instructional process during COVID-19. It can provide the policymakers at the Ministry of Education with the genuine concerns of the parents and their children; and parents' motives and reasons that encourage the continuity of online learning or alter in-person learning with online learning. Thus, they can be more familiar with the instructional needs, aims, and objectives needed to achieve and help them implement appropriate training and remedial plans to deal with these concerns.

RELATED WORK

Many studies explore the efficiency of online learning from teachers' perspectives such as Vu et al. (2020), Yang (2020), Todd (2020), Rachmat & Krishna (2020), Aliyyah et al. (2020), and Yunita et al. (2021). Others explore it from students' perspectives such as Adnan (2020), Agarwal and Kaushik (2020), Mahyoob (2020), Yustina et al. (2020), Khanum and Alam (2021), Bączek et al. (2021), Laili and Nashir (2021), Mahyoob (2021), and many others. However, by reviewing previous investigations, the authors conclude that to their knowledge studies examining the parents' perceptions of online learning efficiency are limited (counted on fingers). Therefore, this study is the first to explore parents' satisfaction and perceptions of online learning effectiveness in only the first three grades in Saudi primary schools during the COVID-19 Pandemic.

Among those few studies that dealt with parents' perceptions, Lau et al. (2020) explored the moderating effect of child competence in independent learning related to the number of learning assignments, length of online learning, and parents' satisfaction with children's online learning COVID-19 enforced class interruption. They distributed an online survey to 3381 parents; 92.4% are mothers in Hong Kong. According to their findings, the number of learning assignments and length of online learning related to parents' satisfaction based on the children's competence in learning independently online. Novianti and Garzia (2020) investigated the parental engagement

in children's online learning in the form of "home good parenting" during the Covid-19 Pandemic. They used closed interviews and an online questionnaire distributed among 148 parents from the first and second grades of elementary school students. They proved the significant positive effect of parents' engagement on children's achievement and adjustment during online learning. Daniela et al. (2021) explored parents' opinions on distance learning and the challenges they encountered. They investigated parents' views on 738 school-age children (313 responses about 1st–4th graders; 362 replies for 5th–9th graders, and 63 for 10th–12th graders). The results revealed that parents and mothers provided support to their children. Ribeiro et al. (2021) investigated Portuguese parents' perceptions of their home-based parental involvement during COVID-19 using an online survey questionnaire distributed among 21,333 parents with children from elementary school to secondary education. The study revealed that the parents' involvement time was significantly determined by students' gender, age, and school timing. It was likely to decrease from primary to secondary school. They emphasized the importance of investing parents' time, especially for primary school children.

Lase et al. (2021) investigated parents' (of the elementary school students) attitudes towards Distance learning during the COVID-19 Pandemic. This research used a qualitative approach. They collected data using semi-structured interview techniques and analysed it using thematic analysis techniques. According to them, parents generally showed no negative views, and their involvement in their children's education positively affects their academic performance.

On the other hand, they revealed a notable decrease in the children's motivation and cognitive abilities. Garbe et al. (2020) explored parents' experiences and struggles during online learning. They used thematic coding to analyse data. The results showed that parents were satisfied with the level of school district support. Still, they experienced some struggles with learning outcomes, learner motivation, accessibility, and stress as they have many responsibilities.

METHODOLOGY

Research Population and Sample

This research targeted the parents of the children in the first three primary school classes from different public schools affiliated with the SA Ministry of Education in Alula, KSA. It aimed to explore their perceptions, attitudes, roles, and satisfaction with online learning using the official government learning platform in schools (Madrasati) and other supported apps during the COVID-19 Pandemic. The authors applied the typical case sampling technique as a purposeful (non-probability) sampling method. This sampling technique shows standard and average situations (Baltacı, 2018). The typical case sample was applied here because the effects of online learning as a typical situation were investigated in this research. A sample of 99 respondents was collected during the second-semester final examinations of the primary school of the academic year 2020/2021.

The descriptive data of the demographic attributes, including gender (n= 41 males, n= 58 females), the number of children's parents in the first three grades (n= 36 of 1st class, n= 39 of 2nd class, n= 21 of 3rd class, n= 3 of more than one grade), and the parent's educational level (n= 12 postgraduate, n= 39 bachelor, n= 12 diploma, n= 21 high school graduate, n= 15 others), and child class (n= 33 in 1st class, n= 24 in 2nd class, n= 69 in 3rd class) are presented in table one.

Data Collection (Instrument and Measure)

In this investigation, the authors utilized a survey as a research design. As stated by Creswell (2003), survey designs are measures in quantitative research in which a survey or questionnaire to a small group of people (sample) refers to a large group of people (called the population) to explore their behaviors, characteristics, motivations, views, and attitudes. The authors developed a web-based survey via Google Form to explore the parents' awareness, roles, and attitudes towards online-learning efficiency (advantages and disadvantages) using the Madrasati platform during the coronavirus

Table 1. Demographic data distribution

Gender		Number of Participating Parents		Parents' Educational Level		Total Number of Learners	
Male	41	1 st grade	36	Postgraduate	12	1st primary	33
Female	58	2 nd grade	39	Bachelor	39	2nd primary	24
		3 rd grade	21	Diploma	12	3rd primary	69
		More than one grade	3	High school graduate	21		
				Others	15		
Total	99	99		99		126	

outbreak. And a link to the survey was disseminated over the Internet via mainstream social network (WhatsApp) among children’s parents of the first three primary classes by school administrators during the second-semester final examinations in 2021.

The scale comprised in its final form (17) multiple questions (opened-ended; multiple-choice, and rating scale “closed-ended” questions) covering the study objectives. For achieving precise results, the questionnaire comprised three general parts: demographic information about the participants, a five-point Likert-type scale – from Strongly Agree to Strongly Disagree, and open-ended questions to extract the parents’ perceptions and recommendations on online learning using the Madrasati platform and other supported apps (Teams, WhatsApp, Ien National e-portal, and IEN TV Channels). It comprised 17 questions about the pros (n= 9) and cons (n= 7) of online learning from parents’ perspectives. The third part included (n= 1) open-ended questions eliciting parents’ recommendations and further information. *Jamovi* software (Version 1.6)² and Microsoft Excel were used for data analysis. For testing the questionnaire (instrument) validity, i.e., whether it tests what it is intended to test or not, the authors consulted a panel of experts on the research subject who reviewed the questionnaire to check the questionnaire’s face validity. They also used the factor analysis (FA) technique using Principle Component Analysis (PCA) to measure the questionnaire construct validity. In the reliability checking, i.e., the internal consistency across all the individual variables, they applied Scale Reliability Statistics using Cronbach’s α and McDonald’s ω measures. Spearman’s Correlation rho and Pearson’s Correlation r were also used to measure the strength and consistency of the internal reliability of the tool, as illustrated in the results section.

RESULTS AND DISCUSSION

The engagement theory focuses on the methods that make online learning more effective and successful. Parents played a primary role during remote learning because new duties (technical and educational) in education emerged due to the fast shift from in-person to online school, especially at the beginning weeks and stages. The family role is significant in engaging and motivating their kids during online learning as the learners are experiencing challenges and difficulties in their early stages of learning. This study answered the questions about parents’ essential role in guiding their learners to succeed and develop during their learning process. The teacher and the parent’s duties go side by side during online learning. This research found that motivation and engagement will be achieved when the family and the school form successful collaborative teams to enhance the educational process, mainly during the pandemic. The researchers attempted to determine any statistically significant differences between participants’ responses regarding the pros and cons of home-based schooling or remote learning during the Covid-19 pandemic.

Advantages of Online Learning

Table 2 demonstrates the parents' overall responses to the advantages of online schooling, which is considered the only realistic way to provide continuity of learning and teaching using the Madrasatis platform. In the first variable, "Parents and their children are satisfied and comfortable with online schooling," generally, the parents' responses show a positive attitude towards the remote learning modality, where (n= 50) agree, (n= 12) neutral, and (n= 35) disagree. At this early stage of learning, kids feel comfortable studying at home among their families; even the parents are out of their worries about their children's first entry into school. Parents said their kids showed surprising resilience and adaptability and were wonderful. In the second variable, most parents (n= 93) agree that online schooling has enhanced the importance of the parent's role as their kids' progress relies heavily on their support; in contrast, six parents disagree with this theme. In fact, due to a new learning modality, new parents' duties emerged in learning, especially at the beginning weeks which is consistent with Novianti & Garzia (2020), Daniela et al. (2021), Ribeiro et al. (2021), Garbe et al. (2020), and Lase et al. (2021) who stressed parents' primary role during this pandemic. Indeed, parental reading helps foster child socio-emotional development and the day-to-day activities that parents undertake with their children are highly correlated with children's learning and development (OECD, 2020).

In the case of the third variable, most of the parents' and their kids' enthusiasm (n= 90) increased. They confirmed that online learning encouraged parents to support and encourage their children when they noticed the excellence of some kids during online classes. In contrast, nine parents feel that online learning decreases enthusiasm and competition in their children. Generally, this variable stated that online learning creates a spirit of challenge for parents and children. In the fourth variable, 51 parents feel that children's strengths and weaknesses can be discovered during online classes even without physical proximity and face-to-face interaction. While 38 parents disagree and declare that they cannot virtually detect their kids' strengths and weaknesses. Six parents believe that seeing children's strengths and weaknesses are not affected by the learning mode, either virtual or actual. In the fifth variable, 90 parents think that online schooling strengthens the relationship between the teacher and the child; and teacher and parent, which is in line with Bozkurt et al. (2020). While three suppose that this modality doesn't affect these relationships. In comparison, six parents believe face-to-face relationships are more robust, and online schooling weakens these relationships.

In the sixth variable, parents (n= 93) believe that their kids' motivation increased in online rather than in-person classes. They suppose that the kids' participation and teachers' encouragement in front of their parents enhance their motivation. The result conflicted with the findings of Adnan (2020) and Yustina et al. (2020) that online learning negatively affected student motivation due to technical and monetary issues. Interestingly, countries with strong economies like Saudi Arabia have the means to continue learning, so the online learning modality in primary schools produced desired results and positively affected kids' motivation and enthusiasm. For the seventh variable, "online learning makes parents aware more of their kids' educational performance and level," (n= 66) parents think that after moving to online classes, they become more familiar with their children's educational performance and levels rather than before in in-person classes; this is because parents are obligately engaged in the emergent learning modality and become closer to their children, especially in these three primary classes where kids need much support either emotionally, technically, or educationally. In the eighth variable, all the respondents (n= 93) except six confirmed that the school's district support and administrations successfully follow up and control the education process. This result is consistent with Garbe et al. (2020), who showed parents were satisfied with the level of school district support. Finally, in the last variable, most parents (n= 90) are satisfied with the educational interaction during online learning. That is in line with Anderson (2004), who stated that online learning enhanced interaction between teacher and student without constriction but in contrast with Megawanti et al. (2020), who indicated that children interact and learn together better in conventional classes rather than online classes.

Table 2. The overall responses for the advantages of online schooling using the Madrasati platform

Advantages of Online Schooling	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Parents and their children are satisfied and comfortable with online schooling.	34	18	12	23	12
Online schooling has enhanced the importance of the parent's role.	72	21	3	0	3
Online schooling generates enthusiasm and competition in children and parents.	60	30	0	3	6
Parents become more familiar with their children's strengths and weaknesses during online schooling.	24	27	10	26	12
Online schooling strengthens the relationships between (teacher-children and teacher-parents).	20	70	3	0	6
Children's motivation increases more during online schooling than in-person learning.	20	73	0	3	3
Parents become more aware of their kids' educational performance and level.	36	30	3	24	6
The school's administration and school district support successfully control the education process during online schooling.	23	70	3	0	3
The educational interaction is successful during online schooling.	57	33	0	0	9

Table 3 conveys the gist “statistics” of what the obtained data is trying to tell. The first column of the table introduces $N = 5$, which refers to the average number of observations (5 Likert Scales: strongly agree, agree, disagree, and strongly disagree). The mean (m) is 19.8 for all the variables. The median is between 3 and 25, and the mode represents the most common values between 0 and 12 (where “a” means if more than one mode exists, only the first is reported). The standard deviation shows high scores between 9.18 and 30.8 that indicate confidence in statistical data conclusions. the notion of “variability” is clarified by the range values between 22 and 73.

Disadvantages of Online Learning

In Table 4, parents' opinions on the disadvantages can be summarized as follows. In the first variable, 66 parents feel stress during online learning. Most working parents had to telework from home and care for their children because schools and day-cares were closed. As a result, they struggled with accomplishing different roles simultaneously, which stressed them severely and, in some cases, caused economic and psychological issues, as indicated by Zaharah and Kirilova (2020) and Spinelli et al. (2020). These findings align with Syrek et al. (2021), who stated that working parents are more seriously affected by the crisis due to the multiple roles they are forced to play.

Furthermore, parents asserted that remote learning modality stressed them heavily as their kids' progress relies on their support, and some do not have time or skills to provide the desired support. However, some women are housewives in particular societies, such as Saudi society, and many workers are free at online primary school time (from 3:30 to 7 pm). This condition demonstrates why 30 parents do not think online schooling is stressful for them.

In the second variable, 93 parents are worried about the effect of electronic devices on their kids' eyes as they spend long amounts of study time on them. Seventy-five parents agree with the third variable and declare that their kids play games during the lessons because there is a greater chance of kids being easily distracted by games or YouTube cartoons in online learning. In comparison, 18

Table 3. Descriptive analysis of the parents' responses on the advantages of online schooling

Advantages of Online schooling	N	Mean	Median	Mode	SD	Range
Parents and their children are satisfied and comfortable with online schooling.	5	19.8	18	12	9.18	22
Online schooling has enhanced the importance of the parent's role.	5	19.8	3	3	29.5	70
Online schooling generates enthusiasm and competition in children and parents.	5	19.8	25	3 ^a	12.1	30
Parents become more familiar with their children's strengths and weaknesses during online schooling.	5	19.8	6	0 ^a	25.4	60
Online schooling strengthens the relationships between (teacher-children and teacher-parents).	5	19.8	6	0	29.1	70
Children's motivation increases more during online schooling than in-person learning.	5	19.8	3	3	30.8	73
Parents become more aware of their kids' educational performance and level.	5	19.8	23	6	13.2	28
The school's administration and school district support successfully control the education process during online schooling.	5	19.8	3	3	30.3	72
The educational interaction is successful during online schooling	5	19.8	9	0	24.8	57

Table 4. The overall responses for the advantages of online schooling using the Madrasati platform

Disadvantages of Online Schooling	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Online-schooling is stressful for the parents.	46	20	3	12	18
Learning devices harm the children's eyes.	36	57	3	0	3
Children waste time playing games during online lessons.	33	42	6	2	16
Children show poor social and emotional relationships.	21	48	3	12	15
Children show a lack of independence (they depend on their families).	33	26	0	26	14
Online schooling cannot discover talents and abilities in students.	27	39	0	28	5
There is a lack of privacy in the online schooling modality.	12	55	0	19	13

parents assured that their kids adhere to their classes and think this learning modality improves their kids' digital interaction skills, which coincides with Algaraady and Mahyoob (2021). In the case of the fourth variable, parents majorly (n= 69) believe online learning badly affects their kids' social and emotional relationships. That is in line with Garbe (2020), who indicated that parents showed their worries about their kid's social and emotional growth because of decreased interactions with peers. The lack of social interaction leads to emotional disorder due to the remote learning modality during this crisis (Irawan et al., 2020).

Fifty-nine participants’ opinions on the child’s lack of independence determined that kids tend to depend on their parents or adults to implement their learning activities, affecting their assessment’s assurance. In contrast, 40 participants stated that their kids show self-dependence during their online learning interaction. In the sixth variable, 66 participants believe online learning cannot discover children’s talents. At the same time, 33 parents disagreed and thought kids’ talents could be discovered in this learning modality. Finally, the last variable demonstrates that most children’s parents (n= 67) face a lack of privacy due to the kids’ misuse or unaware dealing of devices during the implementation of the online learning modality. At the same time, 32 parents do not face that problem.

Table 5 communicates the descriptive statistics of collected respondents on the disadvantages of online schooling. The mean (*m*) is 19.8 for all the variables except the variables: “Children show lack of independence” (*m*=19.2) and “lack of privacy” (*m*=17.8). The median is between 3 and 27 and the mode represents the most common values between 0 and 26. The standard deviation high scores are between 12.1 and 30.8. This indicates confidence in statistical data conclusions. The range values are between 73 and 22.

Reliability

Reliability refers to the consistency of the study tool or measure. Research reliability means the degree to which it can give accuracy across a range of measurements. There are four kinds of reliability: across items (internal consistency), Parallel forms, over time (test-retest reliability), and across different researchers (inter-rater reliability). The authors apply across items (internal consistency) in this analysis, focusing on the Scale Reliability Statistics.

Scale Reliability Statistics

Generally, the reliability coefficient range is between ≥ 0.7 and ≤ 95 . Table 6 reveals the scale reliability statistics of the correlations between the two factors and their variables. The reliability coefficient range of the first factor, “Advantages of online-schooling during Covid-19,” is 0.928 for

Table 5. Descriptive analysis of the parent’s responses to the second factor’s variables

Disadvantages of Online Schooling	N	Mean	Median	Mode	SD	Range
Online-schooling is stressful for the parents.	5	19.8	18	3 ^a	16.1	43
Learning devices harm the children’s eyes.	5	19.8	3	3	25.5	57
Children waste time playing games during online lessons.	5	19.8	16	2 ^a	17.2	40
Children show poor social and emotional relationships.	5	19.8	15	3 ^a	17	45
Children show lack of independence (they depend on their families).	5	19.2	15	0 ^a	16.2	43
Online schooling cannot discover talents and abilities in students.	5	19.8	27	0 ^a	16.6	39
There is a lack of privacy in the online schooling modality.	5	17.8	12	0 ^a	22.1	55

Table 6. Scale reliability statistics

Factor Scale	Mean (μ)	Sd (σ)	Cronbach’s α	McDonald’s ω
Advantages of online schooling	19.8	19.4	0.928	0.949
Disadvantages of online schooling	19.4	16.1	0.93	0.94

Cronbach’s α and 0.949 for McDonald’s ω , and the proportion of error variance in the scale is 0.72 and 0.51, respectively. For the second factor, “Disadvantages of online-schooling during Covid-19”, the Cronbach’s α value is 0.93, and the McDonald’s ω value is 0.94, with error variance proportions of 0.7 and 0.6, respectively. These high scores of α and ω ascertain the high degree of the study tool reliability, i.e., the internal consistency across all the individual variables of the factors that make up a measurement scale of the underlying construct. And the items are excellent contributors to what the test measures. Moreover, it stresses that the study tool avoids the irredundant questions (variables) because a high score of $\alpha > 95$ means redundant questions, i.e., they’re asking the same thing but in a different guise. In truth, the authors reached this high score after eliminating some variables (with low or negative (α , ω) scores), which decreases or increases the reliability of the study tool.

Validity

To depend on the harvested data of the questionnaire, the authors needed to check the validity of the questionnaire. Validity means to measure what is intended to be measured (Field, 2005). Validity states the extent to which a metric measures what it purports to measure. To check the validity of this questionnaire, the authors needed to prove that all the variables relate to their factors and cover the actual area of investigation. And to explore the theoretical construct of the questionnaire (instrument) and whether it measures the traits of interest, the authors established the face validity of a questionnaire by consulting a panel of experts on the research subject who reviewed the questionnaire. They used the Factor Analysis (FA) technique to assess the construct validity because it is appropriate for questionnaires containing separated factors with several variables like this study tool. For performing factor analysis, the extraction method used was Principle Component Analysis (PCA). In factor analysis, the absolute value of factor-variable correlation is $> (\pm 0.04)$. Table 7 displays the component

Table 7. Principle component analysis (component loadings)

Factors/Variables	Component	Uniqueness
	1	
Factor 1: Advantages of Online Schooling During Covid-19		
Parents and their children are satisfied and comfortable with online schooling.	0.748	0.440
Online schooling has enhanced the importance of the parent’s role.	0.842	0.290
Online schooling generates enthusiasm and competition in children and parents.	0.819	0.328
Parents become more familiar with their children’s strengths and weaknesses during online schooling.	0.909	0.174
Online schooling strengthens the relationships between (teacher-children and teacher-parents).	0.852	0.274
Children’s motivation increases more during online schooling than in-person learning.	0.717	0.486
Parents become more aware of their kids’ educational performance and level.	0.737	0.457
The school’s administration and school district support successfully control the education process during online schooling.	0.945	0.107
The educational interaction is successful during online schooling.	0.732	0.464
Factor 2: Disadvantages of Online Schooling During Covid-19		
Online-schooling is stressful for the parents.	0.660	0.5639
Learning devices harm the children’s eyes.	0.956	0.0865
Children waste time playing games during online lessons.	0.929	0.1373
Children show poor social and emotional relationships.	0.919	0.1552
Children show a lack of independence (they depend on their families).	0.825	0.3188
Online schooling cannot discover talents and abilities in students.	0.863	0.2548
There is a lack of privacy in the online schooling modality.	0.817	0.3326

loadings of this research’s two investigated factors. For the first factor, the component loadings of the variables are between 0.717 and 0.945. In the case of the second factor, the variables’ component loadings are between 0.660 and 0.956. All the variables’ loadings show positive and high validity eco-efficiency - greater than the absolute value of 0.04. That proves the measuring accuracy, i.e., the robust correlations between each questionnaire item (factor) and an underlying latent construct (variables), and consequently between the questionnaire items. Moreover, these scores assure the questionnaire’s suitability to express and measure what it is intended to measure. Generally, the higher the validity coefficient, the more beneficial it is to use the test.

Tables 8 and 9 fully report the detailed bivariate correlations; Pearson’s (parametric) and Spearman’s (nonparametric) Correlation Coefficients (Ravinder & Saraswathi, 2020). Significant total correlations were detected among all the factors variables. The correlation coefficient ranges from –1 to 1. An absolute value of exactly 1 implies an identical correlation, while -1 implies anti-correlations. The correlation matrix explores the dependence between multiple variables simultaneously. Dash lines in the table that refer to the same correlation values (half portion of the correlation) are deleted to avoid repetitions. For P-value, if the correlation coefficient was in fact zero, the probability that the

Table 8. Correlation coefficients between each variable and the other variables in factor one

		A	B	C	D	E	F	G	H	I
B	Pearson's r	0.857	—							
	p-value	0.064	—							
	Spearman's rho	0.763	—							
	p-value	0.133	—							
C	Pearson's r	0.617	0.481	—						
	p-value	0.268	0.412	—						
	Spearman's rho	0.564	0.616	—						
	p-value	0.322	0.269	—						
D	Pearson's r	0.815	0.992 ***	0.536	—					
	p-value	0.093	< .001	0.352	—					
	Spearman's rho	0.616	0.975 **	0.500	—					
	p-value	0.269	0.005	0.450	—					
E	Pearson's r	0.082	0.357	0.600	0.465	—				
	p-value	0.895	0.555	0.285	0.430	—				
	Spearman's rho	0.154	0.718	0.400	0.800	—				
	p-value	0.805	0.172	0.517	0.133	—				
F	Pearson's r	0.123	0.359	0.656	0.466	0.997 ***	—			
	p-value	0.844	0.552	0.229	0.429	< .001	—			
	Spearman's rho	0.553	0.895 *	0.821	0.872	0.821	—			
	p-value	0.334	0.040	0.089	0.054	0.089	—			
G	Pearson's r	0.869	0.801	0.874	0.818	0.532	0.577	—		
	p-value	0.056	0.104	0.053	0.091	0.357	0.309	—		
	Spearman's rho	0.895 *	0.921 *	0.667	0.821	0.564	0.816	—		
	p-value	0.040	0.026	0.219	0.089	0.322	0.092	—		
H	Pearson's r	0.109	0.374	0.610	0.479	0.999 ***	0.997 ***	0.556	—	
	p-value	0.861	0.535	0.274	0.414	< .001	< .001	0.330	—	
	Spearman's rho	0.158	0.658	0.359	0.718	0.975 **	0.763	0.579	—	
	p-value	0.800	0.227	0.553	0.172	0.005	0.133	0.306	—	
I	Pearson's r	0.747	0.972 **	0.528	0.993 ***	0.535	0.530	0.786	0.545	—
	p-value	0.147	0.006	0.361	< .001	0.353	0.359	0.115	0.342	—
	Spearman's rho	0.500	0.921 *	0.359	0.975 **	0.872	0.816	0.763	0.816	—
	p-value	0.391	0.026	0.553	0.005	0.054	0.092	0.133	0.092	—

Table 9. Correlation coefficients between each variable and the other variables in factor two

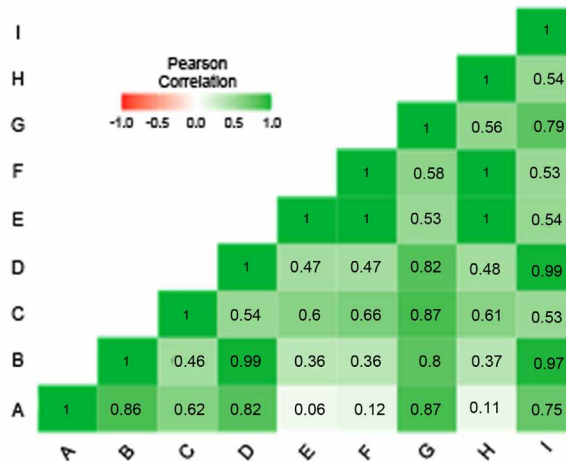
		A	B	C	D	E	F	G
B	Pearson's r	0.548	—					
	p-value	0.169	—					
	Spearman's rho	0.718	—					
	p-value	0.086	—					
C	Pearson's r	0.657	0.960 **	—				
	p-value	0.114	0.005	—				
	Spearman's rho	0.800	0.975 **	—				
	p-value	0.067	0.002	—				
D	Pearson's r	0.355	0.912 *	0.877 *	—			
	p-value	0.279	0.016	0.025	—			
	Spearman's rho	0.900 *	0.821 *	0.900 *	—			
	p-value	0.042	0.044	0.042	—			
E	Pearson's r	0.953 **	0.705	0.745	0.552	—		
	p-value	0.006	0.092	0.074	0.167	—		
	Spearman's rho	0.900 *	0.564	0.600	0.800	—		
	p-value	0.042	0.161	0.175	0.067	—		
F	Pearson's r	0.458	0.739	0.617	0.787	0.702	—	
	p-value	0.219	0.077	0.134	0.057	0.093	—	
	Spearman's rho	0.500	0.359	0.400	0.700	0.700	—	
	p-value	0.225	0.276	0.258	0.117	0.117	—	
G	Pearson's r	0.121	0.804	0.676	0.930 *	0.389	0.855 *	—
	p-value	0.423	0.050	0.105	0.011	0.258	0.032	—
	Spearman's rho	0.500	0.359	0.400	0.700	0.700	1.000 **	—
	p-value	0.225	0.276	0.258	0.117	0.117	0.008	—

authors would have got is the current result. If $P < 0.05$ (5%), the correlation coefficient is statistically significant, implying a positive correlation between variables. In the case of factor one (advantages of online-schooling during Covid-19), the variables' correlation coefficient ranges from $r = 0.999$ to $r = 0.082$ in the case of the Pearson Correlation (r) with a P-value range from $P = 0.001$ to $P = 0.895$, and from $\rho = 0.154$ to $\rho = 1$ in the case of Spearman Correlation with a P-value range from $P = 0.001$ to $P = 805$. While in the case of factor two (disadvantages of online-schooling during COVID-19), the variables' correlation coefficient ranges from $r = 0.121$ to $r = 0.960$ for the Pearson Correlation (r) with a P-value range from $P = 0.423$ to $P = 0.005$ and from $\rho = 0.359$ to $\rho = 1$ for the Spearman Correlation with a P-value range from $P = 0.002$ to $P = 0.276$.

In Figure 1, the heatmap illustrates the total Pearson correlation r (or, more specifically, Pearson's correlation coefficient) between the variables in the first factor. The darkest green squares imply the highest r , the white squares show no correlation, and the red squares denote a negative, i.e., inverse relationship (anti-correlation), closer to -1. The gradient in the lightness of the green color means a decrease in the correlation coefficient between the variables. In this factor, the letters from A to I refer to the nine variables. The Pearson correlation values are positively scaled from 0.08 to 0.99, excluding the absolute value of precisely 1, implying the perfect relationship between a variable and itself.

The correlation between the variable, "Parents become more familiar with their children's strengths and weaknesses during Online schooling," and the two variables: "Online schooling has enhanced the importance of parent's role," and "The educational interaction is successful during

Figure 1. The heatmap of factor one variables correlations

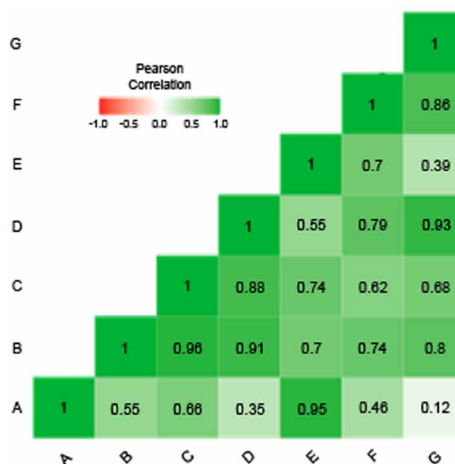


Online schooling,” scored the highest coefficients with $r = 0.99$. Also, the correlation between the “The educational interaction is successful during Online schooling” variable, and the “Online schooling has enhanced the importance of parent’s role” variable is $r = 0.97$. These high correlation coefficients reveal that parents’ roles and engagement play a collaborative role besides teachers’ roles in the success of online schooling since self-directed learning had become an obstacle to online learning during the COVID-19 pandemic as stated by Chung et al. (2020). Parent engagement in their children’s online learning demands a considerable emphasis on providing parents with helpful and suitable support.

In contrast, the correlations between the variable, “Parents and their children are satisfied and comfortable with Online schooling,” and the three variables: “Online schooling strengthens the relationships between (teacher-children and teacher-parents)”, “Children’s motivation increases more during Online schooling than in-person learning”, and “Parents become more aware of their kids’ educational performance and level” are very low and scored $r = 0.08$, $r = 0.12$, and $r = 0.11$ respectively.

Figure 2 shows the overall Pearson correlation r between the variables in the second factor where the letters from A to G refer to the six variables of this factor, respectively. In the same vein,

Figure 2. The heatmap of factor two variables correlations



the Pearson correlation values are also positively scaled from 0.12 to 0.96, which means no zero or negative correlation between the variables.

As shown in Figure 2, the correlation between the “lack of privacy” variable and the “Online-schooling is stressful for the parents” variable is very low, $r = 0.12$. However, the correlation between the variables “Learning devices harm the children’s eyes” and “Children waste time playing games during online lessons” shows the highest $r = 0.96$. The correlation between the variables “Online-schooling is stressful for the parents” and “Children show lack of independence” is very high, $r = 0.95$, which reveals students’ technical and educational dependence on their parents stresses them highly. The correlation between the variable “Children show poor social and emotional relationships” and the “Children waste time playing games during online lessons” variable shows a high score ($r = 0.88$). This strong correlation indicates that kids are playing games during and even after classes affects their social relationships. That implies a real challenge because kids’ excessive use of mobiles for self-entertainment causes poor social relationships. Overall, the variables correlation heatmaps display a high degree of Pearson Correlation between most of these variables, which is in line with Principle Component Analysis (PCA), which assures the benefits of using the study tool and the validity of the study results.

CONCLUSION AND FUTURE WORK

The present study offers a unique glimpse into the parents’ perspectives on the advantages and disadvantages of online schooling in the primary school’s first three grades during the COVID-19 crisis. It is set out to understand the parents’ views and experiences with online schooling and their kids’ satisfaction with online schooling. Furthermore, it attempts to measure whether implementing this learning mode can substitute face-to-face learning even after this pandemic and convey parents’ perceptions to the policymakers. The investigation has concluded that online schooling is stressful for parents, expressing their concerns about their children’s social and emotional relationships and lack of dependencies and privacy. However, parents and kids are highly satisfied and comfortable because it creates the spirit of enthusiasm and competition, increases their motivation, and enhances educational interaction and the relationships between teachers, kids, and parents. The study has enhanced our understanding of the parents’ engagement and crucial role (technical and educational) contributed to the success of the educational process during this crisis. As this investigation revealed, kids’ parents recommended implementing this learning mode even after this pandemic. Like all research, this investigation has limitations and has opened up several questions that need further study. As this study is limited to primary school’s first three grades in Saudi schools, additional work needs to be done to address parents’ perception of the efficiency and the challenges of online schooling in the upper grades (preparatory and high) in Saudi schools.

CONFLICT OF INTEREST

The authors of this publication declare there is no conflict of interest.

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ENDNOTES

¹ <https://en.unesco.org/covid19/educationresponse/globalcoalition>

² <https://www.jamovi.org/>

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