Digital Application Following Ecosystem In Early Childhood Education In Industrial Parks A Case Study In Ho Chi Minh City, Vietnam

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Abstract:
Digital application in early childhood education (ECE) is a trend and a way to help preschool children everywhere have access to quality education. The research group of the Vietnam National Institute of Educational Sciences on the issue of the digital application according to the ecosystem approach in ECE in industrial zones has shown the needs, conditions and practical application of digital means in child care and education must be diverse with many means and levels of access. In areas with industrial zones, the child's parents are mainly workers and unskilled workers. The application of digital technology still has many shortcomings, individual characteristics, and limitations, which are evident in non-public ECE institutions, leading to the quality of child-rearing and education here becoming a low-lying area. In addition to apps and digital media, teachers and parents of children are important factors in creating a safe early ECE ecosystem for children at preschool educational institutions in areas where there are industrial zones that help to improve the quality of children's education in these areas in the current context of ECE. The study also provides pieces of evidence about the interplay of factors in that ecosystem, and the effects of each factor on children.

Keywords: Early childhood education, ecosystem, digital, outreach, digital application.

INTRODUCTION

Based on the research of research results in Vietnam (UNICEF, Vietnam 2016 and UNICEF, 2021), shows that improving the quality of ECE in industrial zones is a matter of top concern today. Natalia Kucirkova, Yuichi Toda, and Rosie Flewitt3, 2020 have shown that teachers' perceptions and attitudes are the factors that shape teachers' pedagogy with technology and affect the effectiveness of education. In addition, the views of digital software designers are evident in the applications to educate children and personalized digital devices. Presenting concepts and frameworks with children, contexts, policies, and practices related to digital, based on which provide a holistic view of digital literacy and propose an appropriate framework (UNICEF, 2019). Accordingly, it is necessary to expand digital applications to create a framework for understanding the interactions between elements of the digital ecosystem in public and non-public preschool educational institutions in areas that have industrial zones and export processing zones. Improving the digital application skills of parents and teachers as well as their interaction in improving knowledge, skills in caring for and educating children, and improving time management, spending time with children; Enhancing the role of parents and teachers as facilitators, organizing children's educational activities, and the role of local communities and businesses as partners in building an ECE ecosystem all benefit from each other, identifying the specific actors and coordinated activities of the ecosystem.

Many ecosystems are layered, and some are nested within other ecosystems (Davis, 2018). The most common species in the education ecosystem are teachers, learners, administrators, and facilitators. In addition, the facilities in the ecosystem (books, gadgets, and technological devices connect the components in the ecosystem based on shared data. In this study, we see that an "*Ecosystem is a complete system consisting of one or more objects that connect and interact with each other and with the environment, providing the necessary components for the existence and development of each other in a particular area. In which, the participants follow a specific strategy, have their positions, roles, and responsibilities, and interact*

with each other and with the environment to improve the quality of education".

I. LITERATURE REVIEW

The development of the digital era makes the application of technology in education more and more widespread and necessary. Many digital education systems are born more and more complete and intelligent. According to Ellina Sergeevna Anisimova1, the digital application of preschool teachers is to help children initially form digital skills at an early age and continue to develop later to adapt to the changing digital world that is changing quickly; Teachers, families, and society need to create institutions that have a positive impact on children, helping children to be ready to participate in the form of play. The digital use of teachers is not only to use existing versions of games but also to design and develop simple games independently.

Unicef, 2019[2] has provided a digital theoretical framework that includes a set of fundamental digital skills: information and data literacy, online communication and collaboration, secure digital content creation complete, and solving the problem. Digital application according to the ecosystem approach to educating children in ECE institutions in industrial zones is understood as bringing digital knowledge and media to create an educational environment in which all participants are teachers, parents, and social community) are organized according to a specific strategy that interacts with each other and with the environment to improve the quality of child care and education in ECE institutions in the Industrial Park.

The structure of the digital application ecosystem at ECE institutions in the Industrial Park is determined by the interlocking educational components that interact with each other at 3 levels of macro, medium and micro levels with the characteristics of practicality-oriented, capacity-development-oriented, linking technology with preschool education, both requiring conditions of technological equipment, hardware and software, and requiring users to have forceful, holistic, reciprocal - reflected in most aspects of education according to the process from the point of view to design, implementation/management and practical adjustment, promoting local resources, emphasizing the software element is the process of organizing

creative and clear educational activities - based on educational design towards personalization in a realistic context and in line with educational goals, showing the specificity and enhance the capacity of the participants, especially digital capabilities, teamwork capabilities (perception, media conditions, qualifications, ...) placed in the context of digital technology platform; that requires and encourages the responsibility and creativity of the participants.

With the content of applying digital technology in ECE at schools, families, and communities related to comprehensive care, education, and development programs: nutrition propaganda, health, physical development, awareness, language, social-emotional, and aesthetic for preschool children and children with special needs; processes for organizing educational activities, developing knowledge and skills to take care of children's education, safe use and development in digital space, digital applications for school management, school processes managed by digital applications, school and class management information systems.

To be able to apply digital technology according to the ecosystem approach in educating children in ECE institutions in the IZs, ECE institutions (administrative staff, teachers) first make a plan to identify objects, targets, methods, locations, time, etc. provide access to official ECE for everyone in residential areas in IZs and EPZs from which to select the contents to be implemented, ensuring comprehensive access to ECE. In particular, the content needs to comply with the standards of copyright, quality, the science of content, and different formats. Developing processes, standards, and regulations for the design, operation, use, and management of the application of eco-systems in ECE. There is a plan for a management system and financial resources for the digital application according to the ecosystem approach in ECE. Developing procedures for monitoring and evaluating the design, operation, use, and administration of IT systems.

On that basis, building information and communication technology infrastructure with the construction of hardware, network and connection, and software. Teachers build content and digital resources based on built content and continue to develop content to suit the needs of different levels of people accessing, storing, sharing, and

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[1] Ellina Sergeevna Anisimova, Digital Literacy of Future Preschool Teachers, Journal of Social Studies Education Research, Sosyal Bilgiler Eğitimi Araştırmaları Dergisi2020:11 (1),230-253

[2] Office of Global Insight and Policy Fabio Nascimbeni and Steven Vosloo, Digital Literacy for Children Exploring definitions and frameworks Scoping Paper No. 01 | August 2019

disseminating digital content. The implementation and operation according to the operating mechanism and assignment of responsibilities.

The survey area in Binh Tan, Ho Chi Minh City, is one of the localities with the growth of large industrial zones and export processing zones in the south of Vietnam. This is also a locality with a large system of non-public ECE establishments. Before the Covid 19 pandemic, ECE Ho Chi Minh City was highly appreciated for its quality in attracting preschool children to class in participating in the National Digital Transformation Program to meet the requirements of the industrial revolution 4.0 in the education sector. During the Covid-19 epidemic, ECE institutions had to close for a long time, making it difficult for most non-public schools to maintain facilities and stabilize their workforce. Many facilities apply digital technology to maintain contact with parents and children to attract children to class when the epidemic is over.

In this study, we clarify the following research questions:

➢ RQ1. What is the level of digital application of the educational forces at the preschool level in the industrial zone in Ho Chi Minh City?

➢ RQ2. How did parents, teachers, and local communities in industrial zones apply digital technology before and after the COVID-19 epidemic? Reason?

➢ RQ3. What are the conditions, means, influencing factors, and ways of the digital application according to the ecosystem approach in preschools in the Industrial Park?

2. METHODS

Research and survey on 32 managers, 60 teachers, and 50 parents, through in-depth interviews and group discussions with 10 administrators, 20 preschool teachers (public and non-public), and 24 parents in Binh Tan - Ho Chi Minh City. SPSS v20 statistical software was used to analyze the data set of 142 records. Descriptive statistics examined the mean and standard deviation (SD) of designed items by the Likert scale on a 5-level (from 1: lowest to 5: highest).

Items	Quality	%
Teachers	60	42.3
Parents	50	35.2
Managers	32	22.5
Total	142	100.0

Table 1: Participants in the survey by ballot

[3] Document No. 1394/BC_SGDDT date 13/5/2921 about Digital application in Ho Chi Minh city.

3. RESULTS
3.1. Awareness of digital applications in early childhood care and education
Ho Chi Minh City has directed the implementation of strengthening information technology at the preschool level, implementing the education management information system on mobile devices, and implementing the online school library management software system[3].... Compared with before the epidemic and after the epidemic occurred, the perception of teachers and administrators has changed towards the role of digital applications in preschool education instead of rejecting they accept them positively and actively use them as a means of expressing one's abilities. This change is most strongly reflected in the older teachers.

Survey results show that most judgments are digital technology as a means to save data and communicate to all subjects that need to be studied, including phones and computers, if digital applications are appropriate, they will create favorable conditions for the community to participate to share, exchange and propagate contents related to children in the industrial zones. Digital application according to the ecosystem approach in the care and education of preschool children is the bringing of knowledge and digital media to create an educational environment in which the participants (teachers, parents, and social community) are organized according to a specific strategy that interacts with each other and with the environment to improve the quality of care and education for children in preschool educational institutions in the industrial zones, export processing zones (with 98.3% of teachers and staff, 100% of management staff).

The perception of the staff of administrators and teachers shows that most of the opinions are focused when they think that digital can be applied in all child care activities, but what teachers and administrators can easily see especially managing meals, building rations, ensuring the rate for children, children need to learn, so children must access technology from an early age, contributing to the formation of technological thinking (Binh Tan management officer). Survey results in ECE establishments today, all activities have digital applications with equivalent levels. Which, the highest application is the information search and lesson design.

Before the Covid-19 pandemic, the digital application in ECE differed depending on each

audience's needs. For example, Parents enroll their children in school or educational and medical services (18.2%); access to information, care, and education services for children (22.4%); exchange, share and receive information related to child care and education between family and school and class (21.2%); participate in child care and education forums (15.8%). Most of the comments wanted to participate in digital applications according to the approach to roles and responsibilities, participating in coordination with teachers in caring for and educating children at home (22.4%), content building/development, resources (22%), users 60%, supporters and consultants 34%.

When the epidemic occurs, most applications are to exchange information between families and schools to update cases of children and families in different fields related to Covid 19 (F0, F1 ...) set up parent-teacher interaction groups to provide information about children, how to care for and educate children at home, and ways to prevent diseases, especially at the early stages of a stressful epidemic (7-10/2021). However, the implementation of coordination is mainly from the education sector and mainly in public preschools, non-public ECE institutions can only maintain the first stage, then because there is no source of income from parents (due to the overloaded health system, children do not go to school, ECE teachers evacuate to their hometowns to avoid epidemics and change jobs), some ECE institutions have announced their disbandment, updating information related to children is difficult.

3.2. Necessity of digital application research according to ecosystem approach in ECE

Most of the opinions obtained through in-depth interviews and group discussions with school administrators and teachers believe that it is urgent to study digital applications according to the ecosystem approach in ECE in industrial parks, to help children develop both skills and practice, helping teachers to timely access information and content to the development of children and schools, teachers, parents and community organizations in the comprehensive development of children, help to reduce the content for teachers in reaching children, to deploy all types of child-related services, to update data accurately, quickly, conveniently, scientifically, to save time, effort and money, to help schools, teachers, parents and community organizations in the development of local education, parents feel secure; help agencies in the industrial park to link and create a suitable multidisciplinary network. If there is a preschool ecosystem, there will be a shared source of data on

preschool children, and parents who have preschool children in the industrial park that is always accurate, fast, convenient, and a secure bookkeeping system. Scientifically, the data is updated timely and periodically, saving time and effort for quick and convenient inspection, control, and information lookup.

3.3. Participants in digital applications according to the ecosystem approach in ECE

The survey results show that the opinions about the partners that should participate in the digital application ecosystem, which are very concentrated, should be: teachers and administrators, parents of children, local communities, and enterprises. The correlation between the survey subjects about the partners who need to participate in the digital application according to the approach shows that the confirmed participants are proportional to each other, of which the highest are teachers, administrators, and parents of children, followed by local communities, and businesses. Which, the opinions are unanimous that the ECE is the main role in the ecosystem (72.9% of preschool teachers and 100% of the administrators). Preschool teachers believe that businesses' interdisciplinary coordination in organizing, directing, supervising, and investing in child care and education are still implemented in a synchronous manner (representative of the Binh Tan women's union)

| Participating partners | Rate | Items | |
		Teachers	Managers
Managers	amount	34	32
	%	57.6	100.0
Preschool teachers	amount	43	32
	%	72.9	100.0
Parents of children	amount	32	32
	%	54.2	100.0
Local communities	amount	24	26
	%	40.7	81.3
Enterprises	amount	10	22
	%	16.9	68.8

Table 2: Partners participating in the digital ecosystem in ECE in IPs

The direct survey results show that to create an educational ecosystem in the care and education of preschool children in the IZ, each participant needs to promote their specific roles and responsibilities. For example: "Management staff with advice, teachers, from parents, mobilize financial support from the community, businesses create conditions for parents to have time to participate in activities 1-2 times a month" (meaning representatives of the Department of Education and Training). It is necessary to involve all forces from the District Education Department, the officer in charge of

gender equality and children of the ward and commune, the officer in charge of education in the ward and commune, the Women's Union of the ward and commune, and the Youth Union of wards, communes, principals of kindergartens and teachers, parents. Ensuring the full participation of state management agencies and agencies that supervise the school's educational performance and the responsibilities of those involved in the child's educational process. In particular, the core of the ecosystem is that the teachers must be trained in technology, and coordination skills on digital applications.

However, practice shows that the apprehension of education managers leads to a lack of timely and strong decisions in connecting and taking responsibility for the School - Family - Community, especially during the COVID-19 epidemic period, there was still a lack of participation from many fields, different departments, organizations and individuals such as health, women, social work, technology, family, parents of children… besides the education sector. The survey results show that, at present, community organizations do not participate in digital application activities in the ECE ecosystem, only schools participate in digital application activities in ECE institutions (opinion of community representatives at the ward level). However, when the epidemic occurred, the application content of the health and education sectors changed, adding content related to the propagation of Covid-19 prevention skills for parents of children, forming new groups of data on parents of children and children related to infections in each group or class. For example, A representative of the Youth Union said that "it is necessary to mobilize the union members to participate to be effective with the main form of propaganda and the dissemination of the content".

3.4. Digital application content according to the ecosystem approach in ECE

The majority of teachers think that digital is mainly used in collaboration with parents of children with health-related information content, announcements between schools and families through social networks, also, Facebook, messages, school website or connect Bluetooth to play speakers at the school gate. However, the level of coordination is not effective because the majority of parents of children are workers in factories; limited time, and

young age, but a part of the parents are still struggling, lack smart means of communication, and are also limited in collaborative communication. "Parents of children do not use software, have little time, spend all day at the workshop, take care of the family at night (Opinion of parents of non-public establishments - currently workers)"

Most parents of children are interested in effective coordination and know-how to apply IT (parent's opinion). The survey below shows that parents apply digital technology to coordinate with teachers in child care and education and provide and exchange information during the pandemic.

No	Contents	Quantity	Rate
1	Register for school for your child or educational and medical services	30	18.2
2	Access to information, child care, and education services	37	22.4
3	Exchange, share and receive information related to child care and education between families and schools, and classes	35	21.2
4	Join the childcare and education forum	26	15.8
5	Collaborate with teachers in caring for and educating children at home	37	22.4
	Total	165	100.0

Table 3: Digital application activities of parents

3.5. Conditions of the digital application according to the ecosystem approach in ECE

The results of Table 4 show that parents of children underestimate their digital skills in finding information banks, supporting knowledge about child care and education as well as connection with the community, society as well as the current physical condition of the school.

No	Conditions		Highest	High	Medium	Low	Lowest	Average score
			— Assessment levels					
	About infrastructure equipment and facilities							
1	Internet network	Quantity	5	2	5	5	33	4.18
		%	10.0	4.0	10.0	10.0	66.0	
2	Computer	Quantity	7	1	3	16	23	3.94
		%	14.0	2.0	6.0	32.0	46.0	
3	Smartphone	Quantity	6	3	4	12	25	3.94
		%	12.0	6.0	8.0	24.0	50.0	
4	Ipad	Quantity	8	3	6	12	21	3.70
		%	16.0	6.0	12.0	24.0	42.0	
	About level, capacity							
1	Skills in using IT media and digital applications	Quantity	3	4	7	12	24	4.00
		%	6.0	8.0	14.0	24.0	48.0	
2	Knowledge of child care and education	Quantity	3	2	4	11	30	4.26
		%	6.0	4.0	8.0	22.0	60.0	
3	The connection with young parents	Quantity	4	1	5	11	29	4.20
		%	8.0	2.0	10.0	22.0	58.0	
4	Connection with the community	Quantity	4	2	7	9	28	4.10
		%	8.0	4.0	14.0	18.0	56.0	
5	Solutions	Quantity	10	1	5	15	19	3.64
		%	20.0	2.0	10.0	30.0	38.0	
6	Source of information and support knowledge bank	Quantity	10	1	8	12	19	3.58
		%	20.0	2.0	16.0	24.0	38.0	

Table 4: Digital application activities of young parents

According to the survey, the content teachers exchange and share information with partners (parents of children, community, and administrators) related to children at school (photos, activities) and the program of child care and education of the school, timetable, child's biography, content of poems, stories, songs... children learn. Disseminate knowledge about child care and education at home, knowledge about disease prevention, exchange about children's daily mood, and how to play with children for parents. Most ECE establishments in IZs and EPZs are equipped with computers, projectors, whiteboards, and other digital devices. However, in the groups of private independent classes, the number of computers is less (at least 1 computer/ECE facility). Despite these investments, the implementation of technology-integrated teaching into preschool classrooms remains rudimentary and focuses on traditional teaching, delivering the curriculum through teacher guidance. Teachers only engage children to watch videos or use the program to practice passively. Most preschool teachers are aware of the importance of digital technology equipment, but the capacity of the team is still limited to be able to properly apply technology equipment, and many teachers still have difficulties in designing and using digital technology. Design and implement integrated activities in child care and education. The frequency of digital device use is directly related to the degree of integration of technology tools into teaching. In addition, schools are also equipped with smart tablets and interactive panels to help teachers organize activities for children;

teachers are equipped with knowledge of using current technology devices according to child-centered criteria and propagate and coordinate with parents in child care and education through technical applications Zalo, Viber, Facebook... The rapid and diverse formation of these groups between teachers and parents will help share advice on the rearing, care, and education of children at home. Teachers select and guide parents to organize educational activities suitable to the conditions of care and education for children at home to achieve the goals and expected results at the end of the age range according to the ECE Program. In addition to using the method of connecting families, schools, and societies to perform well in propaganda, some units have been able to collect and spend, not only using cash but recruiting students from convenient district lines[4]. In fact, in the last three years, the digital application in ECE institutions requires schools to invest in modern facilities to build fully-equipped classrooms, but there are not all kindergartens have enough funding to implement this. There is not any content that can be taught digitally, while documents and learning materials in local ECE care and education are not many, some part of older teachers, nannies, and parents of children just want to apply traditional teaching methods, are afraid to innovate, afraid to try new things. Correlation using applications for system software digital media: calling, texting, radio, watching YouTube videos, listening to online music, reading newspapers...

The survey results, parents of children mainly limit the time their children can use digital media to less

[4] Document No 1394/BC-SGDĐT date 13/05/2021 on the issue of the digital application according to the

ecosystem model approach in the care and education of preschool children in Ho Chi Minh City

than 1 hour (65.3%) a few parents let their children use them whenever they need to occupy them. 6.1%.

Types of digital media used mainly are phones (35.1%), televisions (29.1%), computers, and tablets, equivalent to 16.4%, and 17.2%, respectively. Cameras and camcorders account for a very low rate of 2.2%.

The results obtained using the means are in order from highest to lowest: 25.3% said that to connect with the school and teachers in child care and education: receiving notifications; seeing the situation of learning in class; finding out information related to child care and education at home with 22.8%; finding resources for your child's entertainment was 21.6%. Interestingly, the search for learning resources for children is not high at 16.7% and the lowest is 13.6% to connect with the social community to ensure the rights of child care and education and protection

For parents, to improve the quality of care and education for their children, they used digital applications mainly to connect with teachers in charge of the class or other class teachers (51.1%), few contact the school administrator/class group owner (22.7%) as well as the parent representative board (18.2%) and at least the child protection organization (8%)

For the subjects of management staff, the survey results obtained from computers and phones were used very often with very high average scores of m=4.87 and 4.78, respectively. In contrast to parents, managers use cameras/camcorders regularly (m=3.50), which they are confused with the option of using television (m=3.12) and do not often use the Ipad (m=2.63)

The exchange and sharing of information with the partners participating in the ecosystem (parents, community, and managers) of teachers account for a very regular rate with the main contents of the school's child care and education program. (m=4.33), Content of poems, stories, songs... that teachers teach children (m=4.31), Knowledge of child care and education at home, knowledge of disease prevention (m=4.28), information related to the child at school (pictures, activities... (m=4.26) The frequency with the remaining contents is the timetable (m=4.09), sub-categories. The child's history (m=4.02) and how to play with the child (m=3.90).

To the survey, there is no direction for digital application according to the ecosystem approach in early childhood care and education activities. Directing the digital application to follow the process of the Education Department deploying to public schools, private schools, class groups... the cluster heads will deploy more specifically for

their wards and clusters to apply digital technology in the care-nurturing activities, ensuring a safe sleeping regimen, monitoring health characteristics, weight and height. Application of Go Kids boarding software, calculation of servings, nutritional content, and record keeping. Using IT to build menus and nutritional balance for children. Organizing mealtimes, cleaning operations for children, self-service, and labor. Application of software to calculate nutritional portions, build menus to manage children's records, make medical declarations in the form of fostering, and introduce information pages, and Excel files. Menu building software, Over the phone, texting, and calling, creating groups to send pictures, video activities, organizing training, and regular training. In children's education activities, the content that is difficult for children to access in reality or dangerous for children, digital application, planning, information search, lesson design, lecture implementation, and assessment is required. ... Directing the use of Mind-manager software in management, designing lessons, exercises, games, finding documents, making interactive movies with parents via Zalo, Facebook...

The survey results show that the equipment and material conditions need to be adequate to be able to implement the digital application of the ecosystem; there must be mechanisms, policies, management, and direction; the income of parents, who are workers, is unstable, and it hardly equips equipment.

3.6. Factors affecting digital application according to ecosystem approach in ECE

According to Table 5 with a fairly high rate of 100% of administrators, 86.7% of teachers and 84.8% of parents agree with the factor of basic conditions, the equipment has a direct influence on the application of digital technology in ECE establishments in the industrial park. Next, the awareness factor and digital application capacity of the subjects that directly affect the children's education process are agreed upon by 100% of administrators, 61.7% of teachers, and 47.8% of parents of children. The mechanism and policy factors and the management and direction only account for a high percentage of administrative staff (78.1%) and the average level of parents and teachers.

Contents		Objects		
		Teachers	Parents	Managers
1. Conditions of facilities and equipment	Quantity	52	39	32
	%	86.7	84.8	100.0
	Quantity	37	22	32

2. Digital awareness and capacity	%	61.7	47.8	100.0
3. Mechanisms, policies and management, and direction	Quantity	16	17	25
	%	26.7	37.0	78.1

Table 5: Factors affecting digital application according to ecosystem approach in ECE institutions in IPs

3.7. Technical process of the digital application according to the ecosystem approach in ECE

The technical process of applying architects according to the ecosystem approach in child care and education: In learning, playing, and at-home activities. Teachers will communicate directly with parents of children or in class groups with the Zalo application. Meanwhile, the results of discussions with community organizations show that "the association with Zalo or email follows a closed process from the school to the student's parents, there is no association with local community organizations". Currently, only representatives of preschools can link groups, groups of teachers, administrators, and community organizations that are still separate. The group that works regularly is a group of public school teachers, while a group of non-public teachers has less interaction but a higher frequency of communication with parents. The response from parents (who are workers) in public schools is higher because parents who send their children to non-public institutions are often limited in terms of time (overtime, irregular work). According to the survey results, at ECE institutions, the digital application according to the ecosystem tissue approach in child care and education is organized according to a 5-step process and technique: Step 1. Planning application of eco-design in ECE; Step 2. Building information and communication technology infrastructure; Step 3. Building digital assets and resources; Step 4. Implementation and operation and Step 5. Monitoring and evaluation, adjustment. At the steps of the process, the subject of early childhood education rated at a high degree of conformity or higher with the highest average score of m = 3.97 for step 2; the lowest m= 3.57 for step 3. In contrast to the teachers, managers think that step 5 has a very high degree of relevance (m=3.71), and in step 2 they are really confused (m=3.39).

The results of the assessment on the utility, suitability, and effectiveness of the existing conditions for the care and education of preschool children in the current context show that there is a difference in the assessment of the effectiveness as well as the utility of applying digital technology in ECE between before and after the pandemic. While before the pandemic, the group of teachers who were mainly non-public (international group) thought that the use of digital means was not effective and lacked utility for them. However, their views changed when the pandemic occurred, such as creating a group forum for exchange between parents and teachers, lecture images for children to observe, and parents helping teachers respond.

4. CONCLUSION

Based on the results of theoretical and practical research, we find that the level of digital application of the educational forces at the preschool level in the industrial zone in Ho Chi Minh City is still not high due to the lack of suitable awareness, but there have been significant changes when the epidemic occurred. However, it has not yet followed the ecosystem approach. To improve the above issues, in our opinion, to be able to apply digital media according to the ecosystem approach in ECE establishments in IZs, it is necessary to:

1) Building a network to connect educational partners and forces at institutions according to the digital application according to the ecosystem approach in ECE institutions in industrial zones
2) Next, it is necessary to ensure the conditions of facilities, means, and accessibility of the team to digital media through fostering and updating knowledge, information searching and archiving skills.
3) Teachers actively collaborate through messaging, social media, and technology platforms during epidemics.
4) Building a set of digital documents for preschool teachers and parents in the care and education of preschool children, considering the problem of applying digital technology as one of the solutions to improve the quality of early childhood education.
5) For the ecosystem to achieve feasibility and sustainability there must be a close connection between the participating forces.
6) Building a consultation forum on care and education for preschool children.
7) Ensuring digital application conditions

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