



ECEC Online vs ECEC Face-to-face

Analysis of ECEC Online Pros and Cons

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ECEC Online vs ECEC Face-to-face
Analysis of ECEC Online Education's Pros & Cons

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Abstract

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The purpose of this thesis was to achieve a comprehensive understanding of ECEC online education's current status and the challenges it is facing, to spark discussions on the possibilities and formality of general trends in ECEC online education, and explore other possibilities for its development, includes whether it can replace traditional face-to-face early childhood education, and what group should be the suitable targeted group for effective ECEC online education.

Through the use of the triangulation of literature review, interviews, and questionnaires, the findings reveal that at least at the current stage or even in the short-term future, it is difficult to see the possibility of fully replacing traditional education with online early childhood education due to its limitations. Although online early childhood education also has many advantages, such as breaking the limitations of time and geographical location, expanding horizons, etc., some unavoidable practical problems are caused by children's nature, finance, policies, and other reasons. These all hinder its full popularity.

In the discussion of findings, we also presented some of our proposed solutions for early childhood online education. For example, develop its value as a supplement to traditional early childhood education, change the way people think about the educational target group, and so on.

Keywords: early childhood education online, remote education, distance education

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1 Introduction

Online education has been a concerning topic in recent years, and with the arrival of COVID 19, which started in 2020, online education has even more unexpectedly accelerated its pace of approaching everyone's practical life and has become a very realistic and inevitable experience for most students, educators, and parents. As Li and Lalani elaborated in their article which was published in World Economic Forum (2020), there are 1.2 billion students in the world who are out of school due to COVID 19 schools shutting down. Moreover, as they presented, by 2025, the total market for online education is expected to reach 350 billion USD (Li & Lalani 2020).

Under such a trend, online education in early childhood education deserves more attention. Because of the obvious insufficiency of children's independence, e.g., use of the online technology equipment, and self-management, it will be difficult for online early childhood education not to rely on the assistance of parents or guardians, and this dependence also includes their skills, knowledge, and equipment that are needed to complete online education for their children. Meanwhile, the educator's and education providers' ability to conduct a qualified online education course, which consists of planning, implementation, evaluation, and documentation using information and network technology and surged online platforms, is also demandingly requisite. Will this dependence and requisite become a stumbling block for early childhood online education? At the beginning of this study, we tried to find a working life partner from Finland who has been practicing online education, but after encountering some challenges, the cooperation with the intended partner failed. Considering our tight schedule, we have changed our research plan to a literature review and decided to continue to search for a new partner to provide some empirical data for our research. In the end, we successfully found 5 early childhood teachers working in a Chinese Montessori kindergarten, all of whom have implemented online early childhood education during COVID 19. In addition, we also conducted a survey of 94 parents with the support of this kindergarten to have their opinions and thoughts regarding ECEC online education. At the end stage of our study, we have also received positive feedback and evaluation on this thesis from this kindergarten according to the perspective of their current needs on ECEC online education development.

Above all, this thesis uses the triangulation of literature review, interviews, and questionnaires to achieve a comprehensive understanding of ECEC online education's current status and the challenges it is facing. Aims to access and spark discussions on the possibilities and formalities of general trends in ECEC online education through its data collection and analysis, such as whether it can replace traditional face-to-face early childhood education,

and explore other possibilities for its development. For this purpose, we have adopted four key ECEC online educational preparation dimensions based on Muhdi et al. (2020), which are perspectives of children, teachers, and parents, policy, and technology, to evaluate the preparedness of ECEC online. Additionally, we also incorporate the five transversal competence areas from the Finnish ECEC curriculum (FNAE 2018) to assess the effectiveness of ECEC online education on children's learning and development. This thesis offers multisided perspectives on ECEC online education and how could we possibly make the most of online ECEC education.

2 Background

In National Core Curriculum for Early Childhood Education and Care (FNAE 2018) it defines early childhood education and care (ECEC) as the foundation of individual growth and lifelong learning, and the interactive experience between caregivers and children in early childhood education will affect children's future behavior and well-being. Peisner-Feinberg (2007) proposed that ECEC affects children's well-being and family happiness. In ECEC, no matter what method educators adopt, they must support children's development and learning and be able to prove their rationality in teaching (FNAE 2018). In ECEC environment is seen as a place, community, practice, and tool that supports children's development and interaction. The traditional environment of early childhood education and care is usually carried out face to face. According to Julia (2021), face-to-face ECEC allows children to interact and communicate with their surroundings, promotes critical thinking development, and provides a rich and creative learning environment for children. However, with the emergence of the COVID-19 pandemic, this traditional education module has been facing severe challenges.

Many people think that online education is a new occurrence, however, its emergence can be traced back to the invention of the e-mail, and it can be also described as the companion of the computer network technology developing. As early as the 1980s and 1990s, the advancement of telecommunications facilitated people's communication and accelerated the acquisition of knowledge, all of which led to the reform of education, and online education came into being at this time. (Harasim 2000.) Learning via the Internet and electronic devices has become known as online learning or online education as information technology and the Internet has advanced over these years (Muhdi et al. 2020). Using the characteristics of the Internet, online education can achieve extensive expansion and flexibility in time, space, resources, and media. The closure of kindergartens during COVID-19 has occurred in many countries. Primary schools, high schools, and universities moved classroom education to online education. Meanwhile, kindergartens encountered even more challenges due to less experience in online education as everyone faces daily changes and social pressures. Children

were also experiencing physical and mental health challenges during the pandemic (Tajane et al. 2021).

3 Research Methods

This study is using triangulation as our guided methodology, which is defined by Bhandari (2022) as "using multiple datasets, methods, theories, and/or investigators to address a research question." In the research, we will use a combination of literature reviews, interviews, and questionnaires to conduct research and evaluation of the online feasibility of ECEC to discuss its possibilities and formalities. Next, we will explain how the data was collected by using those three methods and how the data was analyzed by taking advantage of data triangulation and methodological triangulation.

The method of literature review mainly uses keywords to manually search in Google Scholar, including "early childhood education online", "remote education", "distance education", "COVID19 education", "digital teaching", "home learning", "ECEC Technology" and so on. A total of eight English academic articles were selected from the search results, including interviews and research data on online education during COVID-19 in different countries such as Australia, Fiji, Hong Kong, Indonesia, and the United States, as well as research on online education technology and its background. After a comprehensive analysis and comparison of its data and content, this study was conducted focusing on four key ECEC online education preparation dimensions, which are the preparedness of children, parents, and teachers, policies and guidelines, and technology.

Interviews used the qualitative research method in this study to obtain empirical data and key information on the implementation of ECEC online. We have conducted interviews with five teachers who have implemented ECEC online courses during a pandemic. All of them come from a Montessori kindergarten in China. We have discussed the similarities between their curriculum and the Finnish ECEC curriculum before the interview, and since they strongly agree with and are intrigued by the Finnish ECEC concept and hoped to explore more, we decided to involve five transversal competencies in the Finnish ECEC curriculum (FNAE 2018) to evaluate the feasibility and effectiveness of ECEC online from children's perspective. In addition, we also have discussed the needs and support the teachers requested in ECEC online. The interviews' data were collected between March 28 and April 9, 2022. The interview consisted of 15 questions (Appendix 1). We collected data through online video meetings and written forms.

The surveys in this study were used as a quantitative research method. The purpose of the survey was to collect the data regarding parents' experiences, attitudes, and expectations of

ECEC online. It also includes families' needs, challenges, and requests in ECEC online education. Altogether 94 parents from China, France, and Finland participated in the survey. Most of the participants (70%) experienced ECEC online with children aged 0-7. Answers in the questionnaire (Appendix 2) were presented on a scale of 1-5 or yes/no. The questionnaire was designed to facilitate more participation and obtain a sufficient amount of data for research.

Informed voluntary consent is obtained. The confidentiality of all participants in this study is achieved by hiding their real names, and the study does not include identifying information such as the name of the institution they work for.

To conclude, we used the triangulation of literature review, interviews, and questionnaires to achieve a comprehensive understanding of ECEC online education's current status and the challenges it is facing. For analyzing our data, we defined four key ECEC online educational preparation dimensions based on Muhdi et al. (2020) to evaluate whether online education is possible and effective to implement or even replace the traditional ECEC in the short future. We also discussed our topic through the lens of the five transversal competence areas from the Finnish ECEC curriculum (FNAE 2018), which offer multisided perspectives on ECEC and how could we possibly make the most of online ECEC education.

4 Literature review on ECEC online practice in different countries

There have been numerous studies to investigate the factors that determine ECEC online practice. In this chapter, we will review the research literature on ECEC online practice. We will focus on the factors that determine ECEC online practice, including the preparedness of children, the preparedness of parents and teachers, the preparedness of effective policies and guidelines, and the preparedness of technology facilities (Muhdi et al. 2020). Moreover, we will discuss the research data and information in various countries. Committed to understanding and discovering the advantages of current ECEC education online practice compared with traditional ECEC context, as well as the challenges encountered, and the problems that need improvement, to analyze the feasibility of ECEC online.

4.1 Children's preparedness

Given the rapid advancement of computer technology coupled with internet access, it is unsurprising to see a significant increase in the number of people using electronic devices such as laptops, tablet computers, and smartphones for both work and personal purposes. Similarly, children's use, reliance, and familiarity with these portable electronic devices and the internet have also increased, especially during the COVID-19, which could be proven by research data that shows screen time using had upped by 81% in April 2020 when COVID19. (Guan et al 2020, cited in Gayatri 2020.) In addition, in an online survey conducted by Lau

and Lee (2021) during the COVID-19 school closures in Hong Kong, except for 2.3% of kindergarten children who are reported to their parents that never used electric media devices, the 68.1% of kindergarten children used screen time to participate in online learning for less than 1 hour per day and most of them used it for other purposes 1-3 hours per day. Furthermore, when using electronic online devices, 12.3% of kindergarten children are always accompanied by an adult, and 21.3% are accompanied by an adult 1-20% of the time. In another study from Indonesia, the authors (Muhdi et al. 2020) cited the research findings of Zaini and Soenarto (2019) showing that 94% of smartphone usage among kindergarteners aged 4-6, and refer to Pebriana's study (2017) shows that the majority of Indonesian children spend time playing with small electronic devices, and in fact, most of them play alone with their electronic devices.

Whether it is letting kindergarten children use electronic devices alone, or with their parents, is worth paying attention to. In this study, we find this as one of the key points for children's preparedness for online education, which is the safety and health protection between children and online. This highlights a difficulty in online education for young children, that is, the responsibilities of parents in early childhood education have been strengthened. Although parents themselves are the first responsibility of children, however whilst parents have other social responsibilities, traditional kindergarten education has been able to provide parents, as part of social services, with time to fulfill their other social responsibilities. On the contrary, when online early childhood education can only take place at home, then parents, or adults with children, must actively spend time and effort to ensure that children are using online devices safely and within reasonable limits.

On the other hand, play is an important part of every child's education and care (FNAE 2018) and while today's children are getting used to their online lives, the way they play is changing too. This changing phenomenon is accentuated by COVID 19. As revealed in Lau & Lee's research (2020), spending time in public places for sports, games, or another physical play with friends is limited due to the COVID 19 restriction. More and more children are getting used to taking their play and socializing online. Online media can potentially assist young children in navigating a new social environment, exploring new social acquaintances, and learning leadership skills (Danby et al. 2018, cited in Gayatri 2020). Gayatri (2020) states that a significant amount of previous research proves that access to digital tools for very young children has a positive relationship with children's literacy skills, such as letter reading, and language acquisition. For example, letting children use tablet computers as well as other educational software or applications can give them the possibility to use their first and second language and literacy interactions with others effectively (Sandvik et al. 2012).

Although according to survey results, children who have been exposed to computer skills will be more master in the study as well (Taufik et al., 2019, cited in Muhdi et al. 2020).

However, there are still many different voices and studies showing that young children have many barriers and problems to overcome when using the Internet and electronic devices for education and development purposes. Some studies have pointed out that young children have difficulty staying focused while learning online. In online classrooms, children are more likely to be disturbed by other people and things, and some overactive and undisciplined behaviors are unavoidable, thus affecting the effectiveness of online teaching. (Lau & Lee 2020; Pramling Samuelsson et al., 2020, cited in Gayatri 2020.)

This also has led to thinking that if ECEC online education is imperative, how should children go through this stage of change? As when adults experienced the transition from work at the office to home brought some tensions in COVID 19, what would children experience as they change from going to a kindergarten or institutional center to learning online with electronic devices? Are they ready for this transition? In case-study research was conducted on two private kindergartens on Fiji Island, which have transmitted their early education to Online education via ZOOM during COVID-19 lockdown time, one teacher said that she was keeping asked by the children about when they can go back to kindergarten, and they miss their friends. And such cases are shared by other teachers too. (Dayal & Tiko 2020.)

Negative emotional stress in early childhood is likely to alter brain structure and function. These changes, as far as we know, have an impact on a children's health, cognitive, social, language, emotional, and behavioral development. (Shonkoff et al., 2012, cited in Gayatri 2020.)

From the aforementioned perspectives, it is revealed that, although education is beneficial to children's learning ability and development, due to the requirement of parents' extra energy and time investment while children are not able to make their own decisions on whether to choose to participate in online education, the chances for children to online education may be reduced. In addition, dealing with future changes, ensuring children's well-being in transition, and behavior some inherent characteristics of children's nature to guarantee a healthy ECEC education will present significant challenges and opportunities for online education. However, to a certain extent, it demonstrates that, in the current situation, preparing children for online education is still insufficient.

4.2 Parents' and teachers' preparedness

As mentioned above, the use of electronic devices and the internet has become popular in daily life. Weigel et al. (2012) studied the internet using frequency and contentment among early childhood education professionals in the USA. Most of the survey participants reported that they frequently used the Internet in their work and personal lives, and the younger the survey participants were, the greater their frequency and confidence in using the Internet. Furthermore, the level of education has a greater impact on the use of the Internet too, as

this survey result is concerned, the more educated the survey participants are, the greater the frequency and contentment in using the Internet.

Although the survey results give a boost to teachers' preparedness for ECEC online education, we should also pay attention that ECEC online education requires teachers to use these skills flexibly and apply them to their pedagogical activities, from design, searching resources, implementation, preparing materials, delivering messages, documentation, etc. The most basic skills require, for example, are to use online software or platforms proficiently, make PPT or other forms of courseware, play videos, share screens online, send emails, etc. Seem from the above US survey, we also cannot ensure that every teacher has this ICT (Information and Communication Technology) skills. Take Dayal and Tiko's interview (2020) on Fiji island as an example, the kindergarten staff said that they did not understand the use of ZOOM, such as how to share the screen. Teachers, in addition to students, require ICT capability development to effectively facilitate their online teaching and help students in learning through the process. Teachers must be able to handle online learning by honing their presentation skills, as well as their ability to keep children concentrated and interactive to achieve online instructional objectives. (Gayatri 2020).

Nonetheless, these competencies and skills can be complemented by providing early childhood education professionals with professional training, in such there will not be an insurmountable gap. According to Weigel et al. (2012), Sheridan et al. (2009) used to describe professional development in ECEC as a full package of development to assist practitioners to broaden knowledge, vision, skill, attitude, and expertise. The same goal as traditional early childhood education, the requirements for practitioners in ECEC online is to flexibly and goal-orientally apply ICT skills into the planning, implementation, and evaluation of their pedagogical activities and teaching (FNAE 2018). This includes arranging online class time reasonably, parents' time may also have to be considered, finding suitable and attractive resources, such as videos, songs, live broadcasts, online virtual visits, etc., and mastering how to use the most of these resources and platform provided functions to share and introduce students and their parents in a friendly and convenient way to the class, which also require prepare the guidance for parents to assist their children in the class (Lau & Lee 2020, cited in Gayatri 2020). Compared to the traditional ECEC context, there will appear some limitations when education goes online, such as physical experiments. However, online has also extended the physical boundaries, such as taking the children to Sahara, Louvre, Savanna, etc., to expand children's vision of the world. This way the children and educators can attain a new experience beyond the walls, which can make online education an improvement and expansion version of traditional education, in other words, a necessary presence. What's more is that today's technology also explores social, interaction and communication in a new way, online ECEC is also on a mission for the teacher to use their teaching to enable children's these competencies.

However, the self-regulation of children is always an inevitable issue for both parents and teachers when it comes down to online education. Speaking of this, in terms of the conditions of online education, parents have undoubtedly become, in addition to taking care of their children's daily life, they must also assist them to carry out online learning smoothly. This includes helping the child to access the online classroom, explaining the rules when the child does not understand, accepting the materials sent by the teacher through email or other media, printing, sorting, or sometimes preparing some materials according to the teacher's instruction, and other miscellaneous tasks, in addition, parents also have to monitor their kid's behavior during the online class and also encounter some of their kids' behavior problem hard to handle. Therefore, an effective and active communication bridge between educators and parents is particularly important for online ECEC (Gayatri, 2020).

In previous studies, it was also revealed that the barriers to ECEC online implementation could be raised by parents and family economic issues. Many families are financially strapped for telecommunications equipment, data packet quotas, and wireless networks (Muhdi et al. 2020). Moreover, some parents don't know how to use internet devices either just like their kids, and they could not able to get materials from teachers sending via emails because they don't know how to use them. In addition, there are also some kids taken care of by the grandparents who are in even harder difficulties. (Dayal & Tiko, 2020.)

To conclude, taking the above concerns considered, ECEC online can be carried on if 1) there is an open and friendly communication platform between educators and families. Teachers or online education providers can support parents with effective guidance, or give instruction manuals to help parents assist their children's online education at home. In addition, online education can be handled flexibly in terms of schedule, taking into account the family's time, adding more personalized settings; 2) professional training for online education practitioners is also the foundation to ensure the quality of online education; 3) the government and society need to introduce more effective policies to help unskilled parents acquire necessary skills, and to help poor families purchase the necessities of online education.

4.3 Effective policy and guideline preparedness

As mentioned above, in some underdeveloped areas, or poor families, there is no financial ability to afford infrastructure that is sufficient to support the realization of online education. As reported in Indonesia, this is making children helpless when online education in certain circumstances becomes a must-be (Azzahra, 2020, cited in Gayatri, 2020). Therefore, government functions need to take the responsibility to promote and guarantee education for children in poor families. Of course, this applies to all forms of basic education for children, both traditional and online.

In the literature review, we found another very important issue that requires government departments to set effective policies to promote the development of online education for young children. It is safety and health. According to the Australian Children's Health Poll, one in three Australian preschoolers, from birth to age 5, owns their tablet or smartphone. And the average number of hours Australian preschoolers use electronic screens, including TV, ranges from 14 hours per week for babies and toddlers and 26 hours per week for children aged 2 to 5 years (Rhodes 2017, cited in Zabatiero et al. 2018). These findings are alike to those reported in studies in the US, Europe, and Southeast Asia (Ahearne, Dilworth, Rollings, Livingstone & Murray 2016; Chaudron 2015; Common Sense Media 2017; Livingstone et al. 2012; Ofcom 2017; Unantenne 2014, cited in Zabatiero et al. 2018).

However, Zabatiero et al. (2018) refer to a study by Blum-Ross and Livingstone (2016) who emphasized that today's guidelines focus too much on the harms of screen time and do not provide enough information about the quality of use, and the prospects and chances children learn, experience, and create while using screen devices. In addition, Zabatiero et al. (2018) refer to the American Academy of Pediatrics Council on Communications and Media (2016), Canadian Paediatric Society (2017), and the Department of Health (2017) state that the screen time advice in those guidelines is still based on the evidence of TV screen using, seems not to take the different nature of use between TV and other types of screen devices.

Moreover, although many parents and educators have become aware of and acknowledge the positive effects of the internet and technology for education, their concern about their safety is increasing along with it. It is reported that parents are worried about their children may encounter some possible dangers while they are using technology and the internet, such as social isolation, and poor physical health due to inactive (see, for example, Chaudron 2015; Nevski & Siibak 2016; Unantenne 2014; Vittrup et al. 2016; Wartella, Rideout, Lauricella & Connell 2014, cited in Zabatiero et al., 2018), unacceptable and violent content for children are exposed (Kostyrka-Allchorne et al. 2017; Livingstone, Mascheroni, Dreier, Chaudron & Lagae 2015, cited in Zabatiero et al. 2018), etc. More than that, parents and caregivers are also worried about how to banish these risks happen, and how to ensure their children are in a safe environment and cultivate good internet-using habits (Zabatiero et al. 2018). To make matters even worse is that currently there is relatively limited information on cybersecurity in early childhood online education (Edwards et al. 2018, cited in Zabatiero et al. 2018).

4.4 Technological facility preparedness

By use of computers and technology in early childhood education is increasing year after year, and how technology tools are used to improve and develop programs and strengthen children's learning has greatly expanded. This trend is expected to continue in the future (Donohue, 2003).

According to Weigel et al. (2012), the most important functions needed in ECEC online education are downloading, accessing, and the ability to consult experts, meanwhile, the functions like searching, instructional videos, online recording, informational blog, and online meetings are considered moderately needed. Interestingly, the researchers discovered that those who were more involved in social networking seemed to prefer more functions that can realize the interaction, such as live chat, email, polls, and blogs, whereas those who prefer to use the Internet for information gaining prefer the functions, which can provide such as searchable resources and information, links to other resources, and e-newsletters. Correspondingly, researchers also noticed that the different preferences are also associated with age, educational levels, and working experiences in early childhood education. (Weigel et al. 2012). In addition to the functions provided on the website, there are many resourceful inspiring ideas, curriculum ideas and research results are there to retrieve, and other technology can be introduced in online ECEC, for example, virtual field trips (Donohue 2003).

With the rapid development of technology and the internet today, we have reason to believe that the preparation for ECEC online in terms of technology is sufficient, and it will only continue to refresh the heights and expand the boundaries of education achievable for children, parents, and educators. Online education can bring more and more possibilities to reach and even beyond the goals, broaden children's horizons and knowledge, and improve children's satisfaction by elevating their experience in online ECEC education. For some areas with insufficient infrastructure, it is worthwhile to suggest that the government should invest in communication and information technology facilities and infrastructure as soon as possible (Muhdi et al. 2020).

After comprehensively discussing and analyzing the feasibility of ECEC online from four dimensions, we can easily see that ECEC online has some undeniable advantages, such as erasing the geographic and time limitation, flexibility, convenience, accessibility, and various untraditional ways of study, improved students' interests and also cost-effectiveness (Heirdsfield et al. 2007; Kim 2020, cited in Gayatri 2020). And the importance of ECEC online has been highlighted and accelerated during the pandemic period. However, some drawbacks cannot be ignored, such as parents being occupied to guide and supervise their children during the online lessons. There are also many requirements for the ICT skills of the parents and teachers, as well as for the basic facilities for online education (Kim, 2020, cited in Gayatri, 2020).

5 Interviews and Survey

In this chapter, the data results of interviews and surveys are presented. We collected 94 questionnaires data from parents in China, France, and Finland and interviewed 5 teachers

who implemented ECEC online during the pandemic. The initial design of interview questions (Appendix 1) and questionnaires (Appendix 2) covered three aspects:

- Impact on children's learning and development
- The perspective of educators implementing ECEC online
- The perspective of families involved in ECEC online

5.1 Impact on children's learning and development

In this section, interview data from teachers and data from parents' questionnaires were used simultaneously. It reflected the impact of online implementation on children's learning and development from the perspectives of educators and families. The data analysis was based on the Finnish ECEC curriculum as the evaluation criteria, taking into account five transversal competencies of children. It is pointed out in the second chapter of the Finnish ECEC curriculum, that constructing transversal competency is the objective of activities in early childhood education and care in Finland, which emphasizes the combination of knowledge, skills, values, attitudes, and will. Transversal competency is the ability of children to use their knowledge and skills and to act as the situation dictated. The development of Transversal Competencies spans early childhood education and care and elementary education stage in Finland, which is of great significance for children as future citizens. (FNAE 2018.) Given that our working life partners have always been intrigued to learn more about Finnish education and are considering the possibility of introducing Finnish ECEC to China, therefore taking this into account, we agreed to use these five transversal competencies as our international research framework in terms of evaluating the impact on children's learning and development under the ECEC online education environment.

Transversal competencies consist of the following five perspectives (Figure 1).

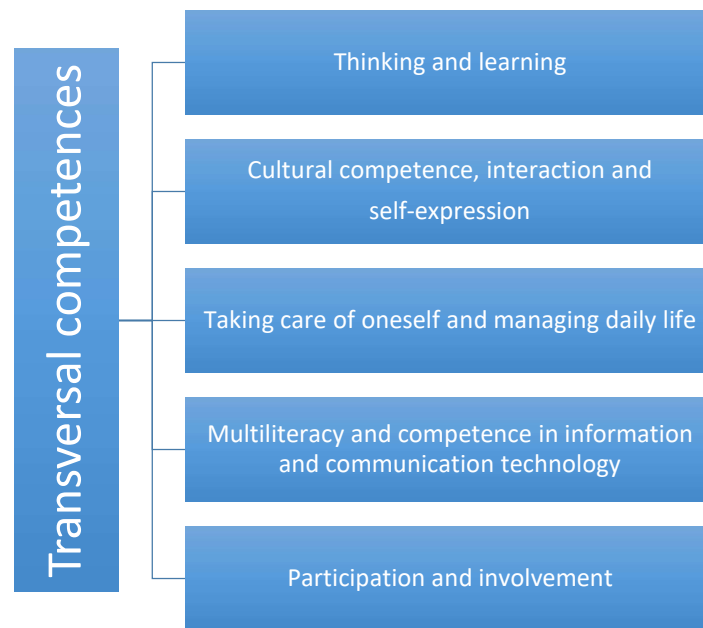


Figure 1: Five Parts of Transversal Competences

5.1.1 Thinking and Learning

It states that ECEC is the foundation for developing children's thinking and learning in the Finnish ECEC curriculum. Children need to develop this ability in ECEC through interaction with the environment and others. The ability to think and learn lays the foundation for the development of other abilities and life-long learning. (FNAE 2018, 25.) Children experience interesting and meaningful activities in ECEC through imagination and creativity and share their observations and perceptions. These experiences support children to obtain the competence to think and learn.

One of the interviewees in the interview stated that as per her experience of ECEC online education, children's learning through video has become a single input process. As a result, children's interest in thinking and practice was greatly reduced. When educators couldn't provide timely support and guidance for children encountering difficulties, it easily led to frustration caused by failure, which in turn affected the development of children's other abilities. Another critical challenge is that children have to rely on the support and supervision from their parents. As the interviewees mentioned, parents or grandparents were not able to ensure their children had a proper interaction with teachers during the online courses when they had to work and cared for the family. For those parents who accompanied their children to participate in ECEC online, they were prone to excessively intervene in the children's thoughts and thinking in the online classroom, which also brought extra challenges to teachers (Table 1).

Have you online implemented	how	examples	challenges	Interviewees
yes	<p>Science Experiment</p> <p>The teacher raises questions in the Wechat group during the day, prompting children to think and share questions, encouraging children to do experiments at home, and teaching experimental principles in the evening.</p>	<p>Paper that doesn't get wet by water</p>	<p>Children relied on their parent's help to share and do experiments. It was difficult for parents who still worked to support their children to attend ECEC online during the daytime. Online interactions didn't happen synchronously. Online interaction reduces children's involvement and interest.</p>	<p>Interviewee 1</p>
yes	<p>Music, story, and visual approach</p>	<p>Learned "Fruit Song"</p> <p>The teacher guided children to think about the relationship between color and fruit, and encouraged children and parents to create a song based on different colors of fruit.</p> <p>The teacher asked heuristic questions, such as: what fruit is yellow? The teacher asked the children to think about what fruit they'd eaten before. After class, the teacher gave the children the task: of drawing their favorite fruit.</p>	<p>Because parents had to take care of their children's daily life, it was difficult to have time to compose songs and practice with children, so the task was difficult to complete. Even if parents and children created together, parents tended to interfere with children's thinking and made them make the answers that parents want, which limited children's perspective.</p>	<p>Interviewee 2</p>

yes	Encouragement	Children were encouraged to do and imagine according to their ideas. The teacher appreciated the children's work and estimated mutual appreciation between the children and their peers.	Interviewee 3&5
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Table 1: Have you implemented/planned any pedagogical activity online that develops children’s learning and thinking through such as encouraging children’s imagination and creativity?

According to interviews, ECEC online was not suitable for four years old children. It shows the difficulty for most 0-3 years, old children, to participate in ECEC online courses. One of the interviewees stated that online courses should give full consideration according to children's age and development level when teachers plan them. We could see the relationship between the age of children participating in ECEC online and the duration of online attention during the online courses. According to the survey of parents, they thought that the continuous attention span of children aged 3-7 who participate in ECEC online courses is very short (Figure 2).

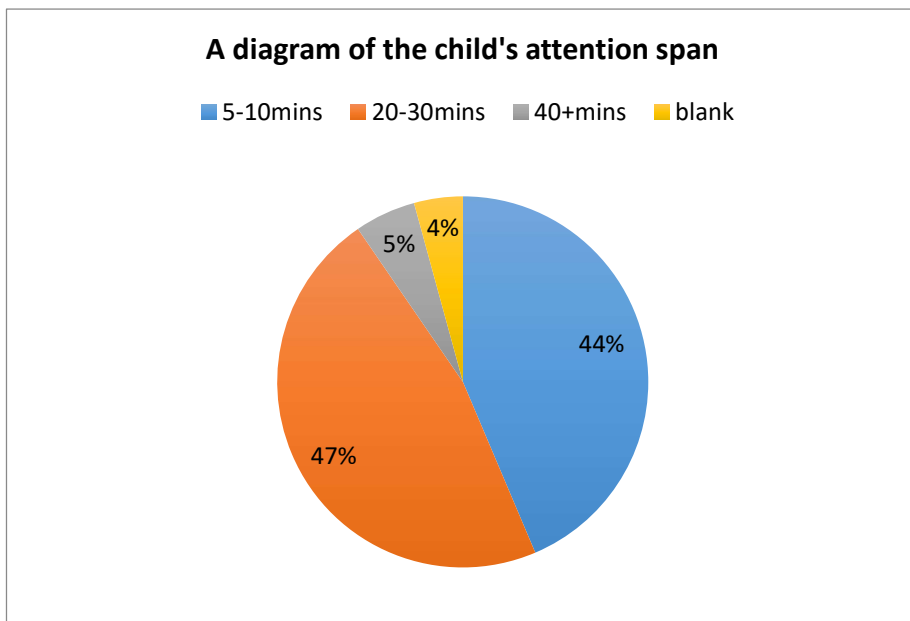


Figure 2: Diagram of the child's attention span

The result showed that 47% of the participants thought that children can concentrate on online activities for 20-30 minutes (Figure 3). Children aged seven accounts for 43%, children aged six account for 21%, children aged five account for 11%, children aged four account for 16%, and children aged under three account for 9%.

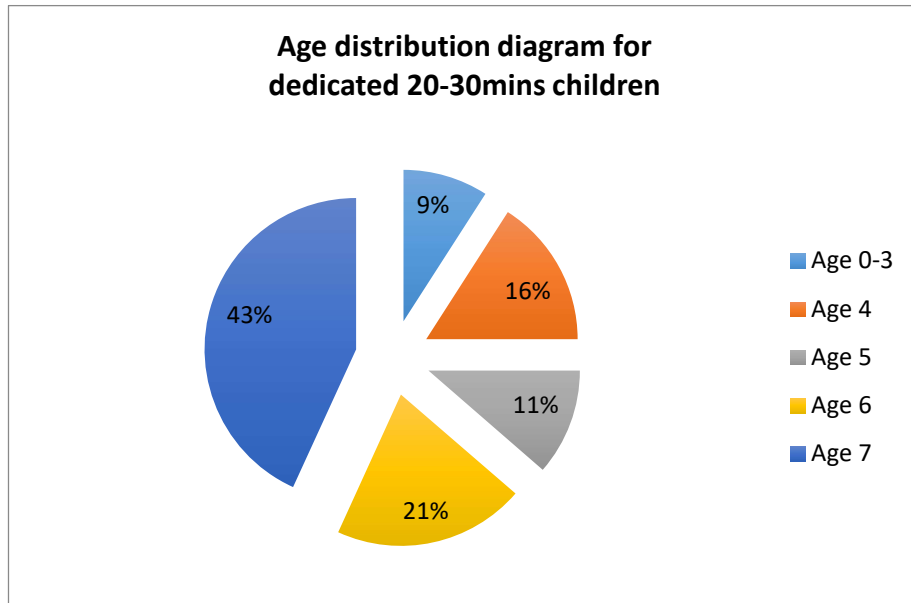


Figure 3: Age distribution diagram for dedicated 20-30mins children

44% of the participants thought children focused on online activities for only 5-10 minutes. 7 years old children in this part of the data (22%), 6 years old children (10%), 5 years old children (20%), 4 years old children (19%), and under 3 years old children (29%). Only 5% of the participants considered that children focused on online activities for more than 40 minutes. (Figure 4). It is noteworthy that the market of Chinese customers in early childhood education and care online is getting younger and younger, which has aroused the consideration of education providers and parents: what kind of online early childhood education can support the growth and development of younger children according to their age.

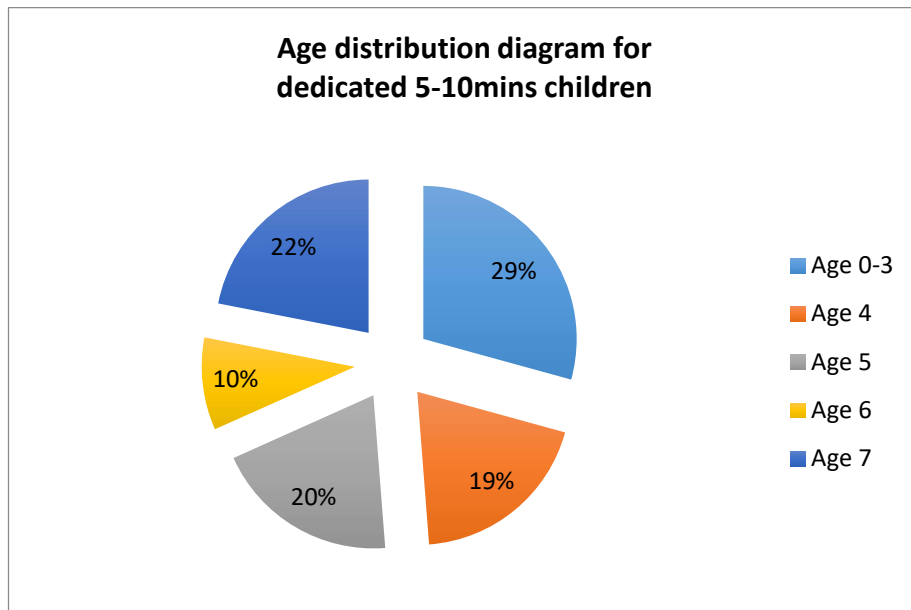


Figure 4: Age distribution diagram for dedicated 5-10mins children

From the perspective of families, parents were not optimistic about their children's ability to think and learn through online courses. According to the data, 5% of the families fully agreed that children acquired the ability to think and learn in ECEC online. 48% of families were not sure whether children could gain the ability to think and learn in ECEC online. 27% of families almost didn't think children could acquire this ability through online activities (Figure 5).

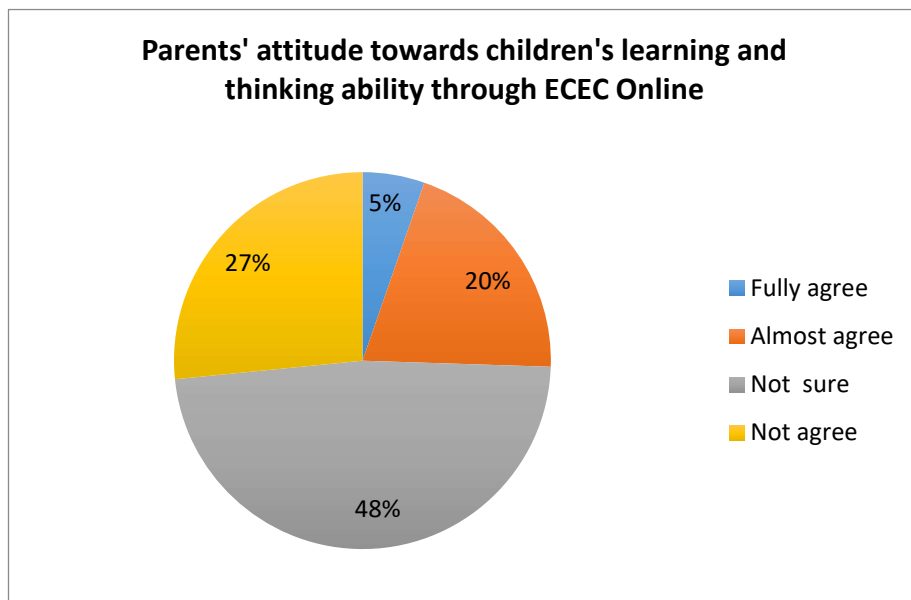


Figure 5: Parents' attitude towards children's learning and thinking ability through ECEC online

Therefore, although teachers had made a lot of efforts in the curriculum setting, it was very challenging to guide children to think and learn in the non-real interactive teaching environment. According to the interviewer's experience of implementing ECEC online, children's transversal competencies were developed to a limited extent due to a lack of interaction in the real environment and it was difficult to attract children's interest in online classes. Parental presence or absence in ECEC online has a direct impact on children's participation. Interviewees mentioned that interaction in a real environment can't be replaced by ECEC online. It was considered not only from the perspective of the development of children's competence but also from children's well-being in early childhood education and care.

5.1.2 Cultural competence, interaction, and self-expression

According to the Finnish ECEC curriculum, cultural competence, interaction and self-expression play an important role in children's self-identification, sense of value, and well-being. Therefore, teachers usually take cooperation as the main way of activities, which creates opportunities for children to interact with others and express themselves in different situations. Children practice empathy in interaction, understanding others, seeing problems from different perspectives, and solving problems. (FNAE 2018.)

Related to children's social skills, ability to listen and express themselves as well as understanding differences and building friendships we asked the interviewees "What have you done/What are you planning to do to guarantee interaction with children and between children online".

The interviewee emphasized that teachers need to facilitate the interaction of their online activities through a combination of heuristic questioning, role-playing, and group discussions. Teachers encouraged mutual appreciation and feedback among children, paying attention to and encouraging children who speak less (Table 2).

Have you done?	how	examples	Interviewees
yes	Heuristic questioning	Children were encouraged to answer questions from different angles based on their own life. Experience can help children build their cultural ability and self-expression ability.	Interviewee 2

yes	Show work, give positive feedback to others, teachers give feedback to children,		Interviewee 3
yes	Group discussion, role play	Pay attention to the child who speaks less and encourage him	Interviewee 5

Table 2: What have you done/What are you planning to do to guarantee interaction with children and between children online?

According to the questionnaire, 32% of families were satisfied that children had the opportunity to express themselves in online early childhood education and care, while 16% of families were not satisfied with this indicator. Still, 52% of households were unsure about this indicator (Figure 6).

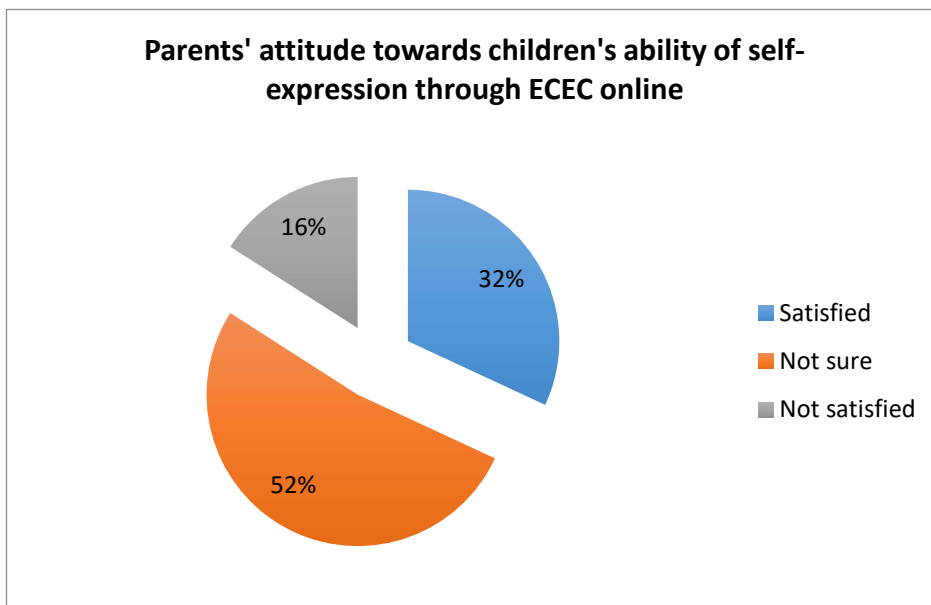


Figure 6: Parents' attitude towards children's ability to self-expression through ECEC online

According to the survey, 53% of families were dissatisfied with the interaction between their peers in online early childhood education and care, while only 15% were satisfied (Figure 7).

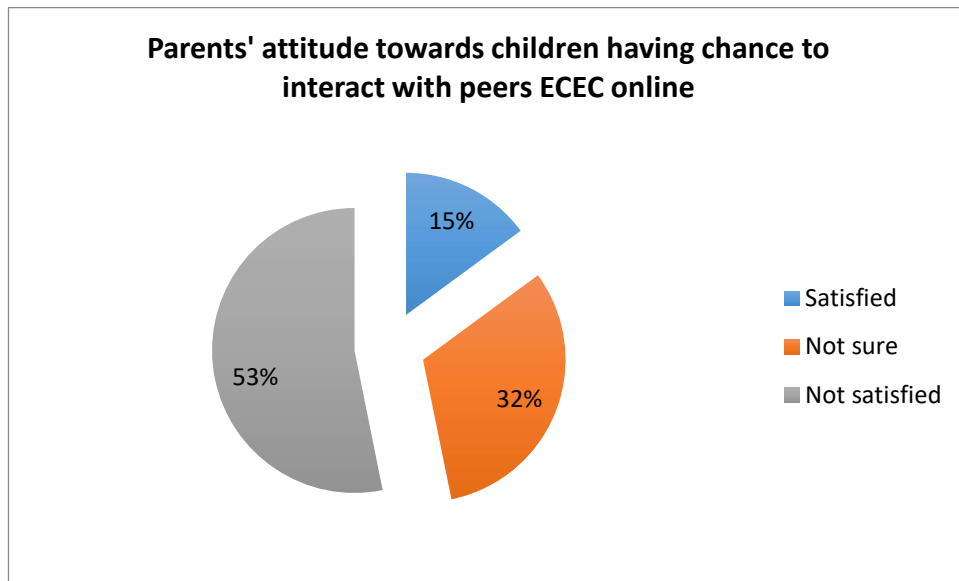


Figure 7: Parents' attitude towards children having the chance to interact with peers ECEC online

One of the educators said that the teachers could only explain things verbally, and children could not work or play together. It was difficult to enhance children's cultural competence and interaction through physical contact in group activities or games. At the same time, teachers' online pedagogical activity planning and implementation play a critical role in the development of children's self-expression and social skills.

5.1.3 Taking care of oneself and managing daily life

In ECEC, taking care of oneself and managing daily life is mainly reflected in the independent level of children's life management, children's cognition of physical health, sustainable natural environment, and emotion (FNAE 2018).

When we asked the educators how to promote children's well-being and self-care skills online, they gave the examples, such as making a day/week plan about cleaning the toys; making a video presentation about how to button the clothes; practicing self-care online classes, etc. The interview shows that the interviewee teachers paid critical attention to children's self-care and management abilities in their ECEC online education. However, one phenomenon inevitably found from the data is that the online activities which were carried out by teachers had to assign tasks to the families, with parents helping but not the children themselves. As a result, online activities made it difficult for ECEC to play an active role in the self-care and management of children, while it added tasks and burdens to parents who might be already busy with work and coping with the family chores. The well-being of parents could be impacted accordingly, and the well-being of children in the family would be also reduced correspondently (Table 3).

How? (Methods)	Example excerpts from answers
Day plan/week plan	Clean the toys/clean the house
Video presentation	Do up your buttons and fold your clothes
Online interaction is hard to achieve	
Set tasks directly to parents	Supervise children to make daily routine lists
Practice self-care in online classes	Drinking water and toilet in class in time

Table 3: How to promote children's well-being and self-care skills online?

When we asked parents "does the online course provide your child with an opportunity to practice daily self-care and management?" The results showed that only 5% of participants fully agreed that children could get self-care and management practice from ECEC online, while 45% of participants thought it was not possible at all. 50% of the participants were unsure of this idea (Figure 8).

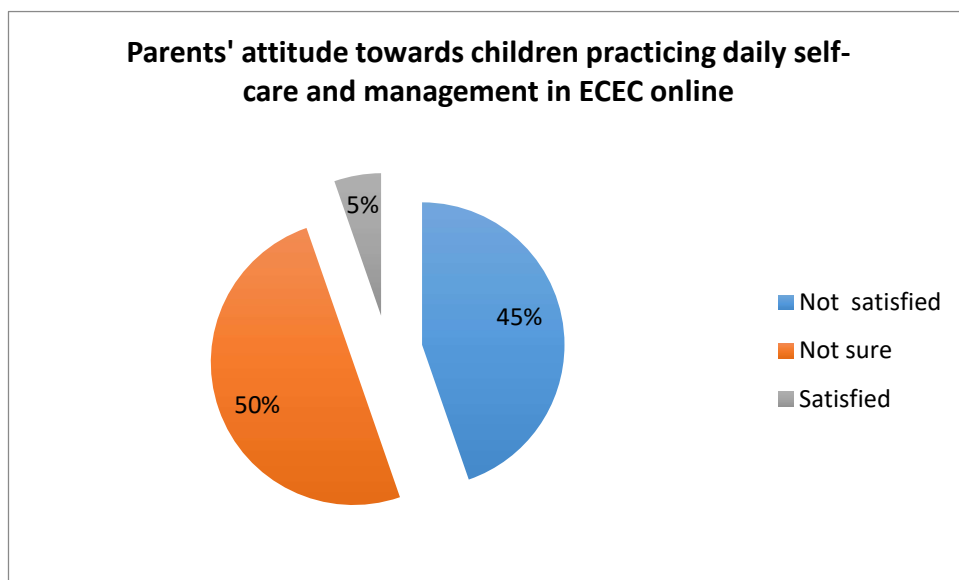


Figure 8: Parents' attitude towards children practicing daily self-care and management in ECEC online

5.1.4 Multiliteracy and competence in information and communication technology

According to the Finnish ECEC curriculum, multiliteracy and Competence in Information emphasizes that children can understand and produce new information through different types of the information environment. Cultivating children's visual literacy, digital literacy, and media literacy need the exemplary role of adults. (FNAE 2018.) Information and communication technology refers to the ability of children to learn about ICT devices, services, and games through adult guidance. Children practice using numbers through play, exploration, and physical activity. It is important to ensure children's safe and healthy use of technology in a multifunctional and dazzling digital environment. (FNAE 2018.)

Unfortunately, the interviewees' responses to this part were abstract. They believed that children could familiarize themselves with the application of ICT devices and services with teachers through ECEC online, and practice their operational skills through online games. But the complexity of the online environment made it hard for them to let kids try more apps.

According to the survey data, 44% of the parents considered that children could acquire information and communication technology skills from ECEC online (Figure 9).

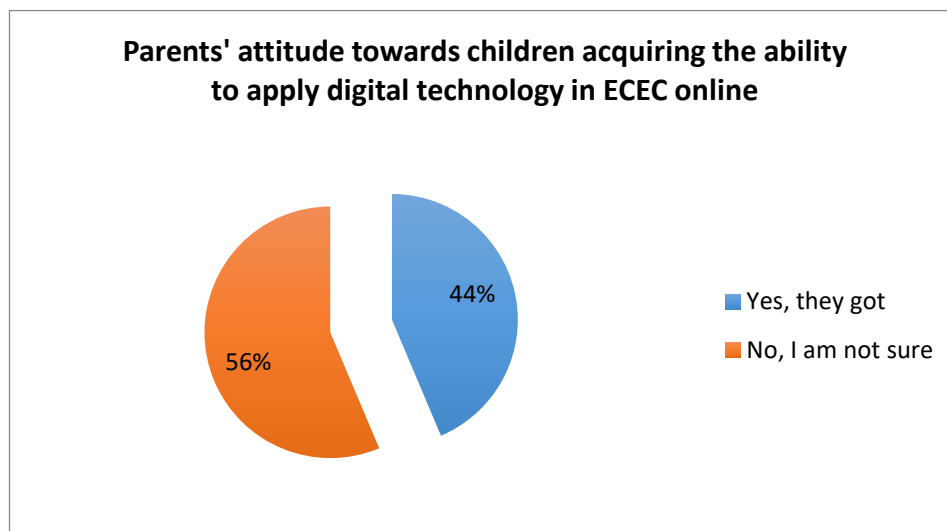


Figure 9: Parents' attitude towards children acquiring the ability to apply digital technology in ECEC online

Moreover, 47% of the parents thought that ECEC online could lead to children's over-dependence on electronic products in daily life. They worried about whether children would be able to focus on learning and interaction when they returned to kindergarten after the pandemic (Figure 10). Parents also worried about long-time using electronic devices would impact children's health and safety as there are seems no sufficient or effective child protection to guarantee it.

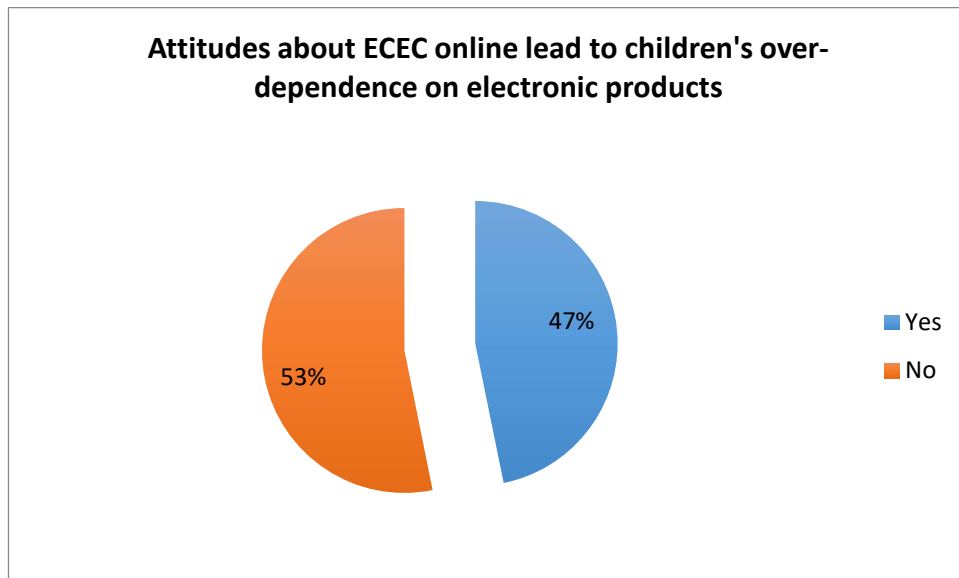


Figure 10: Attitudes about ECEC online lead to children's over-dependence on electronic products

5.1.5 Participation and involvement

The Finnish ECEC curriculum states that being heard, appreciated, and responded to enables children to feel valued and involved in their early formative environment. Children should be encouraged to plan, implement and evaluate their activities with adults. (FNAE 2018.)

Nelsen (1981) indicates children gain social skills, self-expression, and identity recognition when they are allowed to participate. When children feel that they are part of a community, they will have more confidence and courage to face their future life.

The educators mentioned that due to the limited time of ECEC online, it was difficult to ensure that every child could be seen and heard, so some children were ignored. It was not that they didn't want to participate but just needed more attention, encouragement, and support. Therefore, during the online education implementation, it's hard for educators to always maintain an all-side covered view of children's needs and interests by just watching them from cameras.

From the perspective of parents, it was difficult for children to communicate adequately with their peers in ECEC online (Figure 7). Children interacted with teachers in a one-to-one manner most of the time and had little time to interact in small groups.

When the parents were asked, "what do you think is the biggest disadvantage of ECEC online?" Most parents shared their concerns about children's learning and thinking development, and whether their children's well-being and emotions would be affected by this virtual learning

environment. 65% of the parents considered that the biggest disadvantage of ECEC online is there is no real interactive environment, which limited interaction through perception, such as body or eye contact. 20% of the participants said they were worried online education environment would disrupt children’s concentration. Moreover, children’s online safety and taking up excessive parents’ time are also considered disadvantages of ECEC online education (Figure 11).

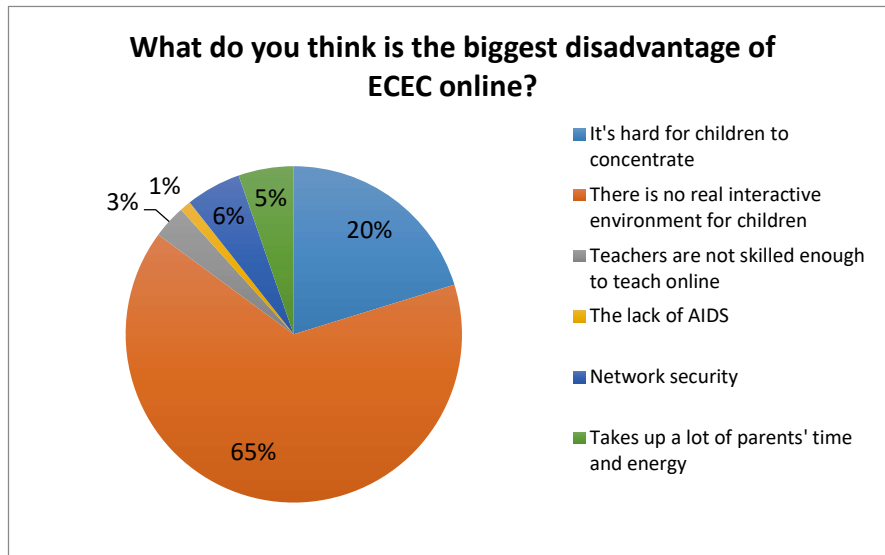


Figure 11: What do you think is the biggest disadvantage of ECEC online?

5.2 The perspective of educators implementing ECEC online

When did we ask interviewees how did you perceive their online implementation during the pandemic? Educators shared their concerns about children in ECEC online, which included children’s short concentration, lack of interaction with the environment, equal opportunity for each child, and how to assess children’s learning process.

“Children lack interaction with their environment and teachers. Most of the time, children need to learn by listening, which affects the development of social skills.”(Interviewee 1)

“I unable to assess children’s learning process and can’t support with special needs children. It’s difficult to ensure that each child is fair to participate in.” (Interviewee 2)

“It is not easy to communicate by body language in online activity due to limitations of screen and children’s short concentration time.” (Interviewee 3)

The skills of using online technology were also a challenge for them. There were only a few educators who had participated in online education training on how to use the online platform and interact with children.

“I was familiar with chat-based platforms, but it only delivered information through voice and video online.” (Interviewee 1)

“I am not proficient in applying online functions, such as forming groups and sharing videos.” (Interviewee 3)

“I have participated in systematic platform training. So when I used Class-in as the tool to teach children online, I could skillfully apply online tools, and children were full of joy in the class.” (Interviewee 5)

Meanwhile, the audience of online education was not only children but also parents. For children to benefit from ECEC online, teachers needed to provide guidance and instructions to parents, which multiplied teachers' workload compared to traditional ECEC.

“Children need parental auxiliary use electronic devices, but children are easy to be interference by parents.” (Interviewee 2)

“The implementation and evaluation of online education depend on parental support at home. But some parents can't support children due to some reasons.” (Interviewee 4)

“It takes more time and effort to make sure children are heard, and also to guide parents to make sure better support for children at home.” (Interviewee 5)

5.3 The perspective of families involved in ECEC online

Although educators had given the most consideration to children and parents in ECEC online, it was seen from the questionnaire data that 34% of parents considered that the guidance of ECEC online for parents was insufficient and they needed more support (Figure 12).

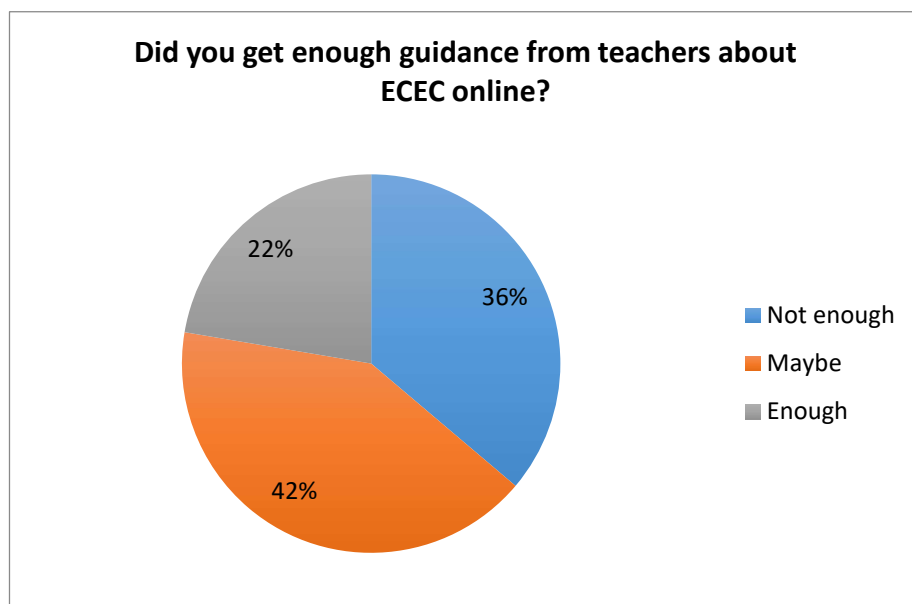


Figure 12: Do parents get enough guidance from teachers about ECEC online?

According to the result, only 14% of families received systematic training from the government and institutions, 37% only received oral guidance from teachers, 43% received written guidance, and the remaining families did not respond to this question (Figure 13).

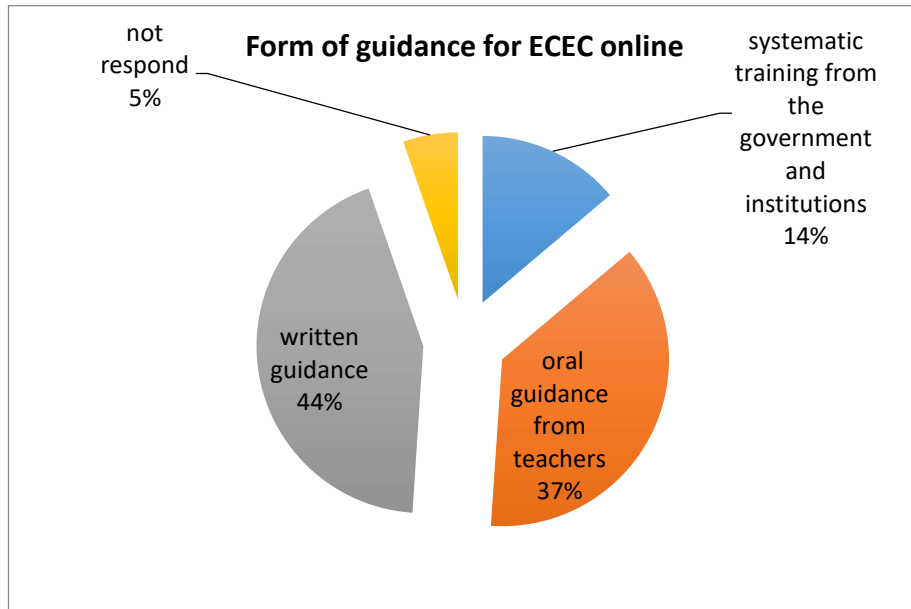


Figure 13: Forms of guidance for ECEC online

When we asked parents the question “how long do parents spend on ECEC online with children?” The results showed that 55% of children needed high-quality parental companionship to complete ECEC online, so ECEC online increased the responsibility of parents in society (Figure 14).

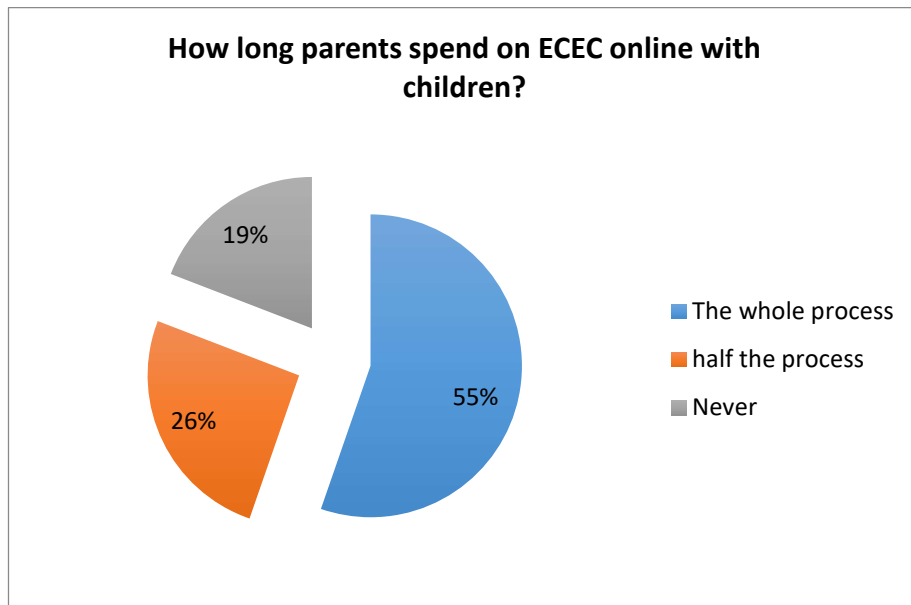


Figure 14: How long do parents spend on ECEC online with children?

When we asked parents the question “how much did ECEC online help you with parenting at home?” 47% of families didn’t think ECEC online was helpful to them. This result was not that they were dissatisfied with the teaching skills of teachers, but that they thought ECEC online wasn’t an effective implementation method (Figure 15).

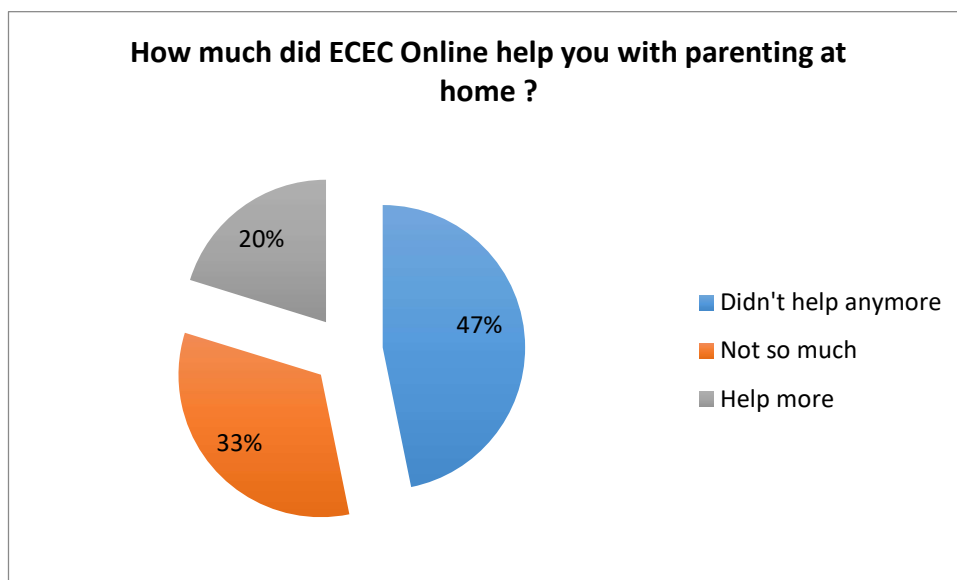


Figure 15: How much did ECEC online help you with parenting at home?

When parents were asked the question “do you prefer your child to attend face-to-face or online courses?” 55% of families preferred ECEC only face to face, 40% preferred a combination of online and offline, and 5% chose online ECEC. According to the text of the

survey, most parents mentioned that ECEC online had the advantage of flexible time management and no geographical restrictions. In addition, children could learn a variety of information and get familiar with the use of network equipment through online implementation.

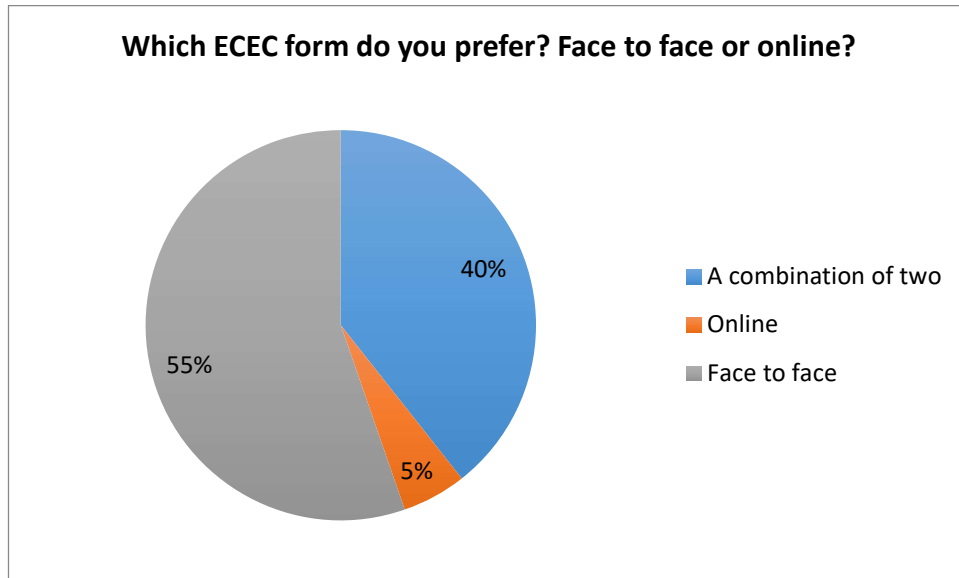


Figure 16: Which ECEC form do you prefer? Face to face or online?

According to the questionnaire data, 87% of families thought that adults were more suitable for online learning than children (Figure 17). Meanwhile, 82% of parents tended to participate in synchronous interactive classes, such as Zoom, Class in, etc. (Figure 18).

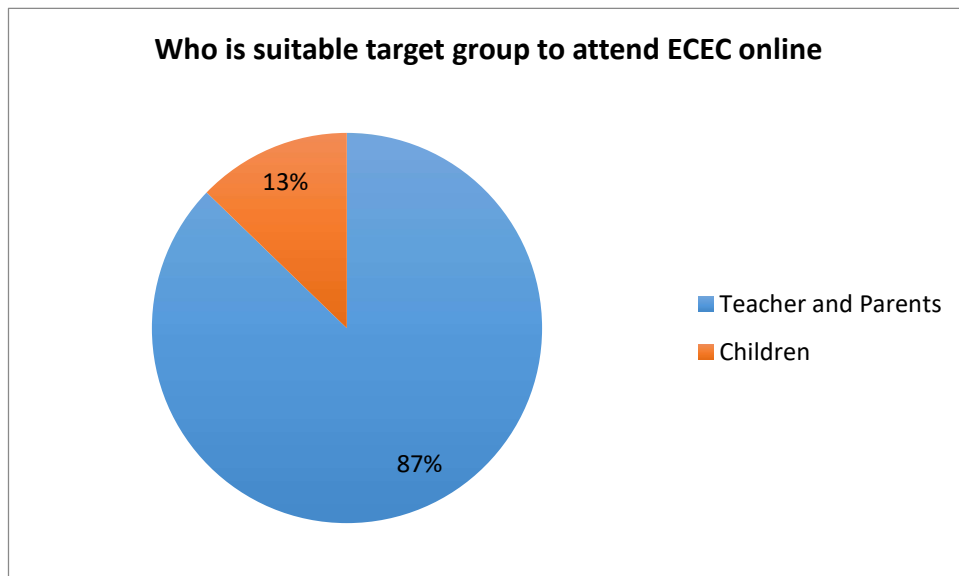


Figure 17: Who is a suitable target group to attend ECEC online

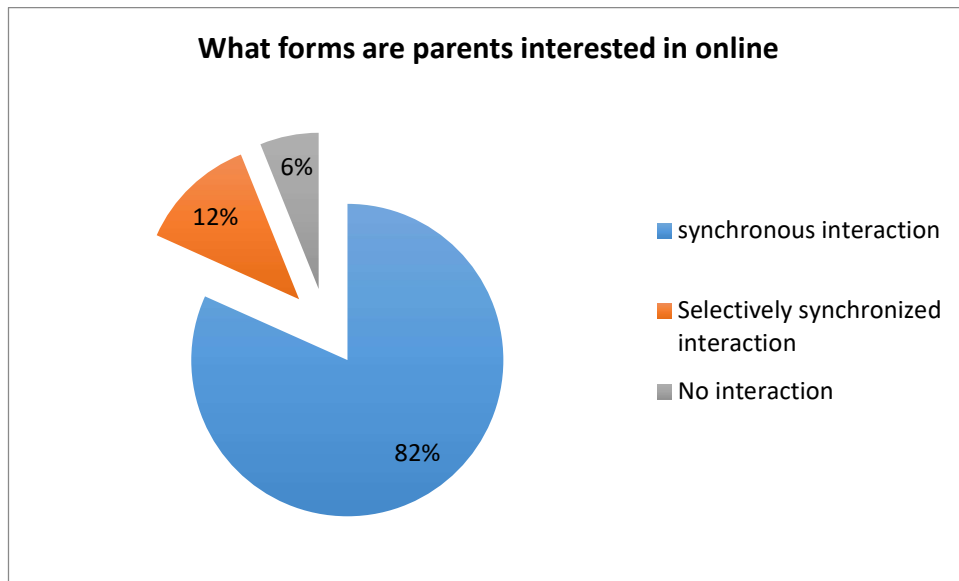


Figure 18: What forms are parents interested in online

6 Discussion on the findings

The initial purpose of the study was to explore the possibility of ECEC online education under the current general trend of online education worldwide. However, with the deepening of research, the formality of ECEC online education has aroused more attention and concern, which includes whether online education can fully replace traditional face-to-face early childhood education, and what kind of ECEC target groups should be more suitable to enable the online education effectiveness.

In this study, we used the triangulation of literature review, interviews, and questionnaires, and the findings reveal consistent insights from them. The ECEC online implementation is currently difficult to ensure high-quality ECEC from a child development perspective. The results showed that the most challenging reason for ECEC online was that it hindered children's interaction with the ECEC environment. In the Finnish ECEC curriculum (FNAE 2018), the early childhood education environment is not just about interactive spaces, tools, and supplies, but also about peers and teachers. While ECEC emphasizes that interactive environments are designed and created by children, the online activities are more rely on teachers' design and parents' assistance which use platform tools and limited teaching aids. Even though some parents were able to accompany their children in online classes to ensure children's participation, as Gayatri noted (2020) which is also consistent with the results of our conducted survey, the Chinese parents brought out that it is difficult for children aged 0-7 to stay focused for a long time in the class online, which not only challenges children's development of the transversal competencies in ECEC online but also challenges teachers in implementing ECEC for children online. The lack of knowledge of ECEC online among family members has led to teachers not only teaching children but also providing guidance to parents to support their children, meanwhile, the teachers' preparation also shows deficiency according to their experience, age, educational background, etc.

Although our survey results on families' preparation for ECEC online show that most families can provide the environment to participate in ECEC online, including online equipment and family support, however, some families in poor areas are not equipped to prepare for ECEC online (Gayatri 2020) is the fact. Buying equipment and internet access will increase their living burden, so many poor families forgo the chance of ECEC online during the pandemic. If ECEC online replaces the traditional ECEC, the financial resources of poor families and poor areas will be a critical problem that is not easy to solve.

Meanwhile, the challenge for parents is not only financial support but also avoiding children's addiction to electronic devices. Consistent with the Australian study (Rhodes 2017, cited in

Zabatiero et al. 2018), the result of our survey also shows that parents found that ECEC online increases children's dependence on electronic use, for example, even when there is no online activity, children play games or watch videos with their phones or iPads which they are supposed to use for the online education. Moreover, it also arouses parents' and educators' concern about children's health and safety when they approach the Internet and electronic devices without sufficient monitoring.

Gayatri (2020) mentioned that the involvement of parents is particularly important for the smooth implementation of ECEC online. Chinese educators revealed the same point in the interviews. Parents have to help children get into the ECEC online platform, prepare the materials, assist teachers in activities online, and supervise children to focus on activities. Most parents accompany their children throughout the online classroom. However, different family situation matters, which is reflected in parents' perceptions of educational values, parents' life pressures, parents' attitudes towards teachers, parent's educational level, etc. (Alharthi 2021).

Principally, we believe to a certain extent that ECEC online has enabled the positive connection between children and teachers in a learning environment, especially during the Covid-19. However, there is another side of uncertain effects which relates to children, families, and teachers are far outweigh, so that makes it hard to believe that ECEC online education can completely replace traditional face-to-face ECEC in the short future.

In ECEC, children need to explore the surrounding environment and the world through different senses of sight, hearing, touch, taste, and smell. Online enables children to obtain diverse and cross-regional information but only through sight and hearing. However, in the era of more and more mature online education products, high-quality ECEC online education can be considered an alternative to traditional ECEC. It provides an option for parents who have the financial foundation and time to meet and even expand their children's educational needs. It creates the flexibility for children to choose the suitable learning experience that is best suitable for them to learn in a different time, situation and background. For example, one of the interviewees facilitates an online weekly listening group for children from all over the world, which is a perfect example of how ECEC online education can be used as a complementary ECEC option for the children, families, and even education providers.

Another key thing to remember is that not only children are included in the ECEC system, but guardians, as the key role who support children and educators are also an important part of the Finnish ECEC system (FANE 2018). During Covid-19, providing a supportive environment for children is equally important as providing high-quality online activities. However, most parents do not know how to provide a supportive environment for their children. As the results of the survey showed that 61% of the respondent parents believed that ECEC online

was more suitable for parents instead for young children, whose behavior and how they interact with their children significantly impact their children's well-being, emotion, learning, and development when the ECEC online education take place at home or other places. On the other hand, 27% of the participants believe that teachers are also the best target customers of ECEC online. This indicator mainly reveals the need for teachers to become proficient in online technology through learning and training. However, according to the results of the interviews, none of the interviewees had received formal training in interacting with young children online. As technology advances, educators and parents should become more proficient either in using the internet and devices to provide online education or support online education. Consistent with the Weigel et al. study (2012) cited in the previous literature review, the teachers we have interviewed in China also emphasize that the fact of the younger they are, the more confident they are in using Internet technology. Young teachers tend to be more creative and imaginative in ECEC online activities, resulting in greater participation from children. But for most parents and teachers, ICT skills are proven not to be sufficient to support children's learning (Gayatri 2020). Perhaps for ECEC online education, we could try to switch our minds not to stick to the concept that we must directly provide online courses and activities to children, but instead, think about whether it is necessary to provide children a high-quality education indirectly via their parents, educators or other caregivers, so that to make better use of online education resources, and bring the most advantage of ECEC online to face-to-face online education while avoiding some disadvantages, especially for younger children.

The principal of our partner, a Montessori kindergarten, provided positive feedback after reading this thesis. She considered it very useful and give them many great insights into their undergoing online education projects. In addition, she also mentioned that they are also very appreciated that this research helped them to obtain the feedback from the parents which includes overall attitude towards the ECEC online curriculum, child support, children's online focus time, feedback to online educators, and real needs of parents when they are in the ECEC online education. The principal emphasized her agreement with the result that parents could also be considered as the target group in ECEC online education but not only children, which made them rethink parent class as one of their goals in the next term. They were also surprised to find that parents are so interested in the synchronous interactive classes, which made the kindergarten decide to improve teachers' skills in using different online platforms. They also mentioned that collaboration between us was very smooth and interesting. They are very interested in Finnish early childhood education and look forward to learning about Finnish ECEC through online courses for teachers in the future.

7 Conclusion

Our research focuses on children's development, teachers' online implementation experience, parents' experience, effective guidance, and technology device readiness. Through our research, we do not support that online early education must completely replace traditional face-to-face early education, or completely abandon online early education due to various disadvantages or intractable problems. On the contrary, we support the development of online early childhood education as a supplementary and auxiliary formality of the traditional early childhood education context, providing an option with more possibilities for early childhood education. Whether it is in the community, kindergartens, early education institutions, and educational platforms, online early education should be vigorously developed to give full play to its advantages, such as breaking the limitations of time and region, expanding children's horizons, and promoting children's ICT skills.

Furthermore, we also propose that due to the particularity of online early childhood education, children may not be regarded as the only educational target customer. Parents, as part of the early education context, with the advantage of adult autonomy, should they be considered as the target group of early childhood education online? This indirect early education concept may still be very immature and needs more in-depth research and investigation, but considering the characteristics of young children and the goals of early childhood education, this indirect early online education may expand ECEC online education into a new way of thinking.

Other recommendations on ECEC online education in the future:

- Proposed by the government, professionals in the ECEC field and technology companies cooperate to create a formal ECEC online platform.
- The platform provides educators and parents with various packages of resources for online teaching skills
- The government issue relevant regulation to prevent the risk of using online platforms, and ensure the safety and health of children.

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Appendix 1: The Interview for Teachers

Q1: What are the main reasons you have conducted or plan to conduct the ECEC online?

Q2: How is your ECEC online course implemented?

Q3: Who is the audience for your course? ECEC providers/parents or children?

Q4: What age of kids do you think is suitable for ECEC online?

Q5: What are the strengths do you think about the ECEC online?

Q6: What are the challenges do you think about the ECEC online?

Q7: How long have you been doing ECEC online?

Q8: In your experience, what kind of child is suitable for online ECEC and what is not?

Q9: In your experience, if your ECEC online course covers the transversal competencies according to VASU. And how have you implemented it to achieve it? (with adults or children)

1. Thinking and learning
2. Cultural competence, interaction, and self-expression
3. Taking care of oneself and managing daily life
4. Multiliteracy and competence in information and communication technology
5. Participation and involvement

Q10: What have you done/what are you planning to do to guarantee interaction with children and between children online?

Q11: Have you implemented/planned any pedagogical activity online that develops children's learning and thinking through such as encouraging children's imagination and creativity?

Q12: How to promote children's well-being and self-care skills online?

Q13: What have you done/planned to make the most of online education to promote multiliteracy and competence in information and communication technology?

Q14: What have you done/planned to guarantee children's participation and involvement online, such as everyone can be heard.

Q15: What have you done/planned to observe and document children's development online?

Appendix 2: The Questionnaires for Parents

Q1: How old is your child?

0-7

Q2: Has your child been involved in online education?

Yes/no

Q3: How long is the online class each time?

10-20mins/30-40mins/60+mins

Q4: What is your overall satisfaction/acceptance of online early childhood education and care?

1-5, 1=dissatisfied 3=not sure 5=satisfied

Q5: Do you think your child is guaranteed participation and involvement in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q6: How long could your child typically focus on online activities?

5-10mins/20-30mins/40+mins

Q7: Do you think your child has the opportunity to express themselves in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q8: Do you think your child has the opportunity to interact with peers in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q9: Do you think your child has the opportunity to practice daily self-care and management in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q10: Do you think your child has the opportunity to practice thinking and learning in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q11: Do you think your child has the opportunity to practice Multiliteracy and competence in information and communication technology in ECEC online?

1-5, 1=not agree 3=not sure 5=fully agree

Q12: Has ECEC online caused your child's electronics dependence?

Yes/no

Q13: Have you gotten enough guidance about ECEC online from teachers?

1-5, 1=not agree 3=not sure 5=fully agree

Q14: The form of guidance from teachers:

- Oral guidance from teachers
- Written guidance
- Systematic training from the government and institutions

Q15: How much did ECEC online help you with parenting at home?

Didn't help anymore/not so much/ help more

Q16: How long do parents spend on ECEC online with children?

1-5 1=never 3=half the process 5=the whole process

Q17: Do you think you have a ready environment to participate in ECEC online in your family?

(eg: iPad device, family support)

1-5, 1=not agree 3=not sure 5=fully agree

Q18: Which of the following do you find attractive about ECEC online?

- Flexible time and space
- The curriculum is rich in content
- Parents and children learn together
- The trend of the times and technological development

Q19: What do you think is the biggest shortcoming of online preschool courses?

- Children cannot interact face-to-face with the environment, teachers, peers
- Teachers do not have perfect online teaching skills
- It takes up a lot of parents' time and energy
- Children's inability to sustain concentration
- Internet safety needs to be improved for children

Q20: Which ECEC form do you prefer? Face to face or online?

- Online
- Face to face
- Combination of two

Q21: Who is a suitable target group to attend ECEC online?

Teachers and parents/ Children

Q22: What forms are parents interested in online?

- Synchronous interaction
- Selectively synchronized interaction
- No interaction