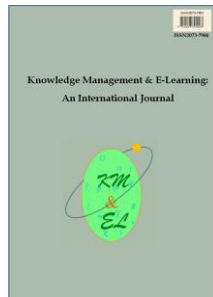# Covid-19 and online classes: Measuring Indian parents' attitude towards online classes at kindergarten and junior school level

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Covid-19 and online classes: Measuring Indian parents' attitude towards online classes at kindergarten and junior school level

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Abstract: The study aims to examine the readiness of Indian parents towards online classes at kindergarten and junior school levels, by identifying the perceived barriers, perceived effectiveness and health impact of online classes on young children. The study is based on data collected across a random sample of 750 parents of students studying at junior and kindergarten levels in urban private schools which offer online classes. The data was analyzed through exploratory factor analysis, ANOVA and multiple regression analysis. Technological, infrastructural, and personal barriers related to students, and parents, were identified as perceived barriers by parents in availing online classes for their kids. Parents' attitude towards online classes at kindergarten and primary levels gets negatively influenced by the barriers they face, and the perceived negative impact of technology usage on their kids' health, while; perceived effectiveness was found to have a positive impact on the parents' attitude. The study is unique as it includes the interest of such young stakeholders of the education system. The study highlights the barriers faced by parents related to online classes and the health-related concerns which play a major role in the adoption of online mode of education for their kids. Research gives insights to school authorities and the government to work on these barriers and make the online education system effective which is the need of the hour during COVID-19.

Keywords: Online education; Parents; Junior school; Kindergarten; India; Perceived effectiveness; Covid-19; Private schools; Perceived barriers

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1. Introduction

The ongoing COVID-19 has fundamentally changed the ways of our world with education being one of the hardest-hit sectors, as all schools and institutes were shut down for indefinite periods (Oladipo et al., 2020). Before this development, the interest in digital learning was already surging but it was found to be majorly focused on

alternative and informal higher education, such as up-skilling or vocational courses that acted as a supplement to formal educational degrees. The online education scenario was a niche that comprised platforms like YouTube, Coursera, and Skillshare, offering relatively unexplored opportunities for enterprising individuals who relied on the internet due to the unavailability of quality education in their offline surroundings. However, the lockdowns amid the pandemic have transformed the education scenario entirely. The online education market in India was worth US$247 million in 2016 and is expected to grow up to US$3 billion by 2021. Most schools, especially private schools, in India have now officially entered the online education space to provide formal, structured education at all school levels. This shift was borne out of immediate necessity to avoid the loss of education and precious time of students' academic year while waiting for the pandemic to pass. The consequence of such an urgent and absolute transformation from offline to online education meant that this development was shocking and abrupt for educators, students, as well as parents. There was no gradual transition or problem-solving regarding the barriers to adopting this new system. This problem was especially apparent in the case of education for younger kids. According to the norms published by the HRD ministry, a child aged between three to eight years is eligible for admission into kindergarten and junior classes in school (Ministry of Human Resource Development, 2020). While digital learning has been around for a decade, its previous target market comprised older students who preferred the time-effectiveness, economic value, and accessibility of digital correspondence options to add to their offline educational experience. However, the same generalizations cannot be cast over the younger demographic of kindergarten and junior students. These students require not just supplemental resources or guidance, but complete course frameworks that offer a detailed understanding of multiple subjects. Child psychology evaluations show that children of such a young age are highly curious and attention-deficient, and have low concentration. Such students require high individual attention, personal support through physical learning, and an engaging, non-disruptive environment (Heppen et al., 2017; Kapur et al., 2018). Online classes for young kids have earlier been used as part of blended learning courses in schools, for home-schooled children, or disabled or ill students. However, the obligatory nature of entirely online education for all students has posed several challenges, especially with little to no experience of this sort among teachers and parents alike (Basilala & Kvavadize, 2020; Dhawan, 2020; Silverman et al., 2020). Virtual lessons are not living up to the mark of quality education – there are low engagement and interactivity, which makes students disinterested, annoyed, and more likely to simply log off (Adnan & Anwar, 2020; Iivari et al., 2020). The online classes also demand self-discipline, time management, and self-generated motivation; which were contrary to the attitudes of the children in this age group. Additionally, online classes required technical help and guidance to be available at all times, since children at this age are not self-sufficient in this regard. Challenges like these have raised questions regarding the effectiveness of online education for young learners at the kindergarten and junior school levels. Along with education experts, parents have shown suspicion of the value of online classes for young kids (Dalton et al., 2020; Subramaniam et al., 2020; Wu et al., 2020). The parents evaluate the substitutability of online classes against the previous offline education system, as well as the barriers to adopting it into their existing living patterns (Dong et al., 2020). The parents must resolve challenges such as the availability of technical infrastructure, time and space management, and their own professional engagements (Garbe et al., 2020). In the absence of mentors or teachers, parents face the responsibility of ensuring the attention span and engagement of the children, as well as providing technical or academic support. In the Indian context, these challenges are further exacerbated by the social and cultural situations of the parents. A vast majority of Indian families are big; there are multiple kids in a home under joint family setups. These

setups mean several hurdles; the lack of digital gadgets for every family member, lack of physical space for learning, a noisy and disruptive environment, and more. Moreover, as the exposure to screens and digital gadgets increases from online classes, there are direct consequences for the physical and mental health of these young users (Wang et al., 2020). In this scenario, there is an immediate need to evaluate the readiness of Indian parents towards online education in India in the context of kindergarten and junior-level education. Additionally, since the primary consumers at these education levels are children who do not make their own decisions, there needs to be more research on the challenges perceived by their parents as well, to accurately understand the true feasibility of the adoption of online learning in India. Hence, the three major questions that will be answered in the study are mainly:

RQ1: What are the barriers and challenges in the online education system in developing countries? What is their impact on the formation of parents' attitudes towards online classes for junior and kindergarten students?

RQ2: How effective is online education in developing countries? How does it impact students' learning and the attitude of parents towards online classes for junior and kindergarten students?

RQ3: How do technology and the internet impact children's health? How does that impact help in the formation of parents' attitudes towards online classes for junior and kindergarten students?

The present study seeks to answer these questions through a mixed-method approach. The researcher has examined the relevant literature in the relatively new field of online education, and the impact of learning under a pandemic lockdown. Thereafter, realizing the effective areas for study under this topic, the researcher has made use of an empirical investigation into the questions posed by this study. The findings from the empirical investigation have been analysed and presented to provide evidence to the concluding remarks regarding whether online education in India is a viable alternative to offline education in the case of junior and kindergarten students.

In return, this study contributes to the existing literature in three ways. Firstly, the researcher has presented a deeper dive into a topical issue – the effectiveness of online learning during the ongoing pandemic. The abrupt transition from offline to online education has shown that there is much to be desired in the case of preparedness regarding online learning, particularly in the case of developing countries. The findings of this study reveal critical insights into the kinds of barriers to the adoption of online classes, and also the consequent side effects on the physical and mental health of the young individuals exposed to increased screen time through such classes. These findings are thus of immediate utility and importance during the current era. Secondly, the researcher has challenged the existing body of research regarding online education by including a nuanced perspective of students younger than the age of eight. This perspective has not been duly explored in the existing field, especially among developing countries. Thirdly, along with highlighting the barriers to adopting online classes among parents and students, the researcher has also presented keen insights regarding the crucial factors that could deem online classes as effective as conventional education for young students. The findings of this study present empirical evidence regarding the effectiveness of such online classes in the context of urban India. These findings can provide direction to future research regarding the development of models for improving online education for young children in present urban India, or other developing countries. Additionally, these findings could then be further extrapolated and explored in the context of developing online education in rural areas of developing countries.

2. Review of literature

The evolution of online education so far has been focused largely on secondary school or higher levels of education (Bakan et al., 2022). However, due to the lockdown situations imposed during the COVID-19 pandemic, the initiatives regarding online education have only now started to include pre-primary and primary levels of education as well. However, while much research has taken place regarding higher education through online mode, there are limited studies directly assessing online education for such young students.

Despite its progress and many advantages, online learning faces several current and foreseeable challenges that users ought to consider and tackle on their way forward (Oladipo et al., 2020). Adnan and Anwar (2020) pointed out that infrastructural barriers to the adoption of e-learning such as prohibitive internet costs and inadequate technological framework can be tougher in the case of developing countries (Ali, 2020; Rajab, 2018). Among social barriers, Shapiro et al. (2017) identified that interpersonal interaction and social integration decided the attractiveness of online education and provided learner satisfaction (Martin & Bolliger, 2018; Ogbodoakum et al., 2022; Rajab, 2018). There may also be personal barriers such as self-sufficiency, prior technology-awareness, or computer literacy (Dhawan, 2020; Mailizar et al., 2020). Similarly, Osipov et al. (2016) conducted an experimental case study with a language-learning application built upon peer learning and gamification and found limitations such as unwillingness to partake in online community sessions, work overload, and feelings of isolation.

For parents, online education can prove to be more demanding than traditional schooling due to barriers like low internet availability, lack of technological tools, an unstructured environment, and an enhanced need for parental guidance and support (Turnbull & Turnbull, 2015; Wu et al., 2020). According to Goodwin et al. (2019), parents shift towards online education in the hopes of seeing fewer challenges than encountered in the traditional education system (Dong et al., 2020; Garbe et al., 2020). Based on literature related to barriers in online education, the following hypothesis will be tested:

H1: Perceived barriers by parents related to online classes have a significant impact on the parents' attitude towards online classes.

To understand what online education is, Mbuva (2015) presents its synonyms such as "distance or virtual education", "e-learning", or "web-based instruction", or the utilization of ICT resources like a computer network, digital library, or web content and multimedia, for learning delivered in hybrid or completely internet-based format. According to Lai and Savage (2013), educational institutes have been increasingly embracing ICT-enabled learning systems including Coursera, Zoom, virtual Blackboard, Skype, and Webex (Coban et al., 2022). The question arises as to whether online education has its rewards in increased effectiveness over traditional, face-to-face learning. Researchers have contrasted the two to find; what causes online classrooms to be better or equally effective (Paul & Jefferson, 2019). The parameters of the effectiveness of online education can range from its use in career development, its cost-effectiveness against conventional education, the standard of quality and significance, and the possibility of world-class education to anyone with internet access (Dalton et al., 2020; McDaniel & Coyne, 2016). These parameters of the effectiveness of e-learning are similar to conventional school education, where the effectiveness of e-education depends on real-world significance, operative teaching-learning quality, effective communication, having adequate materials and tools, and collaboration of planning and delivery of education (Kapur et al., 2018; Subramaniam et al., 2020;). Wladis et al. (2015) have

highlighted the benefits of flexibility, variety, and time efficiency in online education. In an experimental study by Mbuva (2015), faculty and students generally agreed on the benefits of online courses, namely flexibility, accessibility, student-centeredness, and encouragement of collaboration. Wladis et al. (2015) provide evidence to support the effectiveness of online education by contrasting data collected across a decade, where the support for online education over conventional education went up from 57.2% to 77.0% among academic leaders. In a similar study, it was found that online pedagogical tools, especially those that involve gamification or game-like mode of learning (Wladis et al., 2015), return better quality student responses and interactions with their learning curricula. Bai et al. (2020) and Dong et al. (2020) discovered that parents are getting more involved in the learning process of their school-going children when it comes to online education. Wu et al. (2020) and Abdallah (2018) have examined the perception of parents regarding online schooling for young children and found that parents felt that e-learning was beneficial and resulted in better learning outcomes. Hence, keeping in view the importance of the perceived effectiveness of e-learning, the following hypothesis will be tested:

H2: Perceived effectiveness of online classes has a significant impact on parents' attitudes towards online classes.

Research also shows that one of the major consequences of the transition to online learning is its impact on student health and well-being. As online education surpasses the constraints of time and geography, students are mismanaging their timetables in the absence of a disciplined environment. It results in an adverse impact on the health of students, such as sleep deprivation that causes emotional imbalance by causing anger, fatigue, or depression (Krause et al., 2017). Additionally, increased digital use can affect a student's physical and mental health, and reduce focus (Hale & Guan, 2015). In low-income households, Bolliger and Halupa (2018) found that a lack of access to technology tools and internet access can impact student self-esteem and cause undue stress. According to Ward et al. (2017), even the presence of phones and laptops reduced cognitive capacity, especially among those prone to cyber addiction. Hale and Guan (2015) explained that students find it difficult to develop the necessary organizational skills to stay on top of their assignments, noting that these difficulties can affect students' mental health. An experimental case study by Osipov et al. (2016) found that students on a language-learning app were exhausted by longer courses online. The average duration of the course was cut short to reduce strain and maintain the effectiveness of learning. It thus follows that parents of the students, who opt for learning online are worried about the impact on their health such as behavioural troubles, and increased screen time (Wu et al., 2020). Several studies point out that the current preschool generation is "digitally-native" and hence shows a worrying tendency towards being digitally attached and developing unhealthy or sedentary life patterns (Loprinzi & Davis, 2016; Wang et al., 2020). The added mental pressure of online classes during a pandemic and subsequent isolation can lead to serious attitude changes and even depression, which is a worrying concern for parents (Iivari et al., 2020; Wang et al., 2020). Keeping in view the impact of technology usage on health, the following hypothesis will be tested:

H3: Perceived Impact of technology usage on the health of children has a significant impact on parents' attitudes towards online classes.

2.1. Research gaps

After an extensive review of the available literature on the topic of this study, it was found that few rigorous published studies determined the factors that influenced parents' attitudes towards the effectiveness of online learning for students at the kindergarten and junior school levels. In light of this, caution is required in making generalized remarks on the effectiveness of online education for all students. To the best of the authors' knowledge, no previous research has been conducted in the age group of 3 – 8 years in India on the impact of the effectiveness of online education and related factors on parents' attitudes towards online education for this age group. The present study seeks to answer questions arising on the effectiveness of online education systems and the influence of its readiness in developing a favourable attitude among parents of school-going children up to 8 years of age. The study aims to answer what are the major barriers towards the adoption of online education and how it affects parental attitude towards it. The study also includes an analysis of parental concerns regarding the effect of online learning towards the health of children by examining its moderating influence.

3. Research method

A peripheral objective of the study was also to evaluate how online classes impact the health of young students and their role in influencing parental decisions regarding the adoption of online classes. The survey was conducted on a random sample of 750 parents from urban areas who had enrolled their kids in online classes for kindergarten and junior school levels. Data has been collected from the northern states of India, which are famous for their school education, such as Delhi/NCR region, Uttarakhand (e.g., Dehradun and Mussoori), Punjab, Himachal, and Rajasthan. Data was collected online through the referrals system, as it was not possible to collect data in person. The data was obtained from a survey instrument developed using knowledge from the literature regarding parental expectations and experience regarding online classes. Further information was collected regarding the demographics of the respondents' group, excluding identifying information like name and address. An ethical statement regarding the same has been provided at the end of this study. The information regarding respondents' profiles such as gender, marital status, income, and family status, was collected in light of findings from a review of the literature which raised questions regarding how parents' decisions for adoption varied based on these parameters. These observations then led the researcher to examine the influence of these factors on the adoption decisions of online classes among Indian parents. A total of 750 emails were sent to parents of kids aged below eight years, who were enrolled in online classes by private schools. Out of 750, only 465 complete responses after testing for the normality test (VIF method) were used for data analysis. The period of the data collection was from 15th May to 15th July 2021. Data has been analyzed using exploratory factor analysis to extract the barriers or challenges which are being faced by these parents for online classes, and multiple regression analysis has been used for conceptual model testing.

3.1. Research variables

Overall effectiveness. This is an independent variable, calculated using the sum of 17 statements taken under the effectiveness section. The responses of the parents were recorded using a five-point scale from strongly disagree to strongly agree for all the constructs.

Impact on health of students. This variable is taken as an independent variable, which is calculated as the average of the 11 statements taken for measuring the impact of using technology and the internet by the students of Kindergarten and junior school.

Technological barriers. This is an independent variable, calculated as the average of 8 statements showing technology-related barriers in providing online education to students. These barriers included costly data plans, power cuts during the study, lack of access to networking facilities, or risk of damage by children to the devices during classes.

Personal barriers (students). This is an independent variable, calculated as the average of 8 statements showing students-related barriers to providing online education to students. These barriers included less technological awareness, limited attention span, self-discipline, lack of interest, etc.

Infrastructure barriers. This is an independent variable, calculated as the average of 7 statements showing infrastructural-related barriers in providing online education to students. These barriers included a lack of support from the government, inadequately-trained faculty, low support from school authorities, etc.

Personal barriers (parents). This is an independent variable, calculated as the average of 5 statements showing parents-related barriers in providing online education to students. These barriers include lack of network access, lack of affordability, clash in schedules, technological illiteracy, etc.

Attitude towards online classes. This construct is a dependent variable in nature, measured using five statements under the technology adoption behavior of the respondents. Averages of all five statements were taken as an attitude towards the online classes.

4. Results and discussions

The demographic profile of the parents who participated in the survey (see Table 1) showed that 50.5% were male respondents, and the rest were female. A majority of the respondents (i.e., 64.5%) were in the youngest age group, i.e. less than 25 years. 62.6% of respondents had private-sector jobs, while only 9% of the parents were having their own businesses. More than two-thirds of the respondents (i.e., 65.2%) were parents to students in kindergarten. In terms of financial status, it was found that a majority of the respondents (i.e., 47.7%) belonged to the middle class. 69% of the respondents were living in nuclear families. In terms of working status, 69.9% of the respondents said that both parents were working. It was found that all three constructs had an alpha value over the required minimum of 0.70, which shows that the instrument is reliable.

Cronbach's Alpha test has been used to determine the reliability of the instrument used to assess the impact of three variables on parental attitude towards online classes. It was found that all three constructs had an alpha value over the required minimum of 0.70, which shows that the instrument is reliable (see Table 2).

To determine the sampling adequacy of data for conducting factor analysis, the Kaiser-Meyer-Olkin (KMO) test has been used (see Table 3). If the KMO value is close to 1, it signifies that the sample set and variables used in this study are of adequate size and number (Cerny & Kaiser, 1977). Similarly, Bartlett's test has also been used in this study to determine whether the samples have equal variances and to test for the normality

of values. The value of chi-square was found significant at a 99% confidence level. Hence, the initial tests for running factor analysis were found significant in this study.

Table 1
Demographic profile of respondent

Demographic variables	Category	Frequency	Frequency %
Gender	Male	235	50.5
	Female	230	49.5
Age	Less than 25 years	300	64.5
	25 to 35 years	27	5.8
	35 to 40 years	138	29.7
Profession of parents	Private-sector job	291	62.6
	Government Job	79	17.0
	Business	46	9.9
	Others	49	10.5
Class of child	Kindergarten (Nursery/UKG/LKG)	303	65.2
	Junior School (I to IV class)	162	34.8
Financial Status	Lower Middle class	135	29.0
	Middle Class	222	47.7
	Upper middle class	64	13.8
	Upper class	44	9.5
Family Type	Joint family	144	31.0
	Nuclear Family	321	69.0
Working status of parents	One parent working	140	30.1
	Both Parents working	325	69.9

Table 2
Results of the reliability tests

Description	Number of statements	Cronbach's Alpha
Perceived Barriers in the adoption of online classes	29	0.945
Perceived Effectiveness of online classes	17	0.988
Perceived Impact of online classes on the health of students	11	0.990
Attitude of Parents	5	0.881

All 29 statements were categorized under four factors which represent the four different types of barriers related to online classes mainly being faced by the parents of Kindergarten and Junior School students (see Table 3). These barriers were mainly technological barriers, infrastructure barriers, personal barriers related to parents, and personal barriers related to students. The total variance explained by all these four types of barriers was 78%, out of which the highest explained variance was by a technological barrier (i.e., 27%), while the least explained variance was 12% only by personal barriers related to parents. Parents face personal challenges in adapting to online education due to a lack of technical know-how, low trust, impact on family culture, and unaffordability of devices and data (Tomczyk et al., 2022). Similarly, students face personal challenges of their own in adopting online classrooms; which include a lack of engagement with the course, low self-discipline, or technophobia (Mailizar et al., 2020; Paul & Jefferson, 2019). These barriers affect the learning process, satisfaction, and results of online education (Ali, 2020).

Table 3
Types of perceived barriers

Variables	Factor loadings			
	Technological barriers	Personal Barriers (students)	Infrastructure Barriers or enabling conditions	Personal Barriers (parents)
Alpha value	.987	.973	.893	.913
Variance	27.178%	21.293%	17.580%	12.727%
Costly data plans	.910			
Power cuts	.899			
Risk of damage to laptop or mobile phone by children while watching online classes	.898			
Access to networking facilities	.888			
Quality of internet facilities / Wi-fi or data connection	.884			
The Ease of use among students (technical dependency on parents/ guardians for online classes)	.883			
Risk of unintended clicks/ downloads with potential virus exposure	.873			
Inadequate knowledge of virus threats and precautionary measures among students	.868			
Lack of commitment on the part of school management		.814		
Lack of initiatives by government authorities (to direct the schools regarding relevant education methods for online mode)		.810		
Lack of skill development programs for the faculties		.804		
Inadequate rules and directives by the government to the schools (Introduction of ethics)		.796		
Readiness on the part of faculties to adapt to the changing pattern of teaching		.791		
Lack of inclusive approach by government to impart online learning to all students		.788		
Poor engagement due to the poor quality of content		.765		
Lack of IT Skills among faculties		.752		
Lack of affordability of more digital gadgets where there is more than one child			.855	
Active engagement of a family member with children during online classes			.832	
Limited access to digital gadgets while parents also working from home			.828	
Self-perceptions regarding the adoption of the technological advancements			.801	
Clash of timings between online classes and the online meetings of parents working from home/ Conflicting priorities			.790	
The technical know-how of parents/ Lack of affiliation with technology and internet usage among parents			.787	
Family culture and support			.751	
Inability to afford the gadgets/ Economic status of the parents			.666	
Maintaining discipline/ Level of distraction				.881
The limited attention span of children				.857
Lack of usefulness in teaching writing ability to young students				.808
Lack of interest by students				.807
Limited Computer Efficacy/ Technophobia on the part of students				.774

Note. KMO = 0.919, Bartlett's value = 19304.41, *df* = 406, *p*-value = 0.000, Total variance = 78.778

Results in Table 4, showed that the age of parents has a significant impact on the perceived barriers. Similarly, the gender of parents, working status of parents, family type, and financial status were found to have a significant impact on the perceived barriers related to online classes for kindergarten and junior school students. The class of their child and their occupation were not found to have a significant impact on the perceived barriers to the adoption of online classes. The most noteworthy finding is that the demographic profile of parents has no impact on the parents-related barriers. It signifies that no matter what is the age of the parents, their gender, working status, financial status,

occupation, family type, or in which class their child is studying, personal barriers to parents are equally affecting all the parents. In the case of technology-related barriers, the younger generation of parents has an easier time adapting to new technology and infrastructural hurdles like understanding online curricula requirements or helping their child to use the devices (Dhawan, 2020). Women are more likely to be impacted by the barriers to online education since they must bear the brunt of responsibilities related to a child's education (Garbe et al., 2020; McDaniel & Coyne, 2016). Parents across all demographics find common barriers to online classrooms for their children; these are related to technophobia, affordability of data and devices, and managing family set-ups (Dong et al, 2020; Wu et al., 2020).

Table 4
Demographic profile and perceived barriers

	Technological barriers	Personal barriers (students)	Infrastructure barriers or enabling conditions	Personal barriers (parents)
Age	46.209*	47.159*	23.161*	1.726
Gender	256.595*	293.821*	119.996*	0.428
Working status of parents	1116.292*	1095.174*	269.618*	0.056
Family type	1309.639*	1029.091*	257.538*	0.012
Financial status	29.841*	34.354*	14.943*	0.574
Class	1.547	2.091	19.809*	0.386
Occupation	1.132	0.978	2.615	2.476

Note. $* p < .001$

The perceived effectiveness score was less than average for all the statements, which indicates the poor quality of online classes or online classes is not matching the expectations of the parents (see Table 5). One-way ANOVA results showed that except for the last item (i.e., online classes enhance teacher-parent interface), the rest all were showing an insignificant difference in the perceived effectiveness of parents of kindergarten and junior school students. Hence, irrespective of the class of their child, all parents have perceived the effectiveness of online classes indifferently. Parents find that online classes tend to exhaust and frustrate their children, due to excessive workload and lack of human interaction (Adnan & Anwar, 2020; Wu et al., 2020). Technophobia or lack of technological awareness meant that parents also found online classes to be difficult, time-consuming, and inefficient (Dong et al, 2020; Garbe et al., 2020).

Parents in the younger age group (i.e., below 25 years) perceived the effectiveness of online classes highly compared to other age groups of parents (see Table 6). However, older parents (i.e., aged 35 to 40 years), had to deal with technophobia and infrastructural barriers and therefore did not have a positive attitude towards online classrooms. Younger parents are found to be more tech-savvy and hence easily able to adapt to the new normal of online classrooms (Vittrup et al., 2016). Male respondents had a more favorable attitude towards online classrooms instead of females. This can be explained by the fact that women were more likely to shoulder the demands of online teaching such as support and supervision of the children during the classes (McDaniel & Coyne, 2016; Vittrup et al., 2016). In most Indian families where both parents were working, there was a low level of perceived effectiveness of online classes due to clash of timings, the need for parental supervision, etc (McDaniel & Coyne, 2016). Whereas, in families with one working parent only, online classrooms were seen as effective. Technology demands greater parental supervision and guidance to children, which can clash with the job

schedules of parents (MacDonell & Prinz, 2017; Wu et al., 2020). Parents living in Nuclear families have perceived the effectiveness of online classes highly in comparison to parents living in joint families, where the background noise and other disturbances could be minimized (Hiniker et al., 2016; Vittrup et al., 2016). In joint families, there was a lack of a proper study environment and internet resources were also stretched too thin (MacDonell & Prinz, 2017). Parents with higher financial status have perceived the effectiveness of online classes higher when compared to other parents, due to the availability of better infrastructure and technological support. Parents from the lower middle class or middle class due to a lack of financial resources do not perceive online classes as effective enough (Dong et al., 2020). It was found that there were no significant differences in perception of the effectiveness of online classes based on occupational differences among the respondents (Hiniker et al., 2016; Vittrup et al., 2016).

Table 5
Perceived effectiveness of online classes

Statements	Average	Kindergarten	Junior school	F-value
Degree of student engagement	2.22	2.25	2.18	0.31
Learning outcomes	2.33	2.38	2.24	1.47
Type of content	2.43	2.50	2.31	2.48
Delivery of content	2.22	2.25	2.18	0.31
Timing of online classes	2.42	2.50	2.27	3.58*
The technical know-how of instructors	2.33	2.38	2.23	1.23
Uninterrupted online sessions	2.39	2.46	2.27	2.66
Facilities to record the session	2.42	2.47	2.34	1.14
Students' participation	2.46	2.50	2.38	1.19
Future applicability	2.28	2.30	2.25	0.15
Real-time participation enhances on the spot presentation	2.33	2.35	2.30	0.15
Increase in confidence	2.28	2.29	2.27	0.03
Student adaptability to the new environment	2.31	2.33	2.28	0.22
Enhanced practicality	2.37	2.42	2.26	1.68
Joint-leaning opportunity for parents and students	2.40	2.46	2.30	1.66
Enhances parent-child bond	1.85	1.90	1.75	1.87
Occupation enhances teacher-parent interactions	2.05	2.11	1.92	3.69*

Note. * $p < .001$

Table 6
The overall effectiveness of online classes and the personal profile of parents

Categories	F-value	p-value
Age	53.319*	0.000
Gender	273.904*	0.000
Working status of parents	1227.357*	0.000
Family type	1208.426*	0.000
Financial status	43.144*	0.000
Occupation	1.674	0.172

Note. * $p < .001$

Lower vision and digital fatigue were the most common impact perceived by parents due to online classes on their children (see Table 7). While the comparison of perceptions of parents based on class type, it got revealed that kindergarten students do not accept virtual classrooms, and if they are forced to do what they don't like, then it leads to change in their usual behaviour, and they show rebellion nature. Only for this item, the difference was found significant between the perceptions of kindergarten and junior school students. The prolonged screen time due to online education leaves adverse health impacts on impressionable young children (Hiniker et al., 2016). These findings are corroborated by several studies that depict parental worry over mental stress, behavioural troubles, exhaustion, irregular sleep, and hindered concentration among children (Chaudron et al., 2018; Iivari et al., 2020).

Table 7
Perceived impact on the health of students of junior school and kindergarten students due to online classes

Statements	Average	Kindergarten	Junior school	*F*-value
Low vision issues due to prolonged exposure to screens	3.66	3.74	3.52	3.15
Effects from constant radiation emitted by digital gadgets and wi-fi	3.65	3.71	3.52	2.67
Bad posture issues due to long sitting hours	3.60	3.66	3.47	2.54
Hearing sensitivity due to prolonged use of headphones	3.60	3.66	3.48	2.34
Squinty eyes caused by constantly watching online classes	3.58	3.63	3.49	1.43
Sleeplessness/Insomnia/Improper Sleep Patterns	3.56	3.63	3.42	3.04
Rebelliousness/ Irritated behavioral symptoms due to feelings of confinement	3.59	3.66	3.48	2.29
Brawls among siblings due to sequential preferability by parents for access to devices	3.62	3.67	3.52	1.53
Increased mental pressure due to excess burden of self-study	3.65	3.72	3.52	2.63
Changes in behavior due to the unacceptance of virtual classrooms	3.69	3.78	3.52	4.14*
Feelings of monotony and fatigue from confinement	3.72	3.80	3.57	3.45

*Note. * p < .001*

Table 8
Parents' Attitude Towards the online classes

Statements	Average	Kindergarten	Junior school	*F*-value
I would opt for the online classes rather than skipping one academic year.	2.32	2.28	2.39	0.70
I cannot wait for COVID-19 to be over and for classes to begin.	2.45	2.36	2.64	4.67
I am looking forward to learning online classroom tool.	2.49	2.45	2.57	0.92
I have invested in better data plans and laptops for online classes.	2.39	2.32	2.53	2.43
I have started managing my schedule as per my child's online classes.	2.45	2.43	2.49	0.22

The attitude of parents towards online classes for kindergarten and junior school students has been investigated (see Table 8). Parents have given a higher score for the item "*I am looking towards learning online classroom tools*", which implies that parents have accepted the fact that due to COVID-19, there is no other alternative for them and they should start learning online classroom tools so that they can help their child in learning through virtual mode. The least agreed response of the parents was towards the statement that they would rather prefer to skip one year of their child instead of opting for online classes. Further, the comparison of parents' attitudes based on class type, showed that both the parents of kindergarten and junior school students have the same attitude towards the adoption of online classes. Online classrooms have encouraged the greater involvement of parents in the education of their children (Dong et al., 2020; Tomczyk et

al., 2022). Parents of younger children seek highly efficient and effective education practices online since they must bear the role of secondary educators themselves (Abdallah, 2018; Wu et al., 2020). This is to studies (Adnan & Anwar, 2020; Subramaniam et al., 2020) that find that parents of junior and kindergarten schools have a similar set of expectations from their child's education systems.

Perceived effectiveness, perceived barriers, and the perceived impact on health, all the independent variables were found to have a 79.6% variation in the parents' attitude towards online classes, which is a dependent variable (see Table 9). Multiple regression analysis indicates a positive and significant causal relationship between parents; attitudes towards online classes and the perceived effectiveness of online classes. Hence, if the school teachers and management work on enhancing the effectiveness of online classes, parents can be convinced of online classes for their young children. All the barriers along with the perceived impact on health were found to have a negative and significant impact on the parents' attitude towards online classes. Out of all the barriers, infrastructure barriers came out to be the most contributing barriers based on the beta value, while personal barriers related to students came out as the least contributing barrier towards parents' attitudes. Hence, a significant model emerged from the study, which conceptualizes the formation of parents' attitudes towards online classes through perceived effectiveness, perceived barriers, and perceived impact on health.

Table 9
Regression Results

	B	S.E.	Beta	*t*	*p*-value
Perceived Effectiveness	.243	.079	.223	3.092	.002
Perceived Impact on health	− .466	.053	-.451	− 8.775	.000
Technological barriers	− .279	.063	-.279	− 4.426	.000
Personal Barriers (students)	− .259	.066	-.265	− 3.944	.000
Infrastructure Barriers	− .539	.052	-.389	− 10.296	.000
Personal Barriers (parents)	− .271	.069	.022	1.024	.000

Note. R = 0.892, *R*-squared = 0.796, Adjusted *R*-squared = 0.793, ANOVA *F*-value = 297.060, *p*-value = 0.000

5. Conclusion and discussion

The compulsion of transitioning to online education under the impact of COVID-19 has brought the future of online classrooms to an abrupt confrontation. As schools have gone under lockdowns, online classrooms have a new routine for students at kindergarten and junior levels as well. This situation has led to parents facing a dilemma – whether they should adopt online classes for their young wards, or let there be a gap of an academic year in the wait for offline classes to resume. The present study focuses on three key influences on parental decisions regarding the adoption of online classes. These influences are namely the barriers to adopting online classes from different points of view, the factors behind the perceived effectiveness of online classrooms, and the negative health consequences of long exposure to technology upon young children. The study identifies and lists four broad barriers that hinder the adoption decisions for online classes, ranging from technological, infrastructural, and personal barriers related to the parents and students. Next, parents have favorable opinions for the adoption of online classes only when the perceived factors of effectiveness are satisfied (Ogbodoakum et al., 2022). Lastly, concerns over the negative consequences of online classes on the health of children led to negative adoption decisions among parents. In addition to these wider

findings, the study has also zeroed in on the role of the demographic profile of parents in their perceptions regarding the barriers to adopting e-learning and the factors behind its effectiveness. The present study finds that there is an acceptance among parents regarding the importance of online classes to continue learning during the pandemic. Parents of the children at both kindergarten and junior school levels have chosen to invest time and money in adopting online classes, instead of waiting for the offline classes to resume post-pandemic.

The study sparks discussion on the long-term viability of online classrooms in the context of developing countries. In absence of developed public infrastructure and government support, the onus of transitioning to online education falls squarely upon the parents. Thus, demographic factors like age, income, and family situation, have a major impact on the final adoption decisions. Other than these, technological and infrastructural barriers mean that online learning currently only works for urban areas with good internet access. The government and industry must step in to ensure good public facilities and adequate policy support. Measures like educational programs through satellite TV and radio can be adopted for rural areas. Even in urban areas, the faculty needs to be technology-trained. Parents with good technical awareness can also form support groups to help others transition smoothly. Implementation of steps like regular parent-teacher interactions, student orientation programs, and technology-literacy schemes, by schools, will ensure that the current practice of online classes can be extended to the post-COVID era as well. These steps will ensure a smooth transition from offline to online learning, and make Indian parents favorable to online classrooms.

6.   Practical implications

This study demonstrated that e-learning in India is capable of delivering good quality online education as that provided by conventional classroom settings. With the right investment into resources and adequate guidelines on e-learning, online classrooms can remarkably improve access and quality of education, especially for those with limited means. Given the findings, this research encourages efforts towards adopting and expanding e-learning initiatives across India and other Asian countries. This study has implications for not only India but for similar developing economies like India, as there is not much difference in the education system of the Asian countries. Educational funding, infrastructure, government support, policies, and even the similarity in the demographics of the young population, make the findings of the study and implications equally important for other Asian countries. The policy-makers can use the insights from this study to examine the present barriers to expanding online education for young students. The findings of this study have four-pronged utility for the academic sector. Firstly, it aids schools in understanding the immediate challenges to the adoption of online learning systems, which management needs to focus upon for making online classes effective enough to change the attitude of parents. Secondly, schools can use the main findings in the study to pay special attention to creating a favorable parental attitude towards online classrooms, which will bring more revenue to them. Thirdly, the study also alerts schools to the consequences of the overuse of technology on the health of children, according to which timetable and daily class limits (internet exposure to students) can be planned effectively. Lastly, the study can also be used to diversify CSR funding by benevolent corporate, interested in the education sector; for making online classes a success by investing CSR funds into the removal of infrastructure barriers highlighted in the study.

Author Statement

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References

Abdallah, A. K. (2018). Parents' perception of e-learning in Abu Dhabi schools in the United Arab Emirates. *International E-Journal of Advances in Social Sciences, 4*(10), 30–41. https://doi.org/10.18769/ijasos.415513

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Journal of Pedagogical Sociology and Psychology, 2*(1), 45–51. https://doi.org/10.33902/JPSP.%202020261309

Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education, 10*(3), 23–34. https://doi.org/10.5539/hes.v10n3p16

Bai, X., He, Y., & Kohlbacher, F. (2020). Older people's adoption of e-learning services: A qualitative study of facilitators and barriers. *Gerontology and Geriatrics Education, 41*(3), 291–307. https://doi.org/10.1080/02701960.2018.1469488

Bakan, U., Han, T., & Bakan, U. (2022). Learner perceptions and effectiveness of using a massively multiplayer online role-playing game to improve EFL communicative competence. *Knowledge Management & E-Learning, 14*(3), 286–303. https://doi.org/10.34105/j.kmel.2022.14.016

Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research, 5*(4): em0060. https://doi.org/10.29333/pr/7937

Bolliger, D. U., & Halupa, C. (2018). Online student perceptions of engagement, transactional distance, and outcomes. *Distance Education, 39*(3), 299–316. https://doi.org/10.1080/01587919.2018.1476845

Cerny, B. A., & Kaiser, H. F. (1977). A study of a measure of sampling adequacy for factor-analytic correlation matrices. *Multivariate Behavioural Research, 12*(1), 43–47. https://doi.org/10.1207/s15327906mbr1201_3

Chaudron, S., Di Gioia, R., & Gemo, M. (2018). Young children (0–8) and digital technology, a qualitative study across Europe. *Joint Research Centre Science for Policy Report, 68*(3), 329–335. https://doi.org/10.2788/00749

Çoban, M., Akçay, N. O., & Çelik, İ. (2022). Using virtual reality technologies in STEM education: ICT pre-service teachers' perceptions. *Knowledge Management & E-Learning, 14*(3), 269–285. https://doi.org/10.34105/j.kmel.2022.14.015

Dalton, L., Rapa, E., & Stein, A. (2020). Protecting the psychological health of children through effective communication about COVID-19. *The Lancet Child & Adolescent Health, 4*(5), 46–347. https://doi.org/10.1016/S2352-4642(20)30097-3

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5–22. https://doi.org/10.1177/0047239520934018

Dong, C., Cao, S., & Li, H. (2020). Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes. *Children and Youth Services Review, 118*: 105440. https://doi.org/10.1016/j.childyouth.2020.105440

Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). Parents' experiences with remote education during COVID-19 school closures. *American Journal of Qualitative Research, 4*(3), 45–65. https://doi.org/10.29333/ajqr/8471

Goodwin, A., Matthews, N. L., & Smith, C. J. (2019). Parent-reported early symptoms of autism spectrum disorder in children without intellectual disability who were diagnosed at school age. *Autism, 23*(3), 770–782. https://doi.org/10.1177/1362361318777243

Hale, L., & Guan, S. (2015). Screen time and sleep among school-aged children and adolescents: A systematic literature review. *Sleep Medicine Reviews, 21*(1), 50–58. https://doi.org/10.1016/j.smrv.2014.07.007

Heppen, J. B., Sorensen, N., Allensworth, E., Walters, K., Rickles, J., Taylor, S. S., & Michelman, V. (2017). The struggle to pass algebra: Online vs. face-to-face credit recovery for at-risk urban students. *Journal of Research on Educational Effectiveness, 10*(2), 272–296. https://doi.org/10.1080/19345747.2016.1168500

Hiniker, A., Schoenebeck, S. Y., & Kientz, J. A. (2016, February). Not at the dinner table: Parents' and children's perspectives on family technology rules. In D. Cosley et al. (Eds.), *Proceedings of the 19th ACM Conference On Computer-Supported Cooperative Work & Social Computing (CSCW'16)* (pp. 1376–1389). ACM Pressing. https://doi.org/10.1145/2818048.2819940

Iivari, N., Sharma, S., & Ventä-Olkkonen, L. (2020). Digital transformation of everyday life–How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care?. *International Journal of Information Management, 55*: 102183. https://doi.org/10.1016/j.ijinfomgt.2020.102183

Kapur, R., Byfield, V., Del Frate, F., Higgins, M., & Jagannathan, S. (2018). The digital transformation of education. *Earth Observation Open Science and Innovation, 1*(1), 25–42. https://doi.org/10.1007/978-3-319-65633-5

Krause, A. J., Simon, E. B., Mander, B. A., Greer, S. M., Saletin, J. M., Goldstein-Piekarski, A. N., & Walker, M. P. (2017). The sleep-deprived human brain. *Nature Reviews Neuroscience, 18*(7), 404–418. https://doi.org/10.1038/nrn.2017.55

Lai, A., & Savage, P. (2013). Learning management systems and principles of good teaching: Instructor and student perspectives. *Canadian Journal of Learning and Technology, 39*(3), 1–21. https://doi.org/10.1007/s11423-006-9018-1Learning

Loprinzi, P. D., & Davis, R. E. (2016). Secular trends in parent-reported television viewing among children in the United States, 2001–2012. *Child: Care, Health and Development, 42*(2), 288–291. https://doi.org/10.1111/cch.12304

MacDonell, K. W., & Prinz, R. J. (2017). A review of technology-based youth and family-focused interventions. *Clinical Child and Family Psychology Review, 20*(2), 185–200. https://doi.org/10.1007/s10567-016-0218

Mailizar, A. A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education, 16*(7), 1–9. https://doi.org/10.29333/ejmste/8240

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning, 22*(1), 205–222. https://doi.org/10.24059/olj.v22i1.1092

Mbuva, J. M. (2015). Examining the effectiveness of online educational technological tools for teaching and learning and the challenges ahead. *Journal of Higher Education Theory & Practice, 15*(2), 113–127. Retrieved from http://t.www.na-businesspress.com/JHETP/MbuvaJM_Web15_2_.pdf

McDaniel, B. T., & Coyne, S. M. (2016). Technology interference in the parenting of young children: Implications for mothers' perceptions of co-parenting. *The Social Science Journal, 53*(4), 435–443. https://doi.org/10.1016/j.soscij.2016.04.010

Ministry of Human Resource Development. (2020). *National Education Policy 2020*. Government of India. Retrieved from https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Ogbodoakum, N., Ayub, A. F. M., & Abiddin, N. Z. (2022). The influence of individual and organizational factors on readiness to accept online learning among higher education lecturers in Nigeria. *Knowledge Management & E-Learning, 14*(3), 304–328. https://doi.org/10.34105/j.kmel.2022.14.017

Oladipo, I. O., Oyedele, A. O., & Fawale, O. (2020). Alternative schooling platform (ASP) for sustainable uninterruptible learning system: A strategy to cope with COVİD-19 crisis in Nigeria. *European Journal of Educational Technology, 3*(2), 21–31. https://doi.org/10.46303/ejetech.2020.4

Osipov, I. V., Volinsky, A. A., Nikulchev, E., & Prasikova, A. Y. (2016). Online e-learning application for practicing foreign language skills with native speakers. *Technology, Innovation and Education, 2*(1), 1–8. https://doi.org/10.1186/s40660-016-0009-1

Paul, J., & Jefferson, F. (2019). A comparative analysis of student performance in an online vs. face-to-face environmental science course from 2009 to 2016. *Frontiers Computer Science, 1*(2), 1–9. https://doi.org/10.3389/fcomp.2019.00007

Rajab, K. D. (2018). The effectiveness and potential of e-learning in war zones: An empirical comparison of face-to-face and online education in Saudi Arabia. *IEEE Access, 6*(3), 6783–6794. https://doi.org/10.1109/ACCESS.2018.2800164

Shapiro, H. B., Lee, C. H., Roth, N. E. W., Li, K., Çetinkaya-Rundel, M., & Canelas, D. A. (2017). Understanding the massive open online course (MOOC) student experience: An examination of attitudes, motivations, and barriers. *Computers & Education, 110*(2), 35–50. https://doi.org/10.1016/j.compedu.2017.03.003

Silverman, M., Sibbald, R., & Stranges, S. (2020). Ethics of COVID-19-related school closures. *Canadian Journal of Public Health, 111*(4), 462–465. https://doi.org/10.17269/s41997-020-00396-1

Subramanian, S., Mohamed, S., & Khanzadah, T. (2020). The coronavirus' impact on education – School students' perspective. *International Journal of Nutrition, Pharmacology, Neurological Diseases, 10*(3), 166–167. https://doi.org/10.4103/ijnpnd.ijnpnd_59_20

Tomczyk, Ł., Demeshkant, N., Potyrała, K., Czerwiec, K., & Oyelere, S. O. (2022). Elements of crisis e-learning: Perspectives of Polish teachers. *Knowledge Management & E-Learning, 14*(3), 245–268. https://doi.org/10.34105/j.kmel.2022.14.014

Turnbull, R., & Turnbull, A. (2015). Looking backward and framing the future for parents' aspirations for their children with disabilities. *Remedial and Special Education, 36*(1), 52–57. https://doi.org/10.1177/0741932514553124

Vittrup, B., Snider, S., Rose, K. K., & Rippy, J. (2016). Parental perceptions of the role of media and technology in their young children's lives. *Journal of Early Childhood*

Research, 14(1), 43–54. https://doi.org/10.1177/1476718X14523749

Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet, 395*(1), 945–947. https://doi.org/10.1016/S0140-6736(20)30547-X

Ward, A. F., Duke, K., Gneezy, A., & Bos, M. W. (2017). Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research, 2*(2), 140–154. https://doi.org/10.1086/691462

Wladis, C., Conway, K. M., & Hachey, A. C. (2015). The online STEM classroom-who succeeds? An exploration of the impact of ethnicity, gender, and non-traditional student characteristics in the community college context. *Community College Review, 43*(1), 142–164. https://doi.org/10.1177/0091552115571729

Wu, M., Xu, W., Yao, Y., Zhang, L., Guo, L., Fan, J., & Chen, J. (2020). Mental health status of students' parents during COVID-19 pandemic and its influence factors. *General Psychiatry, 33*(4), 1–9. http://dx.doi.org/10.1136/gpsych-2020-100250