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Young Children Teacher's Application Experience and Utilizing Observation of Digital Device

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Abstract

The purpose of this study is to investigate the application experience and observation of young children's teachers' digital devices. The participants of this study were 6 young children teachers using digital devices. Individual interviews were conducted as a data collection method. It was conducted 2-3 times per research participant. Data collection was conducted from November to December 2020. The Data analysis was focused on the young children's teachers' digital device application experience and observation use. 'Easy and simple use', 'using existing familiar apps', 'providing healing to teachers', and 'improving the utilization of spare time' were derived as early childhood teachers' experience of applying digital devices. 'Easy use of observation records', 'Use together in various ways', 'Use for parent counseling', 'Use appropriate for observation of revised Nuri Curriculum' through early childhood teacher's experience of observing digital devices ' was derived. As a conclusion of this study, first, it is easy for young children's teachers to apply digital devices to the field. Second, if young children's teachers use digital devices, they can make a wide range of observations, enabling high-quality early childhood education practices.

Keywords: Young Children Teacher, Digital Device, Utilizing Observation, Application Experience

1. INTRODUCTION

While experiencing the pandemic caused by COVID-19, the education field has undergone a rapid transition to the digital age. Kindergarten also started an unprecedented distance education[1], and this change in the early childhood education field has made teachers recognize the ability to use digital devices as an important part of teacher competency.

The use of digital devices in education is an effective educational method because it provides children with rich experiences and enables dynamic interactions[2-5]. However, the wrong use of digital devices also negatively affects young children[6], so it is time to think about how to properly provide digital devices.

The 2019 revised Nuri Curriculum emphasizes the importance of observation in order to support children's play, and it is suggested that teachers use a method that is easy for teachers to observe, such as notes or photos, rather than being bound by a format[7]. For this purpose, it is recommended to use various digital devices such as mobile phones and tablet PCs as well as observation records[8]. However, studies related to the use of digital devices in early childhood education are mostly used as teaching media for group activities or playtime[9-10],

so it is necessary to examine how digital devices are used throughout the day.

The purpose is to find out how the use of the device can help. Through this study, it is expected that basic information and implications on the use of digital devices in the early childhood education field can be derived based on how early childhood teachers change the provision of an educational environment using digital devices. The specific research questions set according to the necessity and purpose of this study are as follows.

Research Question 1. What is the experience of young children teachers who applied digital devices to the field?

Research Question 2. What is the experience of young children teachers using digital devices in observational situations?

2. METHODS

2.1 Participants

In this study, a qualitative study was conducted to find out how early childhood teachers are using digital devices. Participants of this study were teachers using digital devices in the early childhood education field. The study participants' teachers were trying to apply digital devices to the field.

The preliminary interview was conducted with 1 public kindergarten teacher and 1 employer-supported child care center teacher in Gyeongnam. The participants of this study were 6 teachers of public kindergartens, private kindergartens, public daycare centers, and employer-supported child care centers located in Gyeongnam. The study participants were teachers who used digital devices in the early childhood education field. Table 1 shows the general background of the study participants.

Table 1. Participant's General Background

Participant	Age	Teacher Career	Work Type	Current Class	Graduation
A teacher	29	6 years	Public daycare center	5 years old class	University graduation
B teacher	27	5 years	Employer-supported child care center	4 years old class	University graduation
C teacher	26	3 years	Public kindergarten	3 years old class	University graduation
D teacher	30	4 years	Public kindergarten	3 years old class	University graduation
E teacher	28	5 years	Private kindergarten	3 years old class	College graduation
F teacher	26	3 years	Private kindergarten	3 years old class	University graduation

2.2 Procedure and Data Collection

A preliminary interview was conducted to conduct this study. The preliminary interview was conducted with 1 teacher at a public kindergarten and 1 teacher at a employer-supported child care center in Gyeongnam. Preliminary interview participants were teachers using digital devices. Preliminary interviews were held once each in November 2020.

This interview reflected the results of the preliminary interview. It was conducted from November to December 2020. The study participants were 6 teachers using digital devices. The interview was conducted semi-structured. Questions about the use of digital devices and open interviews were conducted. Each of the study participants was interviewed 2-3 times. Interviews were collected until saturation was reached. Individual interviews were mainly used as the data collection method. In addition, the study participants were provided with examples of using digital devices and analyzed.

2.3 Data Analysis

The purpose of this study was to investigate the experience of applying and using digital devices of early childhood teachers, respectively. Therefore, the analysis was focused on the early childhood teachers' experiences of applying digital devices and using observations. Classification, first coding, and secondary coding were performed.

Through this process, 'easy and simple use', 'using existing familiar apps', 'providing healing to teachers', and 'improving the utilization of spare time' were derived as early childhood teachers' experience of applying digital devices.

Also, 'Easy use of observation records', 'Use together in various ways', 'Use for parent counseling', 'Use appropriate for observation of revised Nuri Curriculum' through early childhood teacher's experience of observing digital devices ' was derived.

3. RESULTS

3.1 Experiences of applying digital devices

3.1.1 Easy and Simple Use

The study participants' teachers held the view that using digital devices was easier than expected. Participants said that digital devices were not only introduced in the educational field, but became common in everyday life. Teachers said that digital devices can be used in the educational field just as they are used naturally in everyday life. The study participants' teachers were saying that digital devices are easy and simple devices that they are familiar with and use on a daily basis. It was noted that it was simple to use, that it could be used without being taught by other teachers, and that it had the advantages of being able to continue using it without losing it.

> Digital devices are not difficult. I'm using the iPhone and iPad I'm currently using
>
> (December 11th, 2020, Individual interview with Teacher B)

> Smart devices are used every day. So it's familiar and comfortable. It is not necessary to learn how to use it from a fellow teacher.
>
> (December 4th, 2020, Individual interview with Teacher C)

> Notebooks and memo papers are very difficult to find where they are after writing and are often lost. However, tablet PC is easy to find.
>
> (December 14th, 2020, Individual interview with Teacher E)

The study participants' teachers were aware of the wide and diverse range of digital devices. When using digital devices, it was not just a smartphone, a smart pad, or a smart TV. Teachers were able to use all available devices in an easy and fun way by linking them. Teachers were using both online and offline connection methods. It was used simply and efficiently by connecting wirelessly such as Bluetooth. Some study participants were also checking the play situation and context of children later by using the recording function of the smart watch.

> I use iPhone, iPad and MacBook together.
>
> (December 2nd, 2020, Individual interview with Teacher A)

It can also be used by connecting multiple digital devices via Bluetooth. You can use it by mirroring it on your TV. It's great to see photos taken on your smartphone or tablet right on the big screen.

(December 3rd, 2020, Individual interview with Teacher D)

It is good to use the Galaxy Pad by connecting it to the TV in the kindergarten classroom. It's too easy. Also the kids have fun.

(December 3rd, 2020, Individual interview with Teacher F)

I think there are different types. You can connect everything from watches to cell phones, pads, computers and TVs. The smartwatch doesn't seem to have other functions, but the recording function is surprisingly convenient. Taking pictures of children's play with a pad and recording them with a smart watch makes it easier to remember what the context was later. It's hard to take a video every time.

(December 4th, 2020,. Individual interview with Teacher C)

3.1.2 Using Existing Familiar Apps

The study participants' teachers were paying attention to the fact that digital devices have already entered our daily lives. For the teachers of the study participants, digital devices were a familiar medium, rather than having to learn how to use them in the classroom. Teachers were using the apps they were using before applying them to the classroom. Digital devices have a limitation in that they have a small capacity. However, he said that using an online storage space such as OneDrive has the advantage of being able to use multiple digital devices at the same time.

There is no need for special apps to be used in daycare center. When I use a tablet PC, I run out of space. In that case, I can save it to OneDrive app. I can search for materials anywhere there is only internet.

(December 7th, 2020, Individual interview with Teacher B)

It doesn't have to be difficult just because it's a digital device. Because I can use what I used. Everyone uses a smartphone these days. That's where it starts. Whether it's Android or Apple, I can use whatever is convenient for me. Apple is a little more comfortable, but I think Android is fine, too.

(December 3rd, 2020, Individual interview with Teacher D)

The study participants' teachers were using the app they had previously used. The teachers said that PowerPoint is a program that is used a lot in the field, but it can be easily modified with a tablet PC. It was said that something a little complicated can be used with a laptop or computer. The teachers of the study participants said that they found the convenience of use and shortened the time by using the good note app, a note-taking app. They said that they actively use digital devices by using the existing familiar apps. It was also found that teachers who are familiar with digital devices do not necessarily need relevant education.

I use the Goodnote app often. It's a writing app I have been using since the beginning, but it's easy for me to write. There is no need to use a new app here too, and it is convenient to use the Goodnote app.

(December 2nd, 2020, Individual interview with Teacher A)

A simple PPT can be edited. It is also possible to read it with an office app. It's an app I have been using since the beginning, so it's convenient.

(December 17th, 2020, Individual interview with Teacher F)

3.1.3 Providing Healing to Teachers

The results showed that the use of digital media devices provided the study participants with peace of mind. Teachers are human too, so there are times when it is difficult to work. At that time, the teacher said that he could be comforted by organizing the events that occurred while using the tablet PC. He said that he could understand the opinions of parents who were in a conflict situation when he regained his composure. Some study participants also reported that there were times when the teacher drew pictures for the young children on the tablet and colored them while also changing their mood.

> There are times when my heart is hard when I am with young children. As I continued to write the observation log on the tablet, I understood the situation at that time and my mind was organized. As I write about my upset feelings, my stress seems to be relieved as well.
>
> (November 23th, 2020, Individual interview with Teacher D)

> There is a drawing function on the tablet PC. There are times when I hum while drawing and coloring pictures for the young children.
>
> (December 3rd, 2020, Individual interview with Teacher E)

When the teachers of the study participants lost confidence, there were times when they used tablet PC as a way to recover it. It wasn't just that using a tablet PC made me feel better. There were times when the mood improved again while checking the materials that the study participant's teacher had been active in. There are times when teachers feel down when they live with children. Then, there were times when the teacher felt better after sharing the activity while operating the tablet PC with the young children. On the other hand, even when the teacher had good memories with the young children, he felt that his mind was healed by using the tablet PC to record records.

> There are times when I feel good when I look at these records when I lose my confidence. I think I'll have to work hard again.
>
> (December 7th, 2020, Individual interview with Teacher C)

> If I am working with young children, my concentration and tension sometimes drop. When I use the tablet PC with the young children to find and draw pictures, I also enjoy it, so there are times when the tension rises again.
>
> (December 3rd, 2020, Individual interview with Teacher E)

> The young children's reactions to the activities that day are so good. I don't think I prepared much. So I wanted to remember that feeling, so I took all the pictures and left a note there. It made me feel better after showing it to the other class teachers.
>
> (December 3rd, 2020, Individual interview with Teacher F)

3.1.4 Improving the Utilization of Spare Time

Study participants were helped to utilize their spare time while using digital devices. The tablet PC is small and light, so it is good to place it near the person, and it is easy to use because it can be operated simply. The study participants' teachers said that it was convenient because they wrote down what they had to record on a tablet PC during the day's work, and only needed to find the tablet PC when they needed to find the records later. Reducing the typing time is also a big advantage of using a tablet PC. It is said that the work time is greatly reduced by automatically converting text in pictures or drawings into text.

Capturing home correspondence and converting it to text saves a lot of typing time. I spend lots of time typing uselessly, but it's nice to be able to save it.

(December 3rd, 2020, Individual interview with Teacher A)

Simply jot down what I need to write down on my tablet PC during the day. Then I can quickly remember what to do later.

(December 7th, 2020, Individual interview with Teacher B)

The study participants' teachers said that they conveniently use tablet PCs during teacher meetings. It can be difficult to use a computer or laptop every time, and it is inconvenient to take notes during a meeting and write the meeting minutes on the computer again. It is said that using a tablet PC during a meeting has the advantage of being able to finish writing the minutes during the meeting and sharing the contents among teachers. It also reduces editing time for photos and documents, and above all, it has the advantage of reducing printing time by connecting a tablet PC to a printer via Bluetooth.

It is also convenient to record during teacher meetings. I had to type the notes in my notebook back into the computer after the meeting. If I write it down on a tablet PC, it is convenient to share it with teachers right away. It saves time to write the minutes. It is nice to be able to express the minutes of the meeting in various colors.

(December 3rd, 2020, Individual interview with Teacher A)

In the past, teachers would download pictures from the Internet and print them out. Now I use a table PC to find a picture with my child and print it out. The tablet PC and printer are connected via Bluetooth. The young children liked the pictures they found themselves much more than the pictures I found.

(December 17th, 2020, Individual Interview with teacher F)

3.2 Experiences of Observing Using Digital Devices

3.2.1 Easy Use of Observation Records

The study participants' teachers were taking advantage of the fact that digital devices could facilitate the recording of observations. They found that digital devices made it very easy to keep an observation log. In particular, It was fascinated by the fact that photography and writing could be done together. They said that participants' teacher could take pictures with digital devices and use the app to take pictures and write at the same time. It was said that using a digital device could make it easier and faster to keep an observation log. It was also said that it was easy to make a checklist. There was no need to do multiple sheets with paper. They said that it was convenient to use and store because it was convenient to use and store the checklist with only one tablet PC.

It is very easy to write an observation journal. I like to write photos. I take pictures of young children playing. It would be nice to color the letters and write them down. So I spend less time writing observation journals.

(December 11th, 2020, Individual interview with teacher B)

Using a tablet makes it easy to observe the checklist. I had a child who lacked basic lifestyle habits. However, when I marked the checklist and observed it, it looked objective.

(December 3rd, 2020, Individual interview with teacher F)

The study participants said that it was easy to observe using digital devices in problem situations. He said that by recording and observing children's problem situations for several days in a row, it is possible to more objectively examine how to deal with them. Based on the observation records, it is also possible to explain the developmental characteristics of young children to fellow teachers. Teachers thought that it would also be helpful for children to continue attending kindergarten next year.

It's good for sequentially looking at problem situations. When I take pictures and take simple notes, I get to know the child's changing process. Based on this, I was able to plan how I would like to apply.

(December 3rd, 2020, Individual interview with teacher E)

I can show your observation records to other teachers. How this child is changing. If this kid keeps going to this kindergarten next year, the teacher will be good to explain. Then, the teacher will also be of great help in understanding this child.

(December 3rd, 2020, Individual interview with teacher F)

3.2.2 Use Together in various ways

The study participants' teachers found that they can support and expand young children's play by using digital devices in various ways in the field. They also found that playing video has a positive side. It was helpful to watch videos related to the play. It was also possible for the teacher and the young children to plan and produce a video together out of curiosity about the video they watched together. Through this, it was possible to support children to naturally have interest and curiosity.

I can also edit videos on your tablet PC. I made a corona warning song with the kids and made a music video. When young children talk about health or safety, it is not fun, but I planned it with the young children and made a campaign song. The young children also decided on a filming location, how many people would stand and sing, and so young children and I filmed together. I do the video editing.

(December 17th, 2020, Individual interview with Teacher A)

I don't think it's necessary to have a bad view of what children watch on Youtube. I think it's better not to watch it only for fun, and to find a video that is helpful for play or activity and watch it together.

(December 7th, 2020, Individual interview with Teacher B)

The study participants' teachers were using various functions of the tablet PC. When teachers and young children explored our neighborhood, photos or stories were not enough. Using the Road View feature, I experienced a richer interaction between the teacher and the child. Even when children were drawing animals, digital devices could expand their drawing. the participant was able to find images of how animals move together and make the representation more concrete.

Young children find it difficult to draw animals. They want to draw a rabbit face, but they don't know how to express the front and back paws. The part that young children are curious about and have difficulty with is the rabbit running.

(December 3rd, 2020, Individual interview with Teacher A)

Young children find it difficult to draw animals. Young children can draw rabbit faces, but they don't know how to express their front and back paws. The part that young children are curious about and have difficulty with is the rabbit running. If I find the rabbit running on the tablet pc and show it, the young children will be more focused.

(December 3rd, 2020, Individual interview with Teacher A)

When playing with the theme of our neighborhood, I used the Road View function. The young children were much more interested in finding every corner of the neighborhood with Road View. The young children were active in participating, saying, "There was a store like this in front of our house."

(December 11th, 2020, Individual interview with Teacher B)

3.2.3 Use for Parent Counseling

In early childhood education institutions, teachers often meet with parents. In addition to the regular counseling twice a year, the counseling provided by the teacher is also improvised when the parents want it. At this time, it was said that the satisfaction of parents was high when the teacher conducted counseling based on the observation record of each young children using a digital device. The participated teacher also said that it has the advantage of being able to easily find the desired material and show it to parents.

There are times when parental counseling is suddenly necessary. It was when my parents didn't tell me in advance. In that case, I have to find the material and bring it to parent. It is convenient to show to parent what is on the tablet PC.

(December 3rd, 2020, Individual interview with Teacher D)

Showing pictures of play to parents and guiding them about what play they played saves time and increases satisfaction with counseling. By showing the tablet screen, it seems to be conveyed much better than verbally.

(December 14th, 2020, Individual interview with Teacher E)

The study participants' teachers said that it is good to provide observation records using digital devices when counseling children with problem situations or problem behaviors occurring in the classroom. They said it was difficult to explain in words when a fight between children occurred in the classroom. At that time, they said that if they took pictures and explained the situation, the parents felt that they were objective. The teacher said that the situation was easy to remember and easy to explain. It is said that the use of digital devices is a great help in counseling children with problem behaviors. It was said that by intensively observing young children with problem behavior every day and leaving a record on the tablet PC, a more suitable instructional method could be found.

Fights often occur between children. I like it because it is much more objective to take a picture and guide it rather than explaining it to parents in words or writing. I can take a picture of that moment, look at the picture, and remember the situation better at that time, so I can tell parent.

(December 7th, 2020, Individual interview with Teacher C)

I guided a child with problem behavior, and by writing an observation journal for this child on a tablet PC, I was able to immediately see how things were getting better or worse. Which teaching method was effective when I used it.

(December 17th, 2020, Individual interview with Teacher D)

3.2.4   Use Appropriate for Observation of revised Nuri Curriculum

In the 2019 revised Nuri curriculum, observation and recording were more emphasized compared to the previous curriculum. The teachers who participated in the study said that observation and recording using digital devices was helpful in practicing the revised Nuri curriculum in the field. It is said that tablet PC is suitable for play support in accordance with the revised Nuri curriculum, and play support materials can be provided according to the situation because it is easy to grasp the play flow. Due to the nature of the revised Nuri curriculum, a lot of improvisational play occurs, and the participants' teacher said that by using a tablet

PC, it is possible to record the flow of play. Afterwards, it was said that it was easy to support young children to play. The teachers who participated in the study presented the ways to use digital devices at a peer teacher research group, and they also elicited responses from fellow teachers that digital devices were appropriate for the revised Nuri curriculum.

> Taking pictures and leaving notes on the tablet PC is a great way to see the flow of play. Anyone other than me can see the flow of the game. I can provide young children with appropriate play support materials.
>
> (December 17th, 2020, Individual interview with Teacher A)

> Because the play-centered curriculum is operated, a lot of improvisational play takes place. It is easy to record things like that using tablet PC. It is helpful if I leave a tablet PC next to I and take a picture in case I need to record it.
>
> (December 4th, 2020, Individual interview with Teacher C)

> I have a research group with other young children teachers. There, I made an announcement about my use of digital devices. There were many opinions that it was good because I could see how the play was connected at once because I took pictures and wrote simple notes on the tablet PC every day.
>
> (December 17th, 2020, Individual interview with Teacher D)

As outdoor play is emphasized in the 2019 revised Nuri curriculum, the study participants' teachers used digital devices for outdoor play. The study participants' teachers said that they often ponder how to support play when playing outside. Teachers said that they could use tablet PCs to help young children find the names of trees they meet in outdoor play. In addition, it was found that suitable outdoor play can be guided according to the situation.

> There are many times when I don't know what to do when playing outside, but since I have a tablet, I was able to find and introduce play that can be expanded as play materials at that time. I think it's a medium that can definitely support play, even if there are times when I don't know what I am doing when I play outside.
>
> (December 7th, 2020, Individual interview with Teacher C)

> In the revised Nuri curriculum, outdoor play was emphasized. It's also great for outdoor play. I should have said I don't know if I asked about the name of the tree, but I can find out what kind of tree it is on the spot and tell young children. When I play outside, I carry my tablet with me, so it's like carrying an encyclopedia.
>
> (December 3rd, 2020, Individual interview with Teacher D)

4. DISCUSSION

As a result of this study, first, 'easy and simple use', 'using existing familiar apps', 'providing healing to teachers', and 'improving the utilization of spare time' were presented as early childhood teachers' experience of applying digital devices. This is consistent with the study that pre-service teachers are very familiar with the use of digital devices [11]. In the past, the use of smartphones in education was thought to be a hindrance, but the result is contrary to this study. In early childhood education, there is a study result that teachers' dependence on smartphones is negative [12-13]. The difference from this study is that in this study, teachers are familiar with digital devices. The research result means that familiar digital devices have a positive effect when used in education. It means that if a teacher is too immersed in digital devices, it can hinder education, but if digital devices are used educationally, there can be positive effects.

In this study, the results showed that teachers used digital devices because they were easy. It is natural for teachers to use teaching media only when it is easy to use. There is a study that it is good to share experiences

when using digital devices such as computers [14]. In order for teachers to use digital devices, it would be better to match them with their own experience of using them. This will make it easier for teachers to continue using it.

Second, 'Easy use of observation records', 'Use together in various ways', 'Use for parent counseling', 'Use appropriate for observation of revised Nuri Curriculum' through early childhood teacher's experience of observing digital devices ' was presented. This means that digital devices facilitate the observation of young children. It seems contrary to the research results that warn of the dangers caused by excessive use of smart devices [15-16].

However, the results of this study are different from being over-immersed in digital devices and being interrupted by other activities. The advantages of teachers using digital devices well in the educational field appeared. Research results have been reported that use smart devices for elementary school students to induce positive changes in children with school violence or emotional instability [17-18]. It means that the proper use of digital devices can lead to positive changes in the educational field.

5. CONCLUSION

As a conclusion of this study, first, it is easy for young children's teachers to apply digital devices to the field. Digital devices are widely used in real life. Young children's teachers will be able to practice high-quality early childhood education if they actively use digital devices to improve the early childhood education field.

Second, if young children's teachers use digital devices, they can make a wide range of observations, enabling high-quality early childhood education practices. The importance of individual observation of young children continues to be emphasized. Even if it is not the 2019 revised Nuri curriculum, it is necessary to support based on the understanding of individual young children. Through this, the teacher will be able to understand the interest of young children and have good interaction.

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