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## Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes

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### ABSTRACT

Online learning has been widely promoted to replace traditional face-to-face learning during the COVID-19 pandemic to maintain young children's learning and play at home. This study surveyed 3275 Chinese parents' beliefs and attitudes around young children's online learning during the lockdown of the COVID-19 pandemic. Most parents (92.7%) in the study reported that their children had online learning experiences during the pandemic, and many (84.6%) spent less than a half-hour each time. The parents generally had negative beliefs about the values and benefits of online learning and preferred traditional learning in early childhood settings. They tended to resist and even reject online learning for three key reasons: the shortcomings of online learning, young children's inadequate self-regulation, and their lack of time and professional knowledge in supporting children's online learning. Also, the hardship caused by the COVID-19 pandemic has made them suffering, thus more resistant to online learning at home. The results suggested that the implementation of online learning during the pandemic has been problematic and challenging for families. The Chinese parents were neither trained nor ready to embrace online learning. The paper concluded with implications for policymakers and teacher education.

Young children using digital technologies to learn online in the early years has been heatedly debated among scholars, educators, and policymakers in the past decades (e.g. Aubrey & Dahl, 2008; Elkind, 1998; Ministry of Education, 2020b; Plowman, McPake, & Stephen, 2012). Some scholars (e.g. Brady & Hill, 1984; Elkind, 2007; House, 2012) have insisted that young children should not expose to online learning because the latter cannot prepare young children socially and emotionally ready for school (Edwards, Skouteris, Rutherford, & Cutter-Mackenzie, 2012; Zalaznick, 2019) and will bring some harm to their health and growth. Some scholars (e.g. Clements & Sarama, 2003; Stephen & Plowman, 2002; Yelland, 2006) have confirmed that digital learning could help young children to understand abstract concepts and engage them in collaborative learning, reasoning, and problem-solving activities. Recently, Arnott and Yelland (2020) suggested shifting this argument away from a moral panic and reconceptualizing digital technologies like social, cultural, and personal artifacts that inhabit the contemporary child's lifeworld and can contribute to their learning ecologies. Therefore, online learning via digital technologies is part of young children's 'multimodal lifeworld'; thus should be contextualized and capitalized to support teachers, parents, and children about how best to utilize digital and online technologies to develop agentic

multimodal practices. All these arguments have been made from the perspectives of scholars and educators; the views from parents, one of the most important stakeholders of early childhood education, remains largely under-researched. From the beginning as a core part of the child's immediate environment, parents influence their children's learning and development by providing digital technologies and media environment to young children. Parents' beliefs and attitudes about the role and the potential of online learning for young children can influence the quality and quantity of online learning, opportunities, and learning experiences children receive at home (Erdogan, Johnson, Dong, & Qiu, 2019).

To fill this research gap, this study endeavors to understand how Chinese parents perceive their young children's online learning during the COVID-19 lockdown through a large-scale online survey.

### 1. Online learning in the early years

Online learning refers to "the learning experienced through the internet" either in the synchronous or asynchronous environment where students engage with instructors and other students at their convenient time and place (Singh & Thurman, 2019, p. 302). Online learning has

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seen a fast growth during the past decade because it has greater flexibility in terms of time, place and pace of the study, easier and more effective access to a wider variety and greater quantity of information, and lower financial cost (Chen, 2010; Khurana, 2016). In a globalized digital age, government agencies, educational institutions, corporations worldwide are increasingly promoting online learning, resulting in a shift from traditional face-to-face classes to distance and online learning (Aldhafeeri & Khan, 2016). With the advancement of new communication technologies, online learning can provide a rich, authentic learning ecology that can facilitate collaboration and interdependence between learners (Aldhafeeri & Khan, 2016). However, researchers (Chen, 2010; O'Doherty et al., 2018) have expressed their concerns about the quality of online learning and highlighted the main difficulties in creating an online learning community with a high degree of social presence and engagement. In addition, some scholars are also concerned about the major problems of online learning, such as social isolation, lack of interactivity and participation, delayed or insubstantial amount of feedback (Khurana, 2016).

Similarly, young children's digital learning has also been debated and criticized. Some scholars (Jiang & Monk, 2015; Radesky et al., 2016) highlighted their concerns about online risks and dangers, addiction to videos, social isolation, and physical health issues. Others suggested that parents play the mediating role to prevent harm and regulate children's online activities, such as setting up technology use rules for and monitoring their children's media use (Nouwen & Zaman, 2018). All these concerns, however, could not prevent online learning from rapidly expanding in the past decade and extensively reaching millions of young learners at an unprecedented speed (Franklin, Burdette, East, & Mellard, 2015; Silverman, 2020; Zalaznick, 2019). More and more online programs have been developed and delivered to support young children with disabilities and/or living in remote or disadvantaged situations to provide learning flexibility (Smith, Burdette, Cheatham, & Harvey, 2016; Zalaznick, 2019). In addition, online technologies have become the social, cultural, and personal artifacts that inhabit the contemporary child's 'multimodal lifeworld' (Arnott & Yelland, 2020). It thus should be promoted to build a multimodal learning ecology for contemporary children, parents, and teachers. While online learning appears to be more prevalent in the future (Franklin et al., 2015), a lack of research has addressed online learning in the early years, specifically. This study will fill this gap by surveying Chinese parents who have engaged in their young children's online learning during the COVID-19 pandemic.

### 1.1. Parents' perspectives and practices regarding early digital and online learning

Parents' beliefs and attitudes around early digital and online learning have been found polarized in the past decade. On the one hand, parents have started to appreciate the value of digital devices and tended to feel comfortable with young children's use at home (Livingstone, Mascheroni, & Dreier, 2015; Mikelic Preradovic, Lesin, & Sagud, 2016; Sharkins, Newton, Albaiz, & Ernest, 2016). They also supported the appropriate use of digital devices in early years settings (Isikoglu Erdogan, Johnson, Dong, & Qiu, 2019; Kumpulainen & Gillen, 2019). In particular, parents even held positive attitudes towards young children's computer use and believed that children should gain valuable technical skills and should be educated on how to use computers to enhance their academic development and future opportunities, such as employment (Hatzigianni & Margetts, 2014; Perradvoci et al., 2016). In the increasingly diverse digital landscape, parents believed that a range of digital and online technologies could offer young children new knowledge and learning. And those parents with a higher education level tended to believe that digital and online learning can develop children's learning competencies, language, self-expression, and social competencies (Lepicnik-Vodopivec & Samec, 2013).

On the other hand, parents were concerned about the dangerous

content on the internet and the risks of unrestricted digital use. They were worried about the impact of digital use on children's social and health development (Plowman et al., 2012; Lepinic & Samec, 2013; Jiang & Monk, 2016). More recently, due to the rapid growth of screen technologies (e.g., iPads, smartphones), parents have expressed their uncertainty about whether mobile devices could be beneficial or harmful to their children and how to adopt these mobile screen technologies (Radesky et al., 2016; Livingstone et al., 2015; Erogan et al., 2019). The EU Kids Online project (Livingstone, 2015), for instance, revealed that parents with higher income and education had employed a wide range of practices and strategies to manage restrictions for digital device use and had spent efforts to promote offline activities for children while limiting digital activities at home. Some parents set rules and limits on the frequency and duration of using digital devices but did not recognize the importance of their role and involvement in supporting young children's technological engagements (Plowman, 2012; Hatzigianni & Margetts, 2014).

The studies, as mentioned above, have explored parents' perspectives and practices on children's digital use in general, leaving their beliefs and attitudes about online learning unstudied. In particular, during the COVID-19 pandemic, the sudden shift to online learning has presented new opportunities and unexpected challenges to the affected young children and their parents. Under such unique circumstances, there is a need to examine parental beliefs and attitudes concerning online learning and readiness and acceptance to make this drastic shift. Furthermore, most of the existing studies are western-centric and may not represent views from the eastern countries, where the culture and educational philosophies might differ. Indeed, parental beliefs about digital technologies and media are not formed in a vacuum; instead, they are shaped by cultural norms (Mansour, 2008). Thus, it is of great theoretical importance to understand Chinese parental beliefs and attitudes around young children's online learning during the lockdown as a unique study in terms of time and place.

## 2. The context of this study

The outbreak of COVID-19 in Wuhan started spreading in China in December 2019, and then was declared as the Public Health Emergency of International Concern by the World Health Organization (WHO) on 30 January 2020. The national authorities worldwide have responded to this crisis by implementing travel bans, lockdowns, workplace hazard controls, and facility closures. Preschools, schools, and universities have been closed either on a nationwide or local basis in 172 countries, affecting approximately 98.5% of the world's student population (UNESCO, 2020). China is no exception.

As an urgent response to the COVID-19 pandemic, in early February 2020, the Ministry of Education of China (2020a) mandated that all schools and universities stop face-to-face teaching and use internet platforms to deliver online learning. School children were required to attend online classes to continue their education. Although preschools were not required to deliver online learning and had no mandatory online educational programs, ECE stakeholders including educators from public sectors and private curriculum developers were proactively engaged in designing digital curriculum resources and introducing educational apps and platforms to guide parents to support their children's learning and play at home (Ministry of Education, 2020b). Under such circumstances, many Chinese parents followed the suggestions from teachers and educational authorities to provide online learning to their children during the lockdown. Such influences on parents in adopting online learning are not difficult to understand in Chinese sociocultural contexts.

Chinese early childhood education is shaped by its social culture and educational tradition. Confucian culture has strongly influenced the relationships between teachers and children in Chinese society (Llasera, 1987), which has laid great emphasis on adoring authority and respecting teachers (Hargreaves, 2000). Tobin et al. (1989, p. 209)

found that the role played by Chinese preschools and teachers in the relationship with families is “explicitly political and ideological.” Preschools are viewed as social representatives, so they have the “right and responsibility” to correct the deficiencies of indulgent parents. Preschool teachers, “as government employees with a governmental mandate,” carry authority into their interactions with parents and see their roles as supporting and correcting parents (Tobin et al., 1989).

Accordingly, the controversial digital and online learning for young children has been conducted under this unique and special circumstance in China. Without training and preparation for online teaching, Chinese parents and teachers have been engaged in this brand new experiment of digital and online learning for young children. Naturally and expectedly, these parents and teachers might have encountered many difficulties, problems, obstacles in this unexpected experiment. Thus, this unique scenario has provided an ideal arena for us to understand Chinese parents' beliefs and attitudes around young children's online learning at home. Accordingly, this study aims to address the following research questions through an online survey:

1. What were young children's experiences of online learning during the COVID-19 pandemic?
2. What were Chinese parents' beliefs about online learning during the COVID-19 pandemic?
3. What were Chinese parents' attitudes towards online learning for their young children?

### 3. Method

#### 3.1. Sample

This survey study was conducted in an inland city of Henan Province, which is located in the Central area of China. Altogether 3275 parents whose children were enrolled in local early childhood education programs voluntarily completed the online survey. The majority of them were aged between 30 and 39 years (68.3%), and between 20 and 29 years (19.8%), few were aged between 40 and 49 years (11.0%), very few were 50 years or above (0.9%), and none was under 20 years. Their educational levels were very diversified: junior secondary school, high school, associate degree, Bachelor, and postgraduate degree. And their occupation also varied greatly: government/public organizations, state-owned enterprise, private enterprise, personal owned business, freelancer, and unemployed. Most of the parents have one or two children; very few of them have three or four plus. Half parents (50.5%) reported their children were 3–4 years old, and some (34.5%) were 4–5 years old. The background information of the sample is presented in Table 2 below.

#### 3.2. Questionnaire

The questionnaire consists of three parts and includes 41 closed questions and two open-ended questions. The closed questions and rating scales generate an overview of parental beliefs and attitudes about online learning. In contrast, open questions allow parents to express their personal feelings, experiences, knowledge related to online learning.

**Part I: Demographic information.** This part has eight questions

**Table 1**  
Excerpt of codebook for analysing parents' beliefs and attitudes.

Code	Definition	Data extracts
Shortcomings	The code refers to the disadvantages of, and issues in online learning	'Online learning lacks a learning atmosphere'
Self-regulation	The code refers to children's ability to self-regulate/manage themselves (e.g. attention) while learning online.	'children are too young with weak self-regulation'
Time	The code refers to parents talking about their lack of time and the need for time to accompany and support children's online learning	'children's online learning needs parents to stop their job to accompany them at home'

**Table 2**  
Background information of the sample.

Participants	Groups	N (%)
Age	Under 20	0 (0)
	20–29 years	648 (19.8)
	30–39 years	2237 (68.3)
	40–49 years	359(11.0)
	50 years and above	31(0.9)
Educational level	Junior high school certificate	636(19.4)
	Secondary high school certificate	1017(31.1)
	College degree	780(23.8)
	Bachelor degree	673(23.3)
	Postgraduate degree	79(2.4)
Occupation	Government/public organisations	466(14.2)
	State-owned enterprise	223(6.8)
	Private enterprise	916(28.0)
	Personal owned business	687(21.0)
	Freelancer	663(20.2)
	Unemployed	320(9.8)
Number of Children	One child	1210(36.9)
	Two children	1905(58.2)
	Three children	150(4.6)
	Four children or more	10(0.3)

and collects the demographic information of the participants and their children. The questions include the participants' age, qualifications, the number of their children and their ages, and so on.

**Part II: Online learning during COVID-19.** This part taps the status of young children's online learning at home during the pandemic with 15 questions. All these questions were used to investigate the frequency and the content of children's online learning, children's interactions, and parents' presence during online learning.

**Part III: Parents' beliefs and attitudes around online learning.** This section adopted a five-point Likert scale (ranging from “strongly disagree” to “strongly agree”) to ask for parents' perspectives about online learning. The 27 questions could be classified into three subscales. The 27 questions could be classified into three subscales. Subscale one is about the pros and cons of online learning (9 items): parents were asked to compare online learning with the traditional face to face approach. To generate an initial pool of question items for measuring parents' beliefs and attitudes, previous studies on online learning (Aldhafeeri & Khan, 2016, O'Doherty et al., 2018, Singh & Thurman, 2019) were identified and reviewed. In particular, the two doctoral theses on the role and the effects of online learning were used to guide the design of the questionnaire items (Chen, 2010, Khurana, 2016). In their doctoral work, they compared both traditional and on-line education and examined the pros (e.g. convenience) and cons of online learning (e.g. lack of social presence) for learners. The main advantages and shortcomings identified in their study were 're-examined' in this study. Specifically, the questions were centered on the efficiency, content, cost, effect, learning atmosphere, outcomes of on-line learning for young children and families.

Subscale two is focused on the value of online learning for young children (10 items): parents were asked to evaluate the value of online learning based on the five learning and developmental areas (well-being, language, society, science, and arts) outlined by the educational authorities (Ministry of Education, 2012). As indicated earlier in the literature, specific research studying online learning in the early years is

limited, this study aimed to fill this research gap by studying parents' beliefs about and attitudes towards the value of online learning for young children. As a result, the frequent topics and heated debates (e.g. Brady & Hill, 1984; Elkind, 2007; House, Plowman, McPake, & Stephen, 2012) about the value of digital technologies for early childhood education were reviewed to inform the construction of questionnaire scales. In addition, to ensure the questions that are relevant to the Chinese context, the value of online learning for young children's development were examined in line with the Chinese early childhood curriculum (Ministry of Education, 2012).

Finally, subscale three measures the impact of online learning on family education (8 items): parents were asked to evaluate the impact of online learning on parenting and family education suggested by the educational authorities (Ministry of Education, 2020). Since this study was conducted during the pandemic, online learning was provided as an alternative approach to supporting children's learning and family education at home. The questions were also used to examine the impact of online learning on parenting and family education (see the questionnaire in an Appendix). The internal consistency of Part III was measured, and the reliability for its three subscales was 0.80, 0.89, and 0.78, respectively, indicating satisfactory reliability.

### 3.3. Procedure

The survey was administrated in middle March 2020 after parents and children had been quarantined at home for two months since China imposed national lockdown in late January. All the parents and young children had gained substantial experiences with online learning. The participants were invited by their children's preschools to complete this online survey conducted on Wenjuanxing (www.wjx.cn), the leading online survey platform in China that provides functions equivalent to Amazon Mechanical Turk. The participants were clearly informed throughout the study that participation in this research was completely voluntary, and they could withdraw their participation at any time without any reason.

### 3.4. Data analysis

Both quantitative and qualitative approaches were adopted in analyzing the data in this study. First, the quantitative data were analyzed using IBM SPSS 26.0 software. First, data cleaning was conducted, and the very few missing values (< 0.5%) were replaced with the mean of the concerned variable. Second, descriptive statistical analysis was performed to calculate the frequency, Mean, and SD of parents' characteristics and children's online learning activities during the outbreak of COVID-19. Finally, for analysis, the responses were given a score for each item from one to five: 1 = strongly disagree; 2 = disagree; 3 = Neutral; 4 = agree; 5 = strongly agree. Items that were phrased negatively were subsequently re-coded to make the scales read in the 'positive' direction, lower scores, therefore, reflecting negative or less positive beliefs. The mean scores were calculated for each scale, which provides an overall picture of the parental responses.

Second, the qualitative data collected from the two open-ended questions were analyzed using NVivo 12 software. The two questions are: (1) What areas would you allow your child/ren to continue to learn online after the pandemic? 2) What are your comments or opinions on young children's online learning? The research team collaboratively conducted data coding and analysis. The process of coding the data was cyclical and iterative, involving numerous conversations among the two coders to eliminate inconsistencies in interpreting the data due to who was coding. Throughout the coding process, coders worked from the same codebook, as exemplified in Table 1, which allows each coder in the research team to consistently and reliably analyze the data. The qualitative data were parents' brief comments to the open-ended questions, and they were mainly 1–3 short sentences. Generally, the qualitative data collected were straightforward for generating

categories. The two coders also met to discuss any disagreements of coding and used strategies (e.g. redefining the codes) to reach agreement on coding.

Thematic analysis (Braun & Clarke, 2008) was employed to identify, analyze, and report patterns generated from the data. The qualitative data analysis followed their step-by-step guide in six phases. (1) Familiarising ourselves with the data; (2) Generating initial codes, such as opposing online learning; (3) Searching for themes; (4) Refining and reviewing themes; (5) Defining and naming themes; and (6) Writing qualitative results. For instance, parents' comments were first coded into two broad categories: supporting online learning and opposing online learning. The initial categories were then reorganized and sorted into themes around reasons for and against online learning. Among all the reasons identified, the three themes emerged: shortcomings of online learning, young children's inadequate self-regulation, and parental lack of time and professional knowledge.

## 4. Findings

### 4.1. Young children's online learning during the COVID-19 pandemic

Overall, most parents (92.7%) reported that their children had online learning experiences during the pandemic, and many (84.6%) spent less than a half-hour each time. Specifically, these parents indicated that their children learned online once (43.1%) or multiple times (18.4%) per day, whereas some had only once or twice or three times per week. In addition, about one-third of the children had less than 15 min of online activities per time, and some had an average between 15 and 20 min. The majority of the parents used free online learning resources with no or meager cost. And the children's online learning was mainly delivered and guided by preschool teachers or other staff, some were guided by online apps, webs, and others, as shown in Table 3.

Table 4 presents the analysis results about the young children's online learning activities during COVID-19. First, many young children watched the recorded lessons online once, or multiple times per day, some children watched only once or twice or three times per week, only a small percentage of them never did so. The children's online learning content was varied, including literacy, brain exercises, and science, as well as arts. A small number of parents commented in the open question that their children were learning physical exercise and language online.

Second, many young children attended the live class online once, or multiple times per day, some children attended only once or twice or three times per week, about of them never did so. Third, many young children used WeChat once, or multiple times per day, some children used it only once or twice or three times per week, and many of them never did so. Fourth, many young children used the learning apps once,

**Table 3**  
Young Children's Online Learning Frequency and Time.

Children's online learning	Groups	N (%)
Frequency of online learning	Never	240(7.3)
	Once a week	282(8.6)
	2–3 times weekly	740(22.6)
	Once per day	1412(43.1)
	Multiple times per day	601(18.4)
Time spent on online learning	0–15 min	1072(32.7)
	15–20 min	970(29.6)
	20–30 min	730(22.3)
	30–40 min	290(8.9)
	More than 40 min	213(6.5)
Instructor/source	Kindergarten teachers	2230(68.1)
	Other kindergarten staff	91(2.8)
	Online learning Apps	451(13.8)
	Online learning web	148(4.5)
	Early education website	140(4.3)
	Other	215(6.6)

**Table 4**  
Young children's online learning activities and interactions.

Online learning	Never	Once weekly	2–3 times weekly	Once daily	Multiple times daily
Watching recorded lesson	16.3	12.3	24.3	33.8	13.2
Watching live class	37.0	14.2	18.3	22.5	8.1
Using WeChat	22.8	9.0	18.0	34.7	15.6
Using apps	50.7	13.3	16.1	15.5	4.5
Parent Presence	5.3	2.8	22.0	38.5	31.3
Child interacting with instructor	16.3	8.6	44.9	25.2	5.0
Parent interacting with instructor	17.3	9.1	48.8	20.6	4.0

or multiple times per day, some children did it only once or twice or three times per week, but half of them (50.7%) never did so. Fifth, majority of the children attended online with parent presence once (38.5%) or multiple times (31.3%) per day, some children did it only once (2.8%) or twice or three times (22.0%) per week, very few of them (5.3%) never did so. Sixth, many children interacted with the instructor online once or multiple times per day, some children did this only once or twice or three times per week, many of them (16.3%) never did so. Last, many parents interacted with the instructor online once (20.6%), or multiple times per day, half of them interacted only once or twice or three times (48.8%) per week, whereas many of them (17.3%) never did so.

## 4.2. Parents' beliefs and attitudes around online learning

### 4.2.1. Online learning lacks learning atmosphere

The quantitative data showed that the parents had relatively less positive beliefs about the value of online learning. The subscale one measured parental beliefs about the pros and cons of online education compared to traditional learning in educational settings. The mean for this scale was 2.54, with a medium standard deviation of 0.61. Only a small percentage of participants believed that online learning has better learning content (18.4%), better learning outcomes (11.0%), and is more efficient (12.6%) than the traditional approach. About half parents neither agreed nor disagreed on the statements about the pros and cons of online learning, indicating a neutral position on the value of online education. There were very few parents (1.7%) among those who provided the comments, indicating that under the special pandemic situation, online education can be used to support children's learning.

Furthermore, the qualitative data indicated that the parents believed that traditional learning in educational settings was better than online learning in creating a learning atmosphere with better learning outcomes. Some parents even commented that "online learning at home does not have a learning atmosphere" (parent 7), "the efficiency of online learning is not high" (parent 30), and "online learning atmosphere is not good" (parent 14). These parents also explained their negative beliefs on online learning: lacking social interactions with peers, children did not treat online learning as a formal class; therefore were unable to focus on the learning. In addition, parents found it difficult to manage children's online learning at home as they did not have teachers' authority, as shown in the following quotes from their responses to the two open questions.

*While learning online, children do not feel they are in class. Their self-regulation is not strong, so adults need to sit beside them, urging them [to concentrate] all the time. There are no peers around them, lacking a learning atmosphere, so children always want to play and cannot study well. (parent 13)*

*Young children learning online is not good. At home, they are relatively naughty and do not listen. They only watch TV and mobile phones. It is better to learn offline. Children listen more to their teachers and have a*

*better learning atmosphere in kindergarten! (parent 4)*

### 4.2.2. Online learning causes harm to young children

The quantitative analysis indicated that the parents were less positive about the benefits of online learning. The subscale two had a mean of 2.80 and a medium standard deviation of 0.66. A small percentage of parents believed that online learning could enhance young children's language development (21.2%), literacy (25.2%), social skills (24.8%), independent skills (17.8%), arts (21.1%) and physical health (10.9%). In general, more parents perceived that online learning could help children gain more science knowledge (37.6%). Approximately half of the participants had a neutral attitude towards the role of online learning for supporting children's development in language, literacy, independence, social skills, science knowledge, and arts.

The qualitative analysis found that some parents commented that "during the special [pandemic] situation, children can learn online" (parent 1). In contrast, others argued that "although children can learn via online approaches, the learning quality is not good" (parent 20), and "the learning effect of online learning is bad" (parent 2). Some parents further explained that young children had weak self-regulation and a short attention span thus could not engage in online learning. For instance, they commented "children are too young, and their mind can't concentrate" (parent 17) and "online learning efficiency is low, and children's self-regulation is poor," (parent 10) and "their initiative is not high, although they were learning the content as they were in school."

In addition, the parents indicated their strong resistance and opposition towards online education caused by their concerns about the negative effects on children's development. As shown in the following quotes from their responses to the two open questions, the parents believed that online learning had more harm to young children than its benefits.

*Online learning has made children deprived of independent thinking, reduced the amount of physical exercises, and caused eye strain by excessive screen use. (parent 17)*

*Young children should be lively and active, but now they have to receive online learning passively and inactively. Lacking social interactions with their peers and teachers has made their nature unstretched. (parent 14)*

Among all the concerns, the most critical one is about the negative effect on young children's eye vision. Some parents emphasized the potential harm to young children's social development and physical health, especially eye vision. There was a dilemma for parents to adopt online learning for their children, as revealed by a parent: *children can learn some knowledge via online approaches, but they would develop an interest in watching smartphones and TV, which is not good for their eyes.* In general, many parents stated harm and challenges caused by online learning without mentioning any benefits, as shown in the following quotes.

*The biggest shortcoming [of online learning] is harmful to the eyes. (parent 54)*

*Young children cannot learn online at all, and they do not listen at all. A long time is bad for their eyes. (parent 38)*

### 4.2.3. Online learning demands time and professional knowledge from parents

The quantitative data from subscale three measured parents' beliefs and attitudes about the impact of online learning on parenting and family education, with a mean of 3.21 and a standard deviation of 0.57. Approximately half parents believed that online learning kept their children from doing nothing at home during the outbreak of COVID-19 (60.5%) and improved parent-child relationship (47.6%) and inspired their educational ideas (47.8%), and allowed them to see that children can participate in many forms of activities (45.9%). Overall, the parents had slightly more positive perceptions of the impact of online learning

on their family education.

In contrast, the qualitative data found that some parents perceived children's online learning as inconvenient, challenging, and time-consuming. About 1.6% of the parents expressed that "[online learning] wastes too much adults' working time (parent 16) and adds burden to parents (parent 26) and affects parents' work significantly (parent 31). This is because children do not have adequate self-control abilities (parent 34), and children's online learning needs parents to stop their job to accompany them at home (parent 17) and cost time and efforts (parent 30). In addition, these parents mentioned various barriers for them to implement home online learning, including time constraints and professional knowledge in teaching children. Notably, the parents who had more than one child identified more barriers to their younger children's online learning and juggled between their carer and worker responsibilities.

*For parents with two children in the family, they can only care about [online learning of ] the older child but not the younger one. It is very difficult to choose between accompanying children to learn [at home] or work to make money. Parents only can choose to focus on school children's [online learning]. Recently, parents are back to work and can't take care of kindergarten children's online learning. (parent 51)*

Additionally, they expressed concerns about unnecessary requirements such as signing attendance online, which presented another barrier for young children to accomplish independently and added extra work to parents. They felt like they were forced to follow online program requirements and instructions that did not align with the intended aim and flexibility of online learning.

*Every family is different. Online learning may be better in a one-child family. For families with two children, and both need to sign-in and learn online, parents need to work and are very tired. Children can't focus on learning at home and resist some individual [online] curriculum. They can't learn to sign in online in a short time. After many practices of signing attendance online, they just got it. Online signing in is relatively difficult. (parent 70)*

Although there was no significant relationship between the number of children they had and their beliefs about online learning, their workplace was significantly linked to their beliefs about the value of online learning ( $F(6, 3268) = 2.82, p = 0.01$ ) and the role of online education in family education ( $F(6, 3268) = 2.25, p = 0.04$ ). Overall, the parents who are private business owners and freelancers held more positive beliefs about online learning, which may be because they had relatively more flexibility to accompany children's online learning than those working in public organizations or enterprises.

In total, about 8.7% of the parents commented that they would not recommend online learning in the early years, and they hoped online learning to be ceased as soon as possible after the pandemic. For instance, one parent wrote "disapprove online learning after the kindergarten reopens," while another commented, "hope to start kindergarten soon to implement traditional education."

Among these parents, some questioned the 'appropriateness' of online learning and similarly stated, "children are too young with weak self-regulation, and online learning is not appropriate," and 'online learning is not suitable for young children' (parent 19). Such finding is also supported by the quantitative findings that only a few parents (8.9%) were willing to pay for online learning after the pandemic, and more than half of parents indicated that they would not allow their children to learn online once the COVID-19 lockdown is over.

## 5. Discussion

As the first exploration of Chinese parents' beliefs and attitudes around online learning during the COVID-19 pandemic, this study has found that many young children had online learning experiences that were delivered by their kindergarten teachers or online learning apps at

no or low cost. Their parents, however, had different views about this online learning experience. This section will discuss these findings and their implications for future studies and practical improvements.

### 5.1. Chinese parents' negative beliefs and attitudes around online learning

Firstly, this study found that the parents held a belief that online learning is less effective than traditional learning in early childhood educational environments. They believed that online education lacked a learning atmosphere and social interactions to engage young children, resulting in poor learning outcomes. These generally negative beliefs about online learning could be related to the two major causes. The first one is that the lockdown of COVID-19 has caused a sudden shift to online learning. Thus, it has challenged the traditional parental understanding of childhoods and expectations about early childhood educational practices, which should include free play and outdoor activities (Stephen & Edwards, 2018). As noted by Arnott and Yelland (2020, p.126), "challenges remain in our understanding of childhoods in the 21st century and in integrating new technologies into children's learning cultures." The dominant ideas and popular discussion about childhoods in a digital age are either passive/at-risk or empowered (Craft, 2012; Dong, 2018; Mertala, 2019b; Stephen & Edwards, 2018). Such polarised debates have led parents and educators to believe that young children's use of digital technology is inappropriate and often caused dilemma and confusion for those seeking to incorporate digital technologies into young children's learning (Dong & Mertala, 2020; House, 2012; Isikoglu Erdogan et al., 2019). To support educators, parents, and children to use new technologies better, researchers advocated a reconceptualization of 'childhoods' and 'play' in the digital age so digital artifacts can be embraced as unique and distinct resources to provide them with new opportunities for learning and play (Arnott & Yelland, 2020; Edwards, 2016). Therefore, these Chinese parents need to update their knowledge and develop a new understanding of 'childhoods,' 'learning,' and 'play' through parental education or family-school partnership programs.

The second cause might be the major shortcomings of online learning, as noted by the critics (Khurana, 2016; Chen, 2020; Doherty et al., 2018): social isolation and lack of interactivity, which have repeatedly been reported by the parents during this unexpected experiment. Vlachopoulos and Hatzigianni (2016) have emphasized the need to address critical issues around students' online learning experiences and course outcomes. This study, however, found that all these critical issues had not been solved, even though many advancements had been made in digital and online technologies. Therefore, Chinese parents tended to have negative perceptions of digital and online learning.

Secondly, this study found that most Chinese parents had a major concern about vision problems caused by online and digital learning. Such concern has been shared by many parents and early childhood educators internationally (Hatzigianni & Kalaitzidis, 2018; Mertala, 2019a; Sharkins et al., 2016; Wartella & Jennings, 2000). In China, the prevalence of myopia appears to have rapidly increased in recent years, and more and more young children are reported to be short-sighted (Ku et al., 2019). This problem has been attributed to the increased screen-time by the public (Guarino, 2018). Therefore, the Ministry of Education and the seven other national authorities jointly issued "Implementation Plan for Preventing and Controlling Myopia in Children and Adolescents" (Ministry of Education, 2018) to regulate children's technology use by limiting the screen time. Therefore, this concern reported by the Chinese parents in this study is sensible and should be carefully addressed by the developers and designers of digital and online learning programs.

Thirdly, this study found that the parents were also worried about the lacking of physical activity as well as the addiction to screens such as TV and smartphones caused by digital and online learning. This concern is also reasonable and understandable, given that all the young children were quarantined at home during the COVID-19 pandemic,

and digital and online learning became their only channel to interact with teachers and peers. This finding is consistent with the existing ones that have suggested that parents and educators were concerned about the negative effect of screen time on young children's health development (Edwards et al., 2012; Livingstone et al., 2015; Radesky et al., 2016; Rhodes, 2017). The Chinese parents in this study reported using different strategies to restrict digital device use and making many efforts to promote offline activities for children while limiting digital activities at home. And some Chinese parents have even planned to stop children's access to online learning once the pandemic is over. All these findings jointly indicated that Chinese parents tended to view digital and online learning negatively.

Though this study was conducted in a different context (China) at a unique time (during COVID-19), the findings of Chinese parents' negative beliefs and attitudes around online learning are consistent with some western studies conducted in EU countries (Livingstone et al., 2015) and Australia (Australian Government, 2019), which found that parents have been concerned about online risks and too much online time. Specifically, the recent national survey of 3520 parents of children aged 2–17 that parents believed that their children spent too much time playing games, using social media, and streaming TV shows. However, the Chinese parents tended to be more worried about children's eye vision deterioration caused by watching screens, which may be due to their younger age of their children in this study.

### 5.2. Why Chinese parents viewed negatively

First, this study found that Chinese parents tended to reject online learning because their children had no or low self-regulation. This finding provides empirical evidence to support the claim that self-regulation is a prerequisite for successful online engagement and learning (Vlachopoulos & Chatzigianni, 2017). Furthermore, the Chinese parents highly valued the linkage of self-regulation to the Confucianism heritage that children should be self-restraint and self-regulate to follow the social rules and norms. This is more than the definition of self-regulation: "self-generated thoughts, feelings, and behaviors oriented to attaining goals" (Zimmerman, 2002, p. 65). However, this finding indicates that Chinese parents might expect their children to learn and show self-control and self-regulation at a young age (Luo, Tamis-LeMonda, & Song, 2013).

Second, this study found that Chinese parents tended to reject online learning because their children were uninterested, inactive, and unfocused during online learning. This finding suggests that the young Chinese children could not be regarded as self-regulated learners, who should be "metacognitively, motivational and behaviourally actively participants in their learning" (Zimmerman, 1990, p. 4). This finding, however, contradicts with the existing ones that young children were strongly interested in media and technology (Sharkins et al., 2016) and that Chinese children were curious and excited about digital programs (Dong, 2016; Dong & Mertala, 2019; Jiang & Monk, 2015). This discrepancy might be caused by the difference in the quality of digital and online learning, as one parent said that "*the content of online learning is not very attractive to children*" (parent 3). Therefore, it might be the poor quality and boring content of online learning that has caused the resistance and even rejection of Chinese children and parents. The media of digital and online learning itself might not be the cause. This is why Vlachopoulos and Hatzigianni (2017) suggested that the design of online learning played an important role in shaping learners' perceptions of online learning.

Third, this study found that many parents, especially those with more than one child, tended to reject online learning because they had no time to support children's online learning at home. This finding is consistent with that study by (Li, Shi, Wu, & Li, 2020), who found Chinese parents of only-child tended to have more opportunities and educational resources than those of non-only children. The parents of only-child would invest more time and energy to help their child to

excel in academic performance. Besides, the Chinese parents in this study generally perceived online learning as time-consuming and burdensome. Similarly, Smith et al. (2016) found that online learning required parents' significant time commitment. But the American parents in their study still wanted to be engaged in their children's online learning, even though they were shocked by the time required to support their child's online learning. The Chinese parents in this study, however, did not realize the importance of their involvement and tended to reject to support their children's online learning.

Last but not least, this study found that the parents were negative about online learning because the COVID-19 lockdown had made them suffering from the hardships and the unexpected demand from online learning. They felt unable to educate young children as their conventional role was not the teacher of a child, and they were not trained to do so. Chinese parents and grandparents were often blamed by teachers for spoiling their children (Tobin, Hsueh, & Karasawa, 2009) and allowing too much screen time (Dong & Mertala, 2019, 2020). Therefore, they tended to feel unconfident to teach their children at home and believed that their "*children listen more to their teachers and have a better learning atmosphere at school*" (parent 13). Accordingly, they were so eager to send their children back to preschools.

## 6. Conclusions, limitations, and implications

Digital and online learning is gaining popularity due to its advantages, such as greater flexibility, wider access, and low cost (Khurana, 2016; Chen, 2010). However, this study found that the implementation of online learning during the COVID-19 pandemic has been problematic and challenging for Chinese families. Chinese parents generally had negative beliefs and attitudes about the values and benefits of online learning and preferred traditional learning in early childhood educational environments. This is because they were neither trained nor ready to embrace online learning. The hardship caused by the COVID-19 pandemic has made them suffer, thus more resistant to online learning at home. And these Chinese parents were more concerned about the shortcomings of online learning, their children's inadequate self-regulation, and their lack of time and professional knowledge in supporting online learning.

This study, however, has certain limitations. First, a large-scale quantitative study can provide representative and diversified evidence about the target topic. Still, it has no way to gain an in-depth understanding of individualized situations and problems. Interview or mixed-methods studies should be conducted to thoroughly explore Chinese parents' authentic views, concerns, and difficulties. Second, this online study simply collected self-report data, which might have a socially desirable bias. Further studies with triangulation of methods (i.e., teacher-, self-, and peer-report) are needed to cross-check the results.

Nevertheless, for the first time, this study has investigated Chinese parents' beliefs and attitudes concerning digital and online learning during the outbreak of COVID-19. The national lockdown has unavoidably affected many children's physical attendance at educational settings and made online learning an emergent alternative to maintain the continuity of learning and play at home (Early Childhood Australia, 2020; Silverman, 2020). Even though online learning has been widely promoted in China to replace traditional education during the pandemic, the findings of this study indicate that the Chinese parents were neither trained nor ready for doing so. This implies that the educational authorities need to do more to get Chinese parents ready for online learning and to consider more about young children's age and learning interests. The findings from this study have implications for policy-makers and educators globally who are promoting online learning as an alternative to young children and their families during the pandemic. The promotion and implementation of online learning to replace traditional early childhood education during emergent situations like COVID-19 need to be carefully considered and well planned to support families, rather than adding extra burdens to them. This means that the

promoters should consider the complexity and diversity of families (e.g. more than one child learning online and parents' working full time at home) when suggesting an online class to young children, and provide parents with flexibility and convenience. In addition, the provider of online learning should improve the design of online programs (e.g. easy login) to make parents effortless in using the program.

### CRedit authorship contribution statement

**Chuanmei Dong:** Conceptualization, Methodology, Writing - original draft. **Simin Cao:** Data curation, Investigation. **Hui Li:** Writing - review & editing.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childev.2020.105440>.

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