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Parents' Beliefs and Attitudes on Their Children's Distance Education Performance during the COVID-19 Pandemic in Greek Preschool Settings

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Authors' contributions

This work was carried out in collaboration between both authors. Author VK did the initial design, wrote the first draft and discussed the findings. Author ET collected the data, collated it and did the analysis. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Current research and the bibliography suggest that both synchronous and asynchronous distance education in the early years of education is a new era to explore the teaching of young children.
Aims: The aim of this study was to assess the extent of use of online classroom platforms in early years, both in the private and public sector, and to correlate parents' attitudes towards children's behavioral changes during the pandemic lockdown in Greece.
Methodology: The participants were 216 parents with preschool-aged children (between 2:6 to 4:0 years) in Greek pre-school settings in two cities of North and West Greece. A questionnaire on the use of ICT during the pandemic Covid -19 and its' outcomes was distributed online to all parents. The parents' perception was generally negative and was not preferred to frontal teaching, while they were not satisfied with the results.
Results: A remarkable percentage of children did not participate in online education due to their

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parents' attitude on the appropriateness of their age to participate in online education. However, the deterrent attitude of parents was not related to their level of education and willingness to help their children. The parents' perception was generally negative and was not preferred to frontal teaching, while they were not satisfied with the results. As far as the implementation of distance education is concerned, private broadcasters have introduced more synchronous distance education compared to public ones. Finally, there were positive correlations between asynchronous distance learning of 1-3 hours per day and children's irritability, as well as feelings of stress and anxiety and asynchronous distance learning of more than 6 hours per day. The correlation between children's distraction and asynchronous distance learning for 1-3 hours per day was negative.
Conclusion: Further discussions for policy makers and teachers are planned.

Keywords: Early childhood education; distance education; parents' attitudes; children's anxiety.

1. INTRODUCTION

Teaching young children has changed dramatically recently due to ICT revolution that has been done on learning [1,2]. Over the last decades, distance education has been introduced to learners and the form of teaching is gradually changing [3]. There are many observed differences between face-to-face and distance` education, and for several years there has been controversy over both methods [4]. According to some studies, there is no difference between the effectiveness of distance education and face-to-face learning [5], and according to Larson and Sung [6], no significant differences in learning perception between face-to-face and distance education methods have been observed. However, there are some studies that found differences in the effectiveness of learning between the two modalities. Four years of institutional data were analyzed, totaling 72,441 course enrollments of 23,610 students in 433 courses during the summer semester revealed that student grades were slightly lower in online courses than in face-to-face courses [7]. Third-year psychology students (n=130) at an Australian university assessed their experiences of face-to-face, tutor-directed practical courses and self-directed online courses. Students reported no difference in the amount of effort they put into the two teaching modalities. Yet, they mentioned a slight difference in that they learned more in face-to-face courses than in online courses [8]. Small but significant differences on academic outcomes across modalities have been mentioned through Francis, Wormington, & Hulleman who syggested that online students received lower grades and were less likely to pass from their courses than face-to-face students [9]. However, parents and teachers are particularly concerned about infant and young child developmental problems such as language development [10]. Therefore, much research has been done in recent years on the effects of technology on a child's development, with particular attention paid to language development [11]. The benefits of using technology in early childhood education are many and studies have shown that digital technologies can provide children with new opportunities to learn, communicate and explore. Digital technologies can empower children by enhancing literacy, mathematical understanding and science, problem solving, visual literacy and painting, media education and learning of music [12,13], but more research is needed to convince all educators. Because of the specificities of childhood, many teachers believe that technology cannot replace the immediacy of human contact. In addition, there are studies that show that even parents show a certain skepticism about the effectiveness of distance education at a young age [14,15]. There are encouraging studies that have shown that parents do not see the introduction of technology in education as problematic [2]. However, there is little research on the use of technology for distance education at the pre-school level [16].

1.1 ICT in Preschool Education

Consideration the importance of integrating Information & Communication Technologies (ICT) in preschool education, many researchers propose the following framework for the use of ICT in preschool education, which is divided into four interdependent components a) ICT as a cognitive tool: It covers all subjects in the curriculum and is considered a means to support modern pedagogical approaches, a tool for communication, exploratory and collaborative learning, the development of critical thinking and creative skills. The basic idea is that ICT does not directly teach skills but is used as an additional cognitive tool [17]. b) ICT as a problem-solving methodology: Students

participate in problem-solving activities aimed at cultivating methodological skills. The emphasis is on research, experimentation, discovery, and problem solving in all disciplines. c) ICT as a technological tool: The children are familiarized with modern ICT tools. This axis aims at the continuous development of technical skills and the adequacy of the use of modern ICT environments (general-purpose software, educational software, Internet services, etc.) For children at an early age, the main objective is to search, organize, manage, produce information in a variety of forms, develop ideas and personal expression and creation. d) ICT as a social phenomenon: children can assess the applications of ICT in modern society (work, science, education, entertainment, culture, etc.) [18]. In preschool education, teachers focus mainly on children understanding the role of digital technologies in modern society and culture. The aim is to provide children with a broader digital education and to form attitudes and values to understand the new social and cultural environment that is taking shape today [17].

1.2 Parents' Attitudes Towards Distance Education

Online learning experiences through distance education can be asynchronous or synchronous. Asynchronous education occurs when teachers email families learning materials and children decide when to use them. In contrast, synchronous education activities take place through audio conferencing with instant feedback [19]. For example, there are worksheets that the child prints out and completes at home or online. These tasks are based on the games that happen in a preschool setting and are played in a synchronized form. The material sent to the children encourages memory or observation. In some cases, the preschool teacher makes a thematic game, suggested materials that the children could use at home to create things needed for the game, and later in the online class they played together with their creations. The effectiveness of distance education is directly related to the ability of teachers to use computers and other technological devices. Moreover, it is easy to understand that the preparation a teacher needs to teach distantly is much greater than when he/she is in the real classroom. It has been observed that many teachers do not have sufficient technical self-confidence, which is why they report a lack of distance learning skills [20]. These results seem to be very important for early childhood education, as the topics to be covered are less demanding and do not require complicated software [21]. Parents' views on distance education for young children are divided. On the one hand, parents advocate that digital device help children acquire valuable technical skills and teach them how to use devices to improve their academic development, such as future employment opportunities [22]. In recent decades, parents have also believed that digital technology could offer new knowledge to young children [23,24]. Parents with higher educational levels tend to believe that distance education can affect children's learning skills, language, self-expression and social competences [25]. On the other hand, parents insist that young children should not be exposed to distance education as this could impair their social, emotional and health development [26]. The EU project Kids Online [27] showed that parents with higher income and higher education tried to promote a wide range of practices and activities for children, while limiting digital activities at home. Some parents set rules and limits on the frequency and duration of digital equipment use but did not recognize the importance of their role and commitment in supporting young children's technological engagement [22]. Distance education is not widespread in preschool education in Greece. However, due to the pandemic, its necessity became apparent and distance education was introduced immediately at a very early age.

The aim of this study was to assess the extent of use of online classroom platforms in early years, both in the private and public sector, and to correlate parents' attitudes towards children's behavioral changes during the pandemic lockdown in Greece.

2. METHODOLOGY

The current study employed a quantitative method through using online survey. The online approach was preferred over the face-to-face approach due to the pandemic lockdown and the easy accessibility of the two cities in North and West Greece (Thessaloniki and Ioannina), the sample tracking and the chance of less item non-response [28]. A non-probability convenience sampling method was chosen due to the ease of availability of the sample. After our telephone communication with the school principals, we forwarded the questionnaire link to the school directors so that they could send it to the parents

with whom they work. The email addresses and phone numbers of the school units were collected from the official website of the Basel Department of Education. However, this was also a voluntary response sample, so the risk of sampling bias was minimized. It was assumed that completing an online questionnaire would enable participants to answer questions about distance education and thus the use of online processes outcomes while in an online context. The study lasted two months and for its purpose an online questionnaire was distributed to parents whose children were participating in early years distance education lessons during the pandemic disruption in Greece. In particular, the questionnaire contained information on the beliefs and perceptions of parents whose children participated in distance education.

2.1 Research Questions

The study addressed the following research questions:

Research Question 1: Is there a significant difference in participation in distance education between children according to parents' educational level?

Research Question 2: Are there differences in participation in distance education observed according to location?

Research Question 3: Was distance education offered in a greater extent in private schools, compared to distance education offered in public schools during the pandemic?

Research Question 4: Is there any relationship between children's observable changes in behavior and the time spent on distance education environments (both synchronous and asynchronous) according to parents' beliefs?

2.2 Participants

The participants in the study (N=216, female:177, male: 39) were parents aged between 18 to 54 years (69.4% were 35 to 44 years, n=150), while most of them were Greek (females 93,5%, n=202 and males 97.2%, n=210) and married (94%, n=203). Specifically, their children are aged between 2:6 to 6:0 years and are registered students of private and public preschool settings throughout North and West Greece. Also, the majority has a four-year-old child (42.1%, n=91), whereas 29.2% has a six-year-old child. Lastly, 74.5% of the children were registered in public preschool settings (n=161), and 25.5% were enrolled by their parents in a non-public (private) preschool educational setting (n=55). The characteristics of the participants are shown in Table 1.

Table 1. Parents' demographic characteristics

Characteristics ***(N=216)***	**Male** ***(n=39)*** **No(%)**	**Female** ***(n=177)*** **No(%)**
Age (years)		
18-24	0(0)	1(0.56)
25-34	3(7.6)	35(19.7)
35-44	27(69.2)	123(69.4)
45-54	9(23)	18(10.1)
Marital status		
Single	0(0)	7(3.9)
Married	39(100)	164(92.6)
Divorced	0(0)	6(3.3)
Employment status (Mother/ Father)		
Public Sector	5(12.8)/8 (20.5)	42(23.7)/34(19.2)
Private Sector	19(48.7)/19(48.7)	56(31.6)/87(49.1)
Freelancer	6(15.3)/10(25.6)	31(17.5)/50(28.2)
Unemployed	9(23)/2(5.1)	48(27.1)/6(3.3)
Greek Ethnicity		
Mother	34 (87.1)	168(94.9)
Father	39 (100)	171(96.6)

2.3 Measures

To design the questionnaire and measure parents' beliefs and attitudes, previous studies on distance education [29,30] were identified and reviewed. The questionnaire contained 54 items that were used to collect information through closed questions with multiple answers. The first 14 items collected data on the demography of the sample (age of parents, gender, educational level, marital status, ethnicity, socio-demographic status, profession, type of preschool setting to which the child is sent, community to which the preschool setting belongs). Another 18 items are related to the attitude of the children according to the parents' beliefs and the situation of the family in general during the quarantine due to the pandemic COVID -19 in spring 2020. The last 22 questions related to the evaluation of distance education tools by parents and the impact of distance education wherever it was used. For each element of the quantitative analysis a rank from 1 to 5 was assigned: 1 = strongly disagree; 2 = disagree; 3 = Neutral; 4 = agree; 5 = strongly agree, meaning that the survey consisted of a five-point Likert- type scale as well as demographic questions. In every case of the significance tests, an alpha level of 0.05 was used.

2.4 Procedure

The current survey was conducted after both children and parents had experienced the quarantine at home after Greece imposed a national lockdown in mid-March 2020. An invitation was sent by e-mail to over 300 parents whose children had enrolled in early childhood education in the 2019-2020 school year. As it was an open invitation list, there was no direct e-mail communication between researchers and respondents. In addition, there was no permission for duplicate responses as respondents' keys were assigned to each independent respondent throughout the survey process. All participants in the survey throughout the two cities in North and West Greece, according to the preschool settings' protocol on distance education, had had the distance education experience during this quarantine for almost three months. An introductory note on the first step of the process was written to briefly describe the objectives of the study and to ensure the confidentiality and anonymity of their answers. They completed a structured questionnaire, and the data was also stored in a database for use by researchers.

2.5 Data Analysis

In the present analysis, a quantitative approach was utilised and the analysis was carried out using the software IBM SPSS 26.0. Characteristics such as age, gender, education level, etc. were analyzed through frequencies and percentages. In addition, means and standard deviations were calculated to examine the responses of the parents.

3. RESULTS AND DISCUSSION

According to the results presented in Table 2, the region of the preschool setting is not related to the extent of distance education, as poorer regions (West municipality of Thessaloniki) provided as much asynchronous (64.3%, n=9) education as more prosperous regions (East municipality of Thessaloniki) (88.3%, n=151). There is also no difference between public and private preschool settings and the extent of distance education, as almost 11% of private and public preschool settings did not offer any distance education at all. However, there is a significant difference between the above-mentioned regions, as no distance education was offered, while 28.6% (n=4) of the preschool settings in the West municipality of Thessaloniki did not offer distance education at all. 11.1% (n=19) of the East municipality of Thessaloniki did not manage the transition. As far as the size of the city is concerned, no significant difference was found.

Descriptive statistics showed that 74.5% of the sample (n=143) participated in the online class, while 25.5% (n=49) did not participate. According to Table 3, the majority of parents whose children participated in distance education were university graduates, including universities, technical colleges and former technological education institutions (mothers 69.9%, n=100 and fathers 58.7%, n=84). The same results were obtained when children did not participate, as 55.1% (n=27) of mothers and 63.2% (n=31) of fathers had tertiary education. The results in Table 2 therefore do not confirm the link between the participation of children in distance education and the educational background of their parents. However, the analysis suggests that there is a considerable difference between parents with higher and lower educational levels when their children are enrolled in public or private preschools.

Participants were asked to answer questions about behavioral changes they may have noticed

in their children during quarantine and distance education. Specifically, under seven characterizations (Table 3), they indicated the behavior they thought their child would develop during the closure of the schools. They also answered questions about the hours the child spent on the devices during the online lessons. Pearson correlation coefficient was chosen to measure the degree of association between children's behavioral changes and distance education processes. In the attempt to investigate the extent to which school closures and social distancing efforts affect the emotional well-being of children, a statistically significant correlation was found between the irritability of children and their participation in synchronous education for one to three hours per day (r = .152, *P*< .005). In addition, the children of the participants appear to have feelings of anxiety, which is significantly related to participation in asynchronous distance education of more than six hours per day (r= .140, *P*< .005). However, data analysis showed a negative correlation between distraction and a 1-3 hour stay in an asynchronous form of distance education (r= -.160, *P*< .005). What counts as a distraction in this study is anything that takes the student or his focus away from the task at hand. It is not just something that pulls the student away completely instead of listening to the lecture or doing their homework. A distraction can also be anything that diminishes his/her attention to the lecture or assignment, even if he/she is listening to it or working on it. For example, if he/she is listening to the teacher's lecture or doing homework while whispering or drawing, talking to his/her mother, or playing with a toy, he/she is probably not as attentive as he/she would be if he/she was concentrated on the lecture. Parents pointed out many distractions caused by distance education devices. For example, chores such as washing dishes were a problem while children were busy with their schoolwork, noise from other children at home interrupted lessons, while others reported that their children were frustrated as distance learners because they lost instructional time adjusting while adjusting settings on devise, in order to manage their online connection. Thus, the results of this study imply that students cope with digital distractions when learning in an asynchronous form of distance education. As the amount of time spent on asynchronous distance learning increases, the distraction decreases.

The following questions were answered by the participants on a scale of five Likert-type points, where 1 = not at all and 5 = too much. These statements relate to the extent and quality of the contact that parents have developed with their children during the pandemic. A high score on a scale means a stronger level of relationship and contact with the child. As can be seen from the results, all answers have an average score above 3.5 - except for the question directly related to curfew (M=3.25 and SD=1.19), which indicates the maintenance of basic contact and relationship between parents and children. Specifically, 94.4% stated that they played with them quite a bit (M=4.12, SD=0.95), 91.2% read fairy tales to a large extent (M=4.02, SD=1.04), 88.4% encouraged him/her very much to participate in artistic activities (M=3.87, SD=1.04) and 90.7% developed conversations with him/her to improve his/her language (M=3.92, SD=1.0). In general, parents believe that during the pandemic period they have moved closer to their child, developed stronger emotional relationships and spent valuable time with their children.

The introduction of information and Communication Technologies (ICT) in preschool education is a reality and has occupied the national and international literature, especially regarding how young children should interact with new technologies. Most studies suggest that the integration of ICT in preschool education is both a pedagogical tool for the teacher and a cognitive tool for the student [31].

Table 1. **Regions and schools' transition into distance education**

Regions	Didn't apply No(%)	Synchronous form No(%)	Asynchronous form No(%)
Ioannina *(n=25)*	0(0.0%)	19(76.0%)	6(24.0%)
East municipality of Thessaloniki *(n=171)*	19(11.1%)	1(0.6%)	151(88.3%)
West municipality of Thessaloniki *(n=14)*	4(28.6%)	1(7.1%)	9(64.3%)
Central municipality of Thessaloniki *(n=6)*	1(16.7%)	0(0.0%)	5(83.3%)
Public institution *(n=161)*	18(11.2%)	2(1.2%)	141(87.6%)
Private institution *(n=55)*	6(10.9%)	19(34.5%)	30(54.5%)

Table 2. Parents' educational level correlations with types of institutions and online school attendance

Characteristics N=216	**Mother's Educational Background* No(%)**							**Father's Educational Background* No(%)**						
Child concerned	Educational Stage							Educational Stage						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Public institution registration (*n=161)*	0 (0)	2 (1.2)	27 (16.7)	14 (8.6)	101 (62.7)	13 (8)	4 (2.4)	2 (1.2)	5 (3.1)	43 (26.7)	9 (5.5)	92 (57.1)	9 (5.5)	1 (0.6)
Private institution registration (*n=55)*	0 (0)	0 (0)	5 (3.1)	5 (3.1)	41 (25.4)	3 (1.8)	1 (0.6)	1 (0.6)	0 (0)	11 (20)	4 (7.2)	36 (65.4)	1 (0.6)	2 (3.6)
Online school attendance** *(n=192)*														
Attendance (*n=143)*	0 (0)	0 (0)	21 (14.6)	10 (6.9)	**100 (69.9)**	10 (6.9)	2 (1.3)	1 (0.6)	3 (2)	37 (25.8)	10 (6.9)	**83 (58)**	8 (5.5)	1 (0.6)
Non-attendance (*n=49)*	0 (0)	2 (4)	9 (18.3)	5 (10.2)	**27 (55.1)**	4 (8.1)	2 (4)	2 (4)	1 (2)	13 (26.5)	1 (2)	**31 (63.2)**	1 (2)	0 (0)

**Educational background was the highest education completed by the respondent (1=Primary school, 2=Lower Secondary Education School/Gymnasium, 3=High school graduate, diploma or equivalent, 4=Trade/technical/ vocational training, 5=Bachelor's degree, 6=Master's degree, 7=Doctorate degree)*

***In case of applied distance education (Synchronous/Asynchronous) by the institution*

Table 3. Children's observable behavioral changes correlated to the time spent on distance education environments

		Correlations						
		Distraction	**Laziness**	**Irritability**	**Worry**	**Nervousness**	**Loneliness**	**Malaise**
Synchronous 1-3 hours/day	Pearson Correlation	-.041	-.067	**.152***	.025	-.053	-.046	.065
	Sig. (2-tailed)	.554	.330	.026	.717	.439	.497	.342
	N	216	216	216	216	216	216	216
Synchronous 4-6 hours/day	Pearson Correlation	.076	-.018	-.032	-.008	-.018	-.082	.115
	Sig. (2-tailed)	.266	.792	.642	.908	.788	.228	.091
	N	216	216	216	216	216	216	216
Asynchronous 1-3 hours/day	Pearson Correlation	**-.160***	-.003	.068	-.100	.095	-.034	.067
	Sig. (2-tailed)	.019	.967	.317	.141	.166	.622	.324
	N	216	216	216	216	216	216	216

Asynchronous 4-6 hours/day	Pearson Correlation	.098	-.019	-.063	-.051	.030	.065	-.046
	Sig. (2-tailed)	.152	.776	.358	.460	.658	.345	.500
	N	216	216	216	216	216	216	216
Asynchronous >6 hours/day	Pearson Correlation	-.036	-.059	.067	**.140***	-.033	-.041	-.041
	Sig. (2-tailed)	.597	.385	.325	.040	.629	.545	.545
	N	216	216	216	216	216	216	216

**. Correlation is significant at the 0.05 level (2-tailed)*

Table 4. Time spent for interaction between children and parents

	Mean	Std. Deviation	Variance
Did you play games with your child?	4.12	.950	.903
Did your child engage in artistic activities (painting, collage, handicrafts, etc.)?	3.87	1.041	1.084
Did you read fairy tales with your child?	4.02	1.041	1.083
Did you have conversations with your child to develop his or her language?	3.92	1.002	1.003
Did you go out with your child (walk, exercise)?	3.25	1.190	1.416
Did you get closer to your child?	4.26	.856	.732
N = 216			

Until recently, there was a perception in Greece that distance education technologies were only popular in cases of vocational education and therefore could only be used in their classical, teacher-centered form for adults. This meant that it focused on the needs of the teacher and the trainees who had to adapt to it. After e-learning was introduced in response to Covid-19 [14], the field of education was revolutionized, especially at the preschool age where instruction in this case became student-centered.

Since this was the first time such a thing was applied in Greek early childhood education, it is therefore understandable what the results suggest. In particular, the study suggests that parents adopt a pessimistic attitude towards the quality of online instruction [14] in terms of inadequate educational outcomes. At the same time, they believe that distance education may not provide appropriate opportunities to engage young children who need more interaction and hands-on activities to focus and learn compared to adult learners [32]. This conclusion goes hand in hand with the stated interaction of parents with their children during quarantine. It appears that they took an active role in their children's education and creative activities by encouraging them to play games that developed the child in many ways [32].

However, participants in this study indicated that the physical presence of the teacher in the classroom and the safety that comes with it cannot be fully replaced by the remote environment in which their children participated. This is probably a view that is liberated from the territorial boundaries and perceptions of societies and their customs, as Chinese parents expressed similar opinions in Zhang's [14] research arguing that online teaching and education cannot replace face-to-face education from the perspective of students' behavior, cognitive and emotional engagement due to parents' beliefs and thoughts.

Since the duties of parents were also greatly increased, parents and caretakers were responsible for timely contact between child and teacher. This needs to be considered because while preschoolers are learning online, adult supervision is required [33,19] including for their online access, so adult involvement is also an important aspect of distance education in preschool education [34]. Some parents appeared to underestimate the potential for their children to interact with the online environment, which they perceived as potentially distracting and harmful. Parents regarding their beliefs about the affect that type of education had on their children (research question 4) generally seemed concerned about the processes of distance education and the future risks their children may face, although children's interest tended to be content-based rather than device-focused, as children today are growing up in a world where new media technologies are prevalent and play an important role in a child's daily life [35].

Therefore, the boundaries of distance education are very different and depend not only on how students engage with distance education, but also on how parents perceive ICT. These limits are even more pronounced for young preschoolers who may not be ICT literate or have their own access to the Internet [36,19]. This could explain the negative correlation of asynchronous online instruction and distraction, as there is a possibility that children were not present at all - not just distracted - during asynchronous communication between the parent and the teacher on behalf of the child. Through regular conversations with families in various modes (e.g., phone calls, emails, etc.), teachers and parents were expected to work

together to create a consistent daily routine for learning and play. On the contrary, they expressed many doubts about how and to what extent young children could use technology well and therefore did not mediate between the child and technology to enhance their learning development and well-being [16]. The negative nature of the relationship is probably also justified because asynchronous forms of instruction do not require the absolute dedication of the student as synchronous forms do. Asynchronous education offers story books proposals photo/picture prompts, puppets, songs, craft work, dance and movement – always following children's leads. The stories could take many forms, for example, role play sequences, songs/music, dancing, models, drawing, conversations and may emerge at any time in the child's daily life and activity. In addition, as Kim [19], points out "*online learning may not provide sufficient or appropriate opportunities to involve young children, who require more interactions and hands-on activities to focus and learn compared to adult learners*" (p.148).

However, it is important to consider children's level of participation in comparison to the ICT skills and parents' educational background in general. As research question 1 suggested, it was expected that a significant difference in participation in distance learning would be found between children whose parents had high levels of education and those whose parents had lower level of education. Specifically, was assumed that parents with high levels of education would encourage their children to develop online goals and spend time online at home [37]. This was not verified in this study as participants from higher or lower educational backgrounds did not appear to differ significantly in the extent to which they supported and encouraged their children's learning and participation [38,39]. However, the analysis suggests that there is a significant difference between parents with higher and lower levels of education when their children are enrolled in public or private preschools. This could show that parents with high levels of education recognize the role of preschool education in their children's development and that paying tuition often means that parents have more say in what happens in the classroom, or perhaps it is because most private schools have fewer students than public schools [40]. Not only do these findings suggest that parents have not been able to fill the gaps left by the closure of preschool classrooms, but also that learning activities at home have declined, resulting in even more missed learning opportunities [15].

As correlations between computer use and mental health symptoms were expected [41], a statistically significant association was found between children's irritability and their participation in synchronous classes for one to three hours per day. It is therefore likely that this increased tendency to display anger towards peers is related to the fact that social interactions are now limited to immediate family members and occasional video conferences with classmates and friends. It is also known that digital devices are essential for learning but are also a constant source of disruption [42] and anxiety. In addition, the participants' children appeared to have significant levels of anxiety related to participating in asynchronous distance education (communication with school was via text messaging, email, etc.) for more than six hours per day, and this could likely be related to behaviors such as falling behind deadlines, procrastinating on homework, and difficulty organizing and remembering assignments. This can be interpreted in the context of young children's learning autonomy analyzed earlier. In particular, children at this age have a particularly low self-regulation of the educational process as they need an advisor to guide them, i.e. their teacher [14]. This lack of guidance has been felt by many programs, especially with the continued shift to distance education for the 2020-2021 school year [15].

Finally, regarding research question 2 and 3, there seemed to be no difference between the two cities in the provision of distance education, breaking stereotypes of the technological vanguard of a modern urban center and reinforcing the view that teaching staff and decisions made at the local level can lead to desired outcomes. Among the private and public preschools, the only fact worth mentioning is that in the private schools the synchronous form of distance education was offered to a greater extent, in contrast to the public ones, which were offered more in their asynchronous form. This can be explained by the fact that Private Preschools are more autonomous and offers teachers more flexibility to offer for a creative curriculum, while the public preschools are obliged to follow certain guidelines. As the results show, there is no significant difference between public and private preschools and the extent of distance education offered, even if private preschools are considered more autonomous

than public ones. So, this autonomy does not seem to have translated into more flexibility for teachers to offer a creative online curriculum.

In summary, many children worldwide have not attended early childhood education in their preschool years, such as COVID -19 closed early education centers. Therefore, both synchronous and asynchronous distance learning in the early educational years are critical to the instruction and engagement of young children, a conclusion that emerges from both the current research and the bibliography.

4. CONCLUSION

New technologies have transformed education and nowadays ICT in preschool education represents a considerable pedagogical tool for both the teacher and the student. Technology can provide new insights into the role of teachers and parents in the case of distance education. The current study highlights the importance of further investigating the ICT field and these findings have several practical applications. First, parents' beliefs were found to be critical to the educational outcomes of distance education.

Parents adopt a pessimistic attitude towards the quality of online instruction, which they perceive as potentially distracting and harmful in terms of inadequate educational outcomes. These beliefs are associated with a great concern about many future risks, even if it was the first time that something like this was applied in Greek early childhood education. Parents also felt that this modality in education may not provide appropriate opportunities to engage young children, and they seemed to underestimate the potential for their children to interact online, even though children today are growing up in a world where new media technologies are widely available. They also stressed the importance of the teacher's physical presence in the classroom and the safety this brings. Thus, as young preschoolers are not ICT literate their parents or caretakers involvement is an important aspect of distance education. However, although they took an active role in coming up with distance learning processes and they could make it easier for children to participate, they clearly set some boundaries depended on their beliefs on how students engage with distance education, and how they perceive ICT themselves. Teachers and parents did not mediate between the child and technology to enhance their learning development and well-being. The above did not seem to be relevant with the parent's educational level.

However, there is a significant according to parent' educational level and the enrollment in public or private preschools. Among the private and public preschools there is no significant difference at the extent of distance education offered, but there is on the type of processes offered. In private schools the synchronous form of distance education was offered to a greater extent, in contrast to the public ones, which were offered more in their asynchronous form. No considerable differences between the two cities in the provision of distance education were found.

Finally, the fear about the risks coming from ICT was not clearly verified, as the correlation of asynchronous online instruction and distraction found to be negative, but the association between children's irritability and their participation in synchronous classes for one to three hours per day was found statistically significant. Lastly, the children appeared to have high levels of anxiety related to participating in asynchronous distance education (communication with school was via text messaging, email, etc.) for more than six hours per day.

However, there is a significant relationship between parents' educational level and enrollment in public or private preschools. There is no significant difference between the private and public preschools in the amount of distance education offered, but there is a significant difference in the type of procedures offered. In the private schools, the synchronous form of distance education was offered to a greater extent, in contrast to the public schools, which tended to offer it in its asynchronous form. No significant differences were found in the distance education offered between the two cities.

Finally, the fear of the risks posed by ICT could not be clearly verified, as the correlation of asynchronous online instruction and distraction was negative, but the association between children's irritability and their participation in synchronous instruction for one to three hours per day was statistically significant. Finally, children appeared to have high levels of anxiety associated with participation in asynchronous distance learning (communication with school was via text messaging, email, etc.) for more than six hours per day.

5. IMPLICATIONS

Even though distance education has proven to be effective, there are issues that point the way forward. First, the study of the long-term effects of distance education on pre-school identity, culture, student learning and the social-emotional outcomes resulting from its use should be a priority for further research. Apart from this, another research question could be the extent to which teacher education certification is necessary for distance education [43]. Also, the way in which parents of children could be educated to better understand the framework of 21st century education and the skills a student should have [44] to better support teachers' curricular decisions could be an interesting topic to discuss. In addition, research should be conducted on how learning outcomes and overall satisfaction with online courses could be improved [45] and the different tools and features of the different platforms and the positive impact they could have on children's learning. Finally, according to Selwyn [46], academic research should focus on how technology, society and education could interact more effectively to build a fair society of equal opportunities.

6. STRENGTHS AND LIMITATIONS

This study addressed parents' beliefs and attitudes regarding their children's distance education in Greek preschools. According to it, the boundaries of distance education are very different depending on how children or parents perceive ICT. These boundaries are more pronounced among young preschoolers who may not yet be ICT literate or have their own access to the Internet [36]. It seems that distance education, as practiced in Greece during the Covid 19 pandemic, has a very different dimension for parents who believe that children of this age cannot participate in e-learning. However, it seems that the parents themselves, who participate in an online questionnaire and required their adult dedication and concentration for about ten minutes, did not all respond. While more than 300 parents and caregivers originally participated in the survey, nearly 90 of whom dropped out, leaving 216 usable and complete response. However, the results can be generalized because the selection process was well designed and the sample is representative of the study population. This study also provides more detailed information for explaining complex issues such as family members' perceived effectiveness of educational processes in a new learning environment, namely the Internet. The chosen method of analysis for this study is rather descriptive and not able to shed light on causal conditions in depth, as we were not confronted with a school year that was completely characterized by online distance education processes due to the constant change of the schools' situation from open to closed. Therefore, there is room for improvement as this study was a first-time and short-term distance educational experience with Greek preschoolers. Through the findings presented in this study, areas of research were identified for further exploration in future research and can serve as a springboard for those interested in further research [35].

CONSENT

As per international standard or university standard, participants' written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

Confidentiality was also guaranteed, and it was ensured that the answering procedures were clear and voluntary. The anonymity of the questionnaire was ensured, and the ethical concerns associated with the assurance of confidentiality and the possibility to withdraw from the survey at any time were taken into account. The identity of the parents and children as well as the data used were stored confidentially after completion of the survey. The research proposal was approved by the Department's General Assembly, and the approval process was observed by the Institute of Educational Policy to which an application was submitted regarding the detailed research design.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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