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Research Paper

# The Role of Multimedia in Concept Learning from the Parents' Perspective

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**ABSTRACT**
During the period of the pandemic in particular, children who are not able to leave their homes have been spending more time using multimedia devices. This research was carried out in order to determine the role of multimedia in preschool children's concept learning, as expressed by their parents. For this purpose, the research was designed qualitatively, and the case study model was used. The study's working group consisted of 21 parents living in seven different geographical regions of Turkey. The parents were determined using the maximum variation sampling method. A semi-structured interview form was used as a data collection tool in the research. The content analysis technique was used to analyze the data obtained in the research. As a result of the research, it was determined that the multimedia devices that children spent most time on were televisions, smartphones and tablets. Children preferred to use multimedia mostly for fun and games. The vast majority of parents thought that adult supervision was needed when children spent time using multimedia devices. In the research, the benefit of multimedia use that the parents most emphasized was concept learning. According to the parents, their children learned many basic concepts through accessing multimedia content. Parents also expressed their opinion that the multimedia content and apps contributing most to the children's concept learning were animated cartoons, YouTube and digital games. As a result of the research, it can be said that technological devices that offer children multimedia content positively affect children's learning of basic concepts.

## INTRODUCTION

The preschool period is a time of rapid development in all areas of an individual's life (Bozkurt Yükçü, İzoğlu Tok & Bencik Kangal, 2019; Oruç, Tecim & Özyürek, 2011; Sapsağlam, 2018; Türkkent, 2012; Uzunboylu & Gündoğdu, 2018). This period is thus critical for the individual's development (Aydoğan, 2019; Özkılıç Kabul, 2019; Özyürek, 2018; Kol, 2014). Cognition is one of the areas which develops most rapidly during this period. Progress made in cognitive development has the power to positively affect all other areas of development (Ergül, 2007). Concept learning is an important dimension of cognitive development; in fact it forms the basis of cognitive development (Avşalak, 2008; Ergül, 2007; Hayran, 2010).

Concepts can be defined as those mental tools required for the skill of thinking. They provide individuals with an understanding of the physical and social world in which we live, as well as enabling meaningful communication with the environment (Çamlıbel Çakmak, 2012; Hayran, 2010; Senemoğlu, 2018). Groups of concepts emerge as a result of considering people, objects, events, and thoughts according to their similar characteristics (Kaptan, 1998; Senemoğlu, 2018). Concepts are also the most basic units of the learning process (Coşkun & Köroğlu, 2016). Individuals begin to learn concepts from the moment they are born and use these concepts in their daily lives (Manocha & Narang, 2004).

Children start learning concepts at around 12-24 months of age and rapid development is observed in children's concept-forming skills from their 48th month (Çamlıbel Çakmak, 2018; Üstün & Akman, 2003). Children therefore learn the basic concepts in the pre-school period (Bütün Ayhan & Aral, 2007; Çamlıbel Çakmak, 2012; Kol, 2014; Kurt, 2014). The concepts children learn in the preschool period support not only their cognitive development but affect all the children's developmental areas in a positive way (Ergül, 2007). In addition, the concepts that children learn before they start primary school are the basis for their learning during their time at school (Uğurtay Üstünel, 2007). Children's concept learning should thus be supported before they start their formal education (Konca, 2014).

While children are learning concepts in the preschool period, the type of communication they establish with their physical and social environment becomes more prominent (Ulus, 2005). In this context, how children relate to technological devices plays an important role in the concept learning process, especially in the 21st century where technology is dominant. According to Şimşek İşliyen and İşliyen (2018), children's communication with technological devices begins before they are born. Children may, for example, listen to lullabies played on their mothers' smartphones while they are still in the womb. The relationship between children and technological devices continues to develop from the moment they enter the world (Şimşek İşliyen & İşliyen, 2018). Preschool

children are introduced to technological devices at a very young age (Ateş & Durmuşoğlu Saltalı, 2019; Emir, 2011; Ergüney, 2017; Holloway, Green & Stevenson, 2015; İnci & Kandır; 2017; Konca, 2014; Özkılıç Kabul, 2019; Özyürek, 2018).

Today, with the widespread usage of technology and the internet, the time individuals spend with technological devices such as computers, tablets or smartphones has increased (Özkan, 2017). The frequent use of these devices by parents has made it easier for the children to access them (Kılıçkaya, Yıldırım, Çelik & Uyanık Balat, 2018). In fact, smartphones, which they are usually within easy reach, have now become toys for children (Park & Park, 2014). The age at which technological devices are first used (Gündoğdu et al., 2016; Özkan, 2017; Preradović, Unić & Boras, 2014; Rideout & Hamel, 2006; Yengil, Döner Güner & Topakkaya, 2019), and the age when internet usage begins (Kenanoğlu & Kahyaoğlu, 2011), have decreased to the preschool years. In the preschool period, television is one of the most common technological devices in children's daily lives (Yengil, Döner Güner & Topakkaya, 2019). Television comes into children's lives at an early age (Rideout & Hamel, 2006). They become active viewers from the age of three (Gündüz Kalan, 2010). Television is even seen today by some families as an extra "caregiver" (Akıncı, 2013; Dorey et al., 2009; Gündüz Kalan, 2010). Traditional fairy tales and stories have been replaced by animated cartoons that are broadcast on television (Aktaş, 2019; Canbekli, 2019).

One of the common features of technological devices such as computers, smartphones, tablets or televisions is that they create environments that appeal to more than one sensory organ. According to Akın (2015), these environments, taken together constitute the world of multimedia. In other worlds multimedia is the sum of those environments which stimulate an individual's sense of sight, hearing and touch, in which information is presented in more than one specific medium (Yalçınkaya, 2017). Multimedia as a whole thus presents information to individuals informs which they can both see and hear (Coşkun, 2015).

Multimedia is widely used in educational technology. In combination with other methods, the usage of multimedia in the teaching process contributes positively to students ' learning (Nusir, Alsmadi, Al-Kabi & Sharadgah 2013). Learning materials prepared using multimedia can be presented in various forms, whether visual or verbal (Mayer, 1999). The main elements of multimedia are text, video, audio, graphics and animation (Shilpa & Sunita, 2013). Multimedia that uses elements such as sounds, images and videos provides more realistic learning environments for children (Jones & Liu, 1997). Learning media enriched with these or other elements, such as animation, positively affects the concretization and learning of knowledge (R. Bulut, 2018), and also makes learning environments more enjoyable for the learners (R. Bulut, 2018; Yıldız, 2009). It can be said that multimedia, which affects the learning process positively, also has a positive influence on concept learning. According to Beydoğan and Hayran (2015), the most effective learning environments for concept learning are multiple learning environments. Multimedia contributes positively to students' ability to concretize and reinforce concepts by visualizing them (Çoruk, 2015). Given the difficulties that preschool children experience in concretizing and interpreting concepts, a range of visual, auditory and other elements should be used (Gülmez, 2019).

In the current age, preschool children are a generation growing up with devices and platforms such as computers, the internet, smartphones, social media apps, video games and YouTube (Preradović et al., 2014). These children thus frequently encounter multiple different environments through the technological devices that they use. The main purpose of this study was to determine the role played in concept learning by the multimedia that preschool children most frequently encounter. When the body of the literature is examined, studies can be found on the role of multimedia (Çakıroğlu & Taşkın, 2016; Kaya, 2005), computer-aided education (Alabay, 2006; Çeliköz & Kol, 2016; Demir & Kabadayı, 2008; Kacar, 2007), cartoons (Bayır &Günşen, 2017; Coşkun & Köroğlu, 2016; Çıkrıkçı, 1999; Koçak, 2016), computer games (Çankaya, 2012; Çoruh, 2004), and YouTube (Gülmez, 2019) in pre-school children's concept learning. When Çamlıbel Çakmak (2018) examined postgraduate theses on concepts in Turkey's preschool education between 1990 and 2016, she found that quantitative research methods were used in the vast majority of the studies, while qualitative research methods were used in only 5% of the studies. Similarly, in Öngöz, Aydın and Aksoy's (2016) study examining research conducted on multimedia in the field of Educational Sciences in Turkey, it was found that the proportion of qualitative studies was quite low. It is therefore expected that this qualitatively designed study will also contribute to the literature on this topic.

The most valid information about the relationship of preschool children with multimedia and how they use these environments is obtained from their parents, who are their first educators. Therefore, this study consulted with parents to find out their thoughts and opinions. There are many studies in the literature about the opinions of parents of preschool children. These studies have tried to determine the situation of preschool children's use of technological devices that offer them multimedia, in line with the opinions of their parents (Ateş & Durmuşoğlu Saltalı, 2019; Gündoğdu et al., 2016; Kılıçkaya et al., 2018; Kılınç, 2015; Kızıltaş & Ertör, 2018; Konca, 2014; Kulakçı Altıntaş, 2018; Özkan, 2017; Özyürek, 2018; Sezgin & Tonguç, 2016; Topan & Kuzlu Ayyıldız, 2018; Yılmaz Genç & Fidan, 2017). This study focuses on the role of the multimedia that preschool children frequently encounter and use in their daily lives in the process of concept learning and their parents' views on this were sought. This aspect of the study is also considered valuable in terms of how it contributes to the literature.

## METHOD

### Research Design

Since this study aimed to determine parents' views on the role of multimedia in preschool children's concept learning, it was designed as a case study, which is one of the qualitative research designs. A case study is a research method in which an event or phenomenon that cannot be controlled by the researcher is examined in depth. It is a research method seeking an answer to a 'how' question

(Yıldırım & Şimşek, 2018). In this direction, the attempt was made to find out how multimedia plays a role in the concept learning of preschool children, and the parents' thoughts and opinions on this topic.

**Study Group**

The study group consisted of 21 parents living in seven different geographical regions of Turkey who had preschool children (36-60 months). The parents whose opinions were sought were determined using the maximum variation sampling method, which is one of the purposeful sampling methods. This method that provides variation among individuals by selecting individuals with different characteristics (Glesne, 2012). In this study, the variation among the parents who made up the study group was achieved in terms of the geographical region in which the parents lived and the level of education that the parents had. In this regard, the study group consisted of parents who had different level of education (Elementary School, Secondary School, High School, Bachelor's degree, Postgraduate) and who were living in seven different geographical regions of Turkey (Black Sea, Marmara, Aegean, Mediterranean, South-eastern Anatolia, Eastern Anatolia and Central Anatolia). Within the scope of the research, the demographic information of the parents regarding the variables of gender, geographical region, education level, number of children, gender of the preschool child and age of their child are given in Table 1.

**Table 1.** Demographic information of parents

| Variable | Group | Frequency |
|---|---|---|
| **Gender** | Male | 9 |
| | Female | 12 |
| **Number of Children** | 1 | 7 |
| | 2 | 8 |
| | 3 | 6 |
| **Geographical region** | Mediterranean | 3 |
| | Aegean | 3 |
| | Black Sea | 3 |
| | Marmara | 3 |
| | Central Anatolia | 3 |
| | Eastern Anatolia | 3 |
| | South-eastern Anatolia | 3 |
| **Education Level** | Elementary school | 2 |
| | Secondary school | 4 |
| | High school | 3 |
| | Bachelor's degree | 10 |
| | Postgraduate | 2 |
| **Gender of the Child** | Male | 9 |
| | Female | 12 |
| **Age of the Child** | 36-48 months | 12 |
| | 48-60 months | 9 |

**Data Collection Tool**

A semi-structured interview form was developed in the study to determine the parents' views about the role of multimedia in preschool children's concept learning. A draft interview form consisting of open-ended questions was initially prepared. In order to determine the content validity of the draft interview form, the opinions of five experts from the preschool teaching departments of various universities were consulted. After the expert opinions had been received, the necessary corrections were made and pretesting stage of the draft interview form was begun. At this stage, a pretesting implementation was performed with three parents in order to test the comprehensibility of the questions in the draft interview form. The parents stated that the questions in the draft form were clear and understandable. The interview form, which was finalized after the pretesting implementation, consisted of 10 questions. An application to conduct the study was then submitted to the Ethics Committee of Kırşehir Ahi Evran University. After receiving legal permission from the committee (decree dated 27.08.2020 and numbered 2020/3), the study was begun.

**Data Collection**

The semi-structured interviews were carried out through phone calls between the researcher and the parents. Notes were taken to record the data during the interview. A voice recorder was also used in order to avoid data loss during the note-taking. Before starting the interview, permission to use the voice recorder was obtained from the parents.

**Data Analysis**

For the data analysis, the content analysis method, which is widely used in qualitative research, was used. In accordance with this method, the interviews recorded on the voice recorder were first transcribed and converted into written form in a computer environment. Codes were created from this written form of the interview data, and themes were generated by bringing similar codes together. A frequency value was calculated for each code determined within the scope of the research. The interviews with parents were also interpreted on the basis of these determined codes and themes. In addition, the data analysis process was supported by using direct quotations.

In order to determine the reliability of the content analysis process, the data obtained from the interview form was analyzed by another researcher and the percentage of concordance between both researchers was calculated. In calculating the concordance percentage, the formula (Number of consensus/Consensus + Number of dissensus) proposed by Miles and Huberman (1994) was used. As a result of the calculation using this formula, the concordance percentage between both researchers was determined as .91. This concordance percentage showed that the content analysis conducted within the scope of the research was reliable.

## FINDINGS

### Multimedia Devices Which Children Used

The frequency distribution of the multimedia devices which children spent their time using is given in Table2.

**Table 2.** Frequency distribution of the multimedia devices which children used

| Theme | Code | F |
|---|---|---|
| **Multimedia device used** | Television | 14 |
| | Smartphone | 14 |
| | Tablet | 7 |

When Table 2 is examined, it is seen that, according to the parents, the media devices on which the children spent the most time were television and smartphones. When the parents' views were examined, it was determined that they considered spending time on these was normal for all children in today's world. Regarding this situation, one parent (P21) responded that, *"Ours also spends time on television and the smartphone like every child".* Again, Table 2 shows that another device on which the children spent time was the tablet. This finding shows that some of the children spent time with tablets in addition to the television and smartphones. Regarding this situation, one parent (P6) stated that, *"My child uses all three media devices: the television, smartphone and tablet".*

### Time Children Spent in Multimedia Environments

The frequency distribution of the time that children spent on multimedia content is given in Table 3.

**Table 3.** The frequency distribution of the time that children spent on multimedia content

| Theme | Code | F |
|---|---|---|
| **Duration of the time spent** | Less than half an hour | 6 |
| | 30 minutes - 1 hour | 5 |
| | 1 hour - 2 hours | 5 |
| | 2 hours - 3 hours | 4 |
| | 3 hours and more | 1 |

When Table 3 is examined, it seems that some of the children spent less time engaging with multimedia content, while others spent more time. When the views of the parents were analyzed, it was determined that the parents of those children who spent less time on multimedia restricted their usage and set time limits. One parent (P8) expressed their opinion on this situation thus: *"I check the time and I say that whatever you are watching or whatever activity you are doing, the time period [to do it] is over. Look, after what you're watching is over, we're done".* The parents of children who spent more time in multimedia environments associated this situation with the COVID-19 pandemic. For example, one parent (P3) stated that, *"As a mother, I limited my first two children's time using multimedia devices more, but at that time, there was an environment where the children could play outside. But with my third child, putting a time limit on media use is very difficult. We are at home and we can go to only certain places due to the pandemic. I can't limit it. Normally I am a restrictive mother, but now I have had to increase one hour of use to four hours".* Another parent (P16) said, *"He started spending more time on it because of the pandemic. His media use is around two hours a day. Unfortunately, I can't limit it to anymore".*

**Reasons Why the Children Preferred Multimedia Content**

The frequency distribution regarding the reasons why the children preferred multimedia content is given in Table 4.

**Table 4.** Frequency distribution of the reasons why the children preferred multimedia content

| Theme | Code | F |
|---|---|---|
| **Reasons for preference** | Fun | 13 |
| | Playing games | 9 |
| | Training/Education | 5 |
| | Communication | 1 |

When Table 4 is examined, the main reason children preferred multimedia content was for fun. When the parents' views were analyzed, it was determined that most of the parents had the same opinion that the media content entertained the children and therefore the children preferred these environments. One of the parents (P21) said, *"Those fast-changing colorful images are pleasing to the children. Therefore, they are having fun".* Another parent (P15) expressed this situation as, *"There are children dancing and singing and having fun on multimedia; my child watches them".* Some of the parents, consulted as to their opinions, stated that their children preferred multimedia devices for playing games due to their young ages. For example, one of the parents (P8) stated that, *"After all, this age group is at the age for playing. In other words, the only thing they need to do is playing and having fun from the games they play".* In addition, some parents stated that their children preferred multimedia because of their interest in learning new things. As an example of this, one of the parents (P6) said that, *"There are some channels that teach Spanish, German, English, Russian in a simple way. My child spends time on multimedia for learning those kinds of things. She's spending time in there like this not because of our guidance, but because of her own curiosity".*

**Parents' and Children's Feelings about Multimedia Devices/Content**

The frequency distribution of the parents' and children's feelings about multimedia is given in Table 5.

**Table 5.** Frequency distribution regarding the feelings of parents and children about multimedia

| Theme | Code | f | |
|---|---|---|---|
| | | Parents | Children |
| **Feeling** | Pleasure | 11 | 19 |
| | Displeasure | 10 | 2 |

When Table 5 is examined, it is seen that there was a difference between the parents and children's feelings about multimedia devices/content. When the parents' views were analyzed, the majority of them stated that their children liked multimedia. According to the parents, their children enjoyed spending time in these environments. Regarding this situation, one of the parents (P20) said, *"He likes it so much. If I let him use multimedia, he uses it forever".* When the parents' own feelings about multimedia environments were examined, it was determined that some parents liked them, while some of them did not like. Some of the parents who liked multimedia environments stated that the reason why they liked multimedia was that their children had fun with it. For example, one parent (P3) stated that, *"When my child is happy, I am too."* Another reason why parents were satisfied with multimedia environments was that they could take the time for themselves when their children spent time on multimedia devices. Regarding this situation, one of the parents (P12) stated that, *"When the boy takes the smartphone in his hands, as parents we can rest for at least 30 minutes."* Those parents who were not satisfied with multimedia environments wanted their children to spend more time in real environments where they could engage in social relationships, rather than using technological devices. Regarding this situation, one of the parents (P15) said, *"I am not satisfied with multimedia environments. Why not? Because I want my child to communicate with people and play with other children more."*

**Need for Adult Supervision of Multimedia Devices/Content**

The frequency distribution regarding the need for adult supervision of multimedia use is given in Table 6:

**Table 6.** Frequency distribution regarding the need for adult supervision of multimedia use

| Theme | Code | F |
|---|---|---|
| **Adult supervision** | Necessary in terms of content | 16 |
| | Necessary in terms of time | 2 |
| | Necessary in terms of device usage | 2 |
| | No need for adult supervision | 2 |

When Table 6 is examined, it is seen that the majority of parents thought that adult supervision was needed when their children spent time in multimedia environments. In particular, they thought that supervision was needed because children are likely to

encounter harmful content in multimedia environments. For example, one of the parents (P9) stated that, *"Ads sometimes appear on the phone. Even if my child watches something else, she may come across harmful ads, and at this point it may be necessary to supervise her."* Another parent (P12) said, *"There is a really need to supervise them. That is to say, sometimes YouTube can suggest videos to the children according to the number of views. The videos it suggests contain harmful content for them. Therefore, parental supervision is absolutely vital."* Some of the parents added that adult supervision is needed in terms of controlling the time spent, in addition to the content watched. For example, one parent(P13) said, *"They need our supervision, in terms of content and duration. We try to choose appropriate content for their ages and we try to limit the time they spend using multimedia devices."* Again, some parents stated that their children needed support to use technological devices. For example, one parent (P8) stated that, *"Of course, like any child, my children may need my help to use technological devices."*

**Harm to Children from Multimedia Use**

The frequency distribution regarding the harm to children from multimedia use is given in Table 7.

**Table 7.** Frequency distribution of the harm to children from multimedia use

| Theme | Code | f |
|---|---|---|
| **Harms** | Imitating negative behaviors | 16 |
| | Visual disorders | 4 |
| | Concentration problems | 3 |
| | Anger problems | 3 |
| | Dependent personality | 3 |
| | Absence of perception | 3 |
| | Sleeping problems | 2 |
| | Attention deficit disorder | 2 |
| | Inaction | 1 |
| | Wasting of time | 1 |
| | Introversion | 1 |
| | Inappetence | 1 |
| | Constipation | 1 |
| | Difficulty distinguishing reality from virtuality | 1 |

When Table 7 is examined, it seems that the parents believed that multimedia use may cause various forms of harm to children. The harm most emphasized by the parents was that the children may imitate the negative behaviors they have seen on multimedia devices. When the views of the parents were examined, it was determined that the children may role-model many of the negative behaviors, such as violence and fighting, that they have encountered in multimedia environments. One of the parents (P9) stated that, *"When they see violent behaviors in cartoons and games, they try out these actions with their siblings and friends."* Another parent (P12) said, *"There are such harmful videos that I think they should be controlled by the state. When something happens that the child doesn't like, he screams, shouts, hits his friends. When he watches these things, he immediately puts it into practice. In other words, when he feels bad, he immediately starts hitting someone, and when his friend does not give him his toy, he starts shouting."* Also, some parents stated that children may develop visual disorders when they are exposed to multimedia environments too often. For example, one of the parents (P7) said, *"Setting everything else aside, even the damage which the smartphone causes to the child's eye is enough to say multimedia is harmful."* Furthermore, some of the parents stated that the multiple stimuli in multimedia environments had negative effects on children's concentration. One of the parents (P13) commented that, *"He is bombarded by stimuli from everywhere. He has trouble concentrating on one thing."*

**Benefits of Multimedia for Children**

The frequency distribution regarding the benefits of multimedia use for children is given in Table 8:

**Table 8.** Frequency distribution of benefits of multimedia use for children

| Theme | Code | f |
|---|---|---|
| **Benefit** | Concept learning | 20 |
| | Foreign language learning | 9 |
| | Verbal skills | 8 |
| | Development of intelligence | 6 |
| | Values education | 5 |
| | Social progress | 3 |
| | Personality development | 3 |
| | Religious education | 2 |
| | Learning their role in the family | 1 |

When Table 8 is examined, it is seen that almost all the parents had the opinion that multimedia use supports the children's process of concept learning. According to them, multimedia environments enable their children to understand concepts more easily by affecting more than one sense organ. With respect to this, one of the parents (P16) said, *"My child can't understand some concepts through my own teaching methods or my words, but when he watches them in multimedia environments, he catches on to them faster. I can accept that multimedia content is useful when considered from this point of view. For instance, the shapes are more colorful in multimedia. He may not understand a circle when I draw it on a sheet of paper at home, but when I show it to him on the screen, he grasps it faster because there are more options."* Some parents stated that multimedia environments contributed to their children's foreign language learning. According to these parents, their children learned the meaning and pronunciation of a number of words in foreign languages through multimedia use. For example, one of the parents (P6) stated, *"My child learned the numbers and the letters both in English and German."* Some of the parents considered that one of the benefits of multimedia use was in their children's verbal skills. According to these parents, words and sentences learned in multimedia environments influenced the children's verbal skills in their native language positively. Related to this, one of the parents (P21) said, *"So I can say that multimedia use affects my child's language development positively. My child forms the sentences and words she hears in multimedia environments and tries to use them in her own way. In fact, this situation surprises us when she says a different sentence at an unexpected moment."*

**Concepts Learned in Multimedia Environments**

The frequency distribution of the concepts the children learned from multimedia environments is given in Table 9:

**Table 9.** Frequency distribution of the concepts the children learned from multimedia environments

| Theme | Code | F |
|---|---|---|
| **Concepts learned** | Number | 17 |
| | Color | 15 |
| | Geometric figures | 8 |
| | Antonyms | 6 |
| | Location/Position-in-Space | 5 |
| | Animal | 4 |
| | Sense | 1 |
| | Earthquake | 1 |
| | Death | 1 |
| | Family | 1 |
| | Plant | 1 |
| | Transportation | 1 |
| | Fruit | 1 |

When Table 9 is analyzed, it is seen that the children had learnt many basic concepts from their multimedia use. According to the parents, the children were able to learn basic concepts such as numbers and colors before they started school. Regarding this situation, one of the parents (P5) stated that, *"Thanks to using multimedia, my child learned the colors, numbers, and then the names of animals even before he went to the school."* Another parent (P9) added that, *"My child learned the number and colors particularly well by using multimedia."* Some of the parents stated that multimedia use was also effective in learning the concepts of geometric figures, antonyms, and location/position-in-space. For instance, one of the parents (P16) stated that, *"My child learned such concepts as big/small and long/short through multimedia content".* Another parent (P18) said that, *"Although my child is so young, he learned concepts like behind/in front, above/below, on/off." When the views of the parents were examined, it was determined that one of the parents considered that multimedia use was even effective for learning abstract concepts such as "death".* This parent (P4) explained this by saying, *"My child started to realize what killing or death is. For example, he learned that a fish cannot survive outside of water."*

**Multimedia's Contribution to Concept Learning by Type**

The frequency distribution of the type of multimedia that contributes to the children's concept learning is given in Table 10:

**Table 10.** Frequency distribution of the type of multimedia contributing to concept learning

| Theme | Code | F |
|---|---|---|
| **Multimedia contributing to concept learning** | Animated cartoon | 14 |
| | YouTube | 13 |
| | Digital game | 6 |

When Table 10 is examined, it is seen that animated cartoons supported the children's concept learning the most. According to the parents, the children also used concepts that they have learnt from cartoon films in their daily lives. Regarding this situation, one parent (P20) said, *"Watching cartoons and learning a lot of concepts. Let me give you an example: when my child saw a crack in the concrete on the ground, he said, 'Mom, there may have been an earthquake here'. And then he continued, 'I think there was an earthquake here' and I asked why he thought that. He replied, 'Because when an earthquake occurs, the concrete may crack and*

*collapse.'"* According to the parents, one of the forms of multimedia that supported concept learning in their children was YouTube. The parents thought that many of the concepts that they had difficulty teaching were easier for children to learn thanks to YouTube. Regarding this situation, one parent (P4) said, *"My child uses YouTube most. Thanks to this app, he has learnt the shapes very well. For example, when we tried to teach shapes to our child, he did not want to learn from us because he was stubborn. Thanks to these educational videos on YouTube, our child learned the shapes on his own."* According to the parents, another type of multimedia that contributes to their children's concept learning is digital games. The parents believed that their children learned many concepts while playing multimedia games. For example, one parent (P14) said, *"We downloaded a game program to the smartphone. The shapes, numbers, and colors are taught in this program. For example, when he gets bored, he wants to play a game and opens that program. In this way, he learned a lot of shapes."*

## DISCUSSION, CONCLUSION and RECOMMENDATIONS

This research found that technological devices that offer multimedia content to preschool children have now become part of their lives. Television, smartphones and tablets, in particular, constitute the multimedia environments in which children now spend their time. Given today's technological conditions, this situation can be considered quite natural, because these technological devices are now very easy to access. The study conducted by Kabali et al. (2015) with parents confirms this view. In that study it was determined that most of the parents with children aged between six months and four years old had a television, smartphone and tablet in their homes. Similar findings were obtained in the studies conducted by Kulakçı Altıntaş (2018) and Topan and Kuzlu Ayyıldız (2018), and it was determined that televisions, smartphones and tablets constituted the first three technological devices which preschool children spend time using. It can thus be said that today's technological devices play a major part in children's lives from a very young age. In a study conducted by Linebarger and Walker (2005), parents stated that their children became interested in watching television for the first time when they were nine months old. In the study conducted by Gündoğdu et al. (2016), some parents stated that their children learned to use a smartphone or tablet even before they could talk.

Within the scope of the study, it was determined that the duration of time the children spent using multimedia devices varied. While this period was less than 30 minutes for some children for others it was three hours or more. Similar findings have been obtained in other studies found in the literature. In the study conducted by A. Bulut (2018), it was determined that the time children spent using technological devices varied between 30 minutes and four hours. Again, in the study conducted by Ergüney (2017), it was determined that preschool children used the internet for one to four hours. It can be said that parental attitudes play an important role in varying the duration of time children spend with technological devices. As a matter of fact, in the present study, it was determined that the parents of the children who spent less time in multimedia environments had set specific time limits for them. Another reason for the variability in the duration of time spent using multimedia devices may be associated with the amount of time the parents themselves spend in this way. The study by Carson and Jannsen (2012) also supports this view: they determined that there was a positive relationship between the time children spent in front of a screen and the time spent by their parents in front of a screen. Again, Kılıçkaya et al. (2018), it was found that there was a direct relationship between the duration of mothers' smartphone usage and the amount of time their children spent on the tablet and smartphone. In addition, in the present study, it was determined that some parents thought that the pandemic had led to an increase in the time children spent viewing multimedia content. The parents stated that their children stayed at home due to the pandemic and did not have the opportunity to play outside, and that this situation increased their time spent in multimedia environments. The study by Kızıltaş and Ertör (2018) also supports this opinion: they determined that children prefer to play games outside rather than playing games on smartphones.

The present study found that the main reason why the children preferred multimedia content was that they found it to be fun. It can be suggested that the primary cause of this situation is that multimedia content includes elements that entertain children, such as animation, images, and music. A similar finding was obtained in the study conducted by Altun (2019) and it was determined that children generally spent time on the internet for fun. In the current research, another reason why children liked multimedia content was for gaming. It is quite natural for preschool children to make choices like this as a result of their young age. Similar findings have been obtained in many studies in the literature. In the study conducted by Ateş and Durmuşoğlu Saltalı (2019), it was concluded that children used digital technologies mostly for games and entertainment. In the studies conducted by Özkan (2017), Özyürek (2018), and Yılmaz Genç and Fidan (2017), it was determined that most of the children used computer technologies for games. Again, in the study conducted by Sezgin and Tonguç (2016), it was found that most of the parents gave their mobile devices to their children so that they could play games.

The vast majority of the parents whose opinions were received as part of the present study stated that their children enjoyed spending time viewing multimedia content. Given that children used multimedia for fun and games, it was to be expected that they enjoyed spending time in these environments. A similar finding was obtained in the study by Lepicnik and Samec (2013), which most of the parents stated that their children were interested in technological devices and liked to use them. In the present study, when the opinions of the parents about this situation were examined, some parents stated that they themselves liked that their children spent time in multimedia environments. One of the most important reasons for this feeling was that when the children spend time using multimedia devices, the parents may have the opportunity to take time for themselves. The study conducted by Kabali et al. (2015) also supports this view: most of the parents stated that they gave technological devices to their children when the parents had to carry out various household tasks. Dorey et al.'s (2009) study found that parents saw one of the benefits of television as being that it kept their children busy while the parents dealt with household chores such as cooking or cleaning. In other words, parents like their children spending time in multimedia environments because multimedia devices keep the children occupied. In the study conducted by Ateş and Durmuşoğlu Saltalı (2019), it was determined that parents see digital technologies as devices which can

entertain children, and that the parents themselves guide their children in using digital technologies. Again, in the study conducted by Kızıltaş and Ertör (2018), it was determined that the parents perceived smartphones to be ideal devices to keep children engaged.

Another notable finding of the study was that the majority of parents thought that their children need adult supervision while spending time in multimedia environments. According to Park and Park (2014), children need adult supervision because children's self-control is very poor. According to Güngör (2014), preschool children's use of computers and television helps them in many ways, as long as there is adult supervision. The majority of the parents whose opinions were sought in the present study thought that such monitoring was needed, especially in terms of content. They believed that their children were likely to encounter harmful contents in multimedia environments. In the study conducted by A. Bulut (2018), parents expressed a similar opinion and stated that children were at risk of encountering dangerous content while using technological devices. Again, in the study conducted by Yılmaz Genç and Fidan (2017), parents stated that they were worried about the possibility of their children encountering harmful content while using tablets. Parents can monitor content by either determining the content to be watched by the children or by watching the content with their children. Studies in the literature show that adults often engage in such behavior to assess content. In a study with mothers by Banko, İlhan and Şallı (2017), most of the mothers stated that they let their children watch television in a controlled manner by setting a time limit and choosing which program to watch. In the study conducted by Koçak and Göktaş (2020), parents stated that they watched animated films together with their children in order to guard them from any harmful effects that may be present. In the study conducted by Gündüz Kalan (2010), it was found that parents actively chose which programs their children watched. In the study conducted by Konca (2019), it was determined that children were guided by their parents during digital activities. In the study conducted by Jinqiu and Xiaoming (2004), it was determined that most of the parents encouraged their children to watch specific programs.

In the present study, the parents stated that multimedia has many potential sources for harm for children. The most common source of harm was that the child may imitate the negative behaviors they have seen. In the study conducted by Rideout and Hamel (2006), most of the parents stated that their children tended to imitate the behaviors they had seen on television. In the study conducted by A. Bulut (2018), the parents stated that their children admired imaginary characters and tried to imitate them. According to Can (1995), children are most influenced by the behavior of cartoon characters and the words they use. Animated cartoons with violent content, which can be very visually engaging, affect preschool children greatly. According to Güleken Katfar (2019), children are not aware of the negative side of violence and imitate these behaviors because they find them funny and entertaining. In the study conducted by Türkkent (2012), mothers and preschool teachers shared a common opinion regarding this situation. They believed that children often imitated the characters in violent cartoons and engaged win these behaviors with their friends. In addition, the parents in the present study also noted that multimedia has many other negative effects such as causing visual disorders, sleeping problems, anger problems, dependent personalities, and attention deficit disorder. Studies conducted in the literature have also found similar harmful effects. They show that technological devices have negative impacts, including visual disorders (Altınkılıç, 2014; Ateş & Durmuşoğlu Saltalı, 2019), dependent personality (Ateş & Durmuşoğlu Saltalı, 2019; Park & Park, 2014; Yalçın & Erden, 2018; Yılmaz Genç & Fidan, 2017) sleeping problems (Altınkılıç, 2014), anger problems, attention deficit problems (A. Bulut, 2018) and a lack of physical activity (Ateş & Durmuşoğlu Saltalı, 2019; A. Bulut, 2018).

In the research, the parents expressed the opinion that multimedia is beneficial for children in many ways. According to the parents, multimedia content positively influences children's foreign language learning. The study conducted by Od (2013) also supports this view. In his study, Od (2013) determined that the use of animated cartoons in foreign language teaching at an early age positively affected children's listening and speaking skills, and that using multimedia devices increased children's motivation to learn a foreign language. A study conducted by Silverman and Hines (2009) found that multimedia-supported teaching positively affected children's general English vocabulary. In the study conducted by Duisembekova (2014), it was determined that the songs that children watched on YouTube contributed to the children's vocabulary learning. The parents also expressed the opinion that multimedia contributes positively to children's native language speaking skills. A similar finding was obtained in the study conducted by A. Bulut (2018), in which parents stated that the use of technology helped preschool children to construct complex, grammatically correct sentences and enriched the children's vocabulary. In the study by Özkılıç Kabul (2019), it was determined that the language development levels of children who used smartphones were higher than of those who did not. According to the research, multimedia content supports children's native and foreign language learning in a positive way. According to Jinqiu and Xiaoming (2004), children learn the language seen on the screen more easily when they watch television. In the present study, the parents also stated that multimedia contributes positively to values education, too. The study conducted by Hamarat, Işıtan, Özcan and Karaşahin (2015) also supports this. In their study, they examined the two cartoons terms of the values they presented, and it was determined that both social and individual values were involved in both cartoons. In the study conducted by Öztürk Samur, Durak Demirhan, Soydan and Önkol (2014), preschool teachers stated that they believed a cartoon that children had watched to be positive in terms of values education.

In the current research, the benefit of multimedia usage most emphasized was concept learning. The parents believed that their children learned many basic concepts through multimedia. A similar finding was obtained in the study by Kurt (2014), in a study that examined the opinions of children, parents and teachers about a children's channel. It was determined that the teachers, children and parents agreed that the channel positively influenced the process of concept learning. In the present study, it was determined that the parents believed that the children learned numbers and colors more easily in multimedia environments. A similar finding was obtained in the study by Yalçın and Erden (2018), in which the parents stated that their children learned the concepts of colors and numbers through multimedia. Many experimental studies conducted in the literature have observed that multimedia (Çakıroğlu & Taşkın, 2016; Kaya, 2005) or computer-aided instruction offering multimedia (Alabay, 2006; Çeliköz & Kol, 2016; Demir & Kabadayı, 2008; Kacar, 2007; Kesicioğlu, 2011) positively affected the concept learning of preschool children.

In the present study, the parents' view was that animated films were most important in terms of the multimedia content that best supported concept learning in children. According to Dalacosta et al. (2009), animated films are multimedia content which help children to concretize abstract concepts. Cartoons should thus not be considered solely as entertainment. Children are also able to enrich their vocabulary thanks to watching cartoons (Soumya, Eljo & Anitha, 2014). Studies by Coşkun and Köroğlu (2016) and Fırat (2019) examining cartoons in terms of concept teaching also support this view. Both these studies showed that animated cartoons contribute to concept teaching. Again, Öztürk Samur et al. (2014) stated that preschool teachers found a cartoon that children had watched to be positive in terms of concept teaching. In the present study, the parents stated that another multimedia application that contributes to children's concept learning was YouTube. According to Kaynak (2020), YouTube is now watched more than any individual television channel. YouTube has many channels that appeal to children and attract their attention (Ergün Özdel, 2019). Kabali et al. (2015), in his study with parents, determined that YouTube is popular even among children aged 1-2 years. According to Gülmez (2019), YouTube enables preschool children to concretize concepts because it engages many different sense organs. In the present study, another form of multimedia that parents thought contributed to concept learning was digital gaming. Toran et al. (2016), in a study conducted with mothers on children's use of digital games, found that the children were generally introduced to digital games around the age of three, although the earliest age was about one-and-a-half years old, according to some of the mothers. In the studies conducted by Çankaya (2012) and Çoruh (2004), it was determined that computer games positively influenced concept learning in preschool children.

As a result of the current research, it can be said that technological devices that offer children multimedia content have a positive effect on children's learning of basic concepts. According to Grubb (2000), introducing children to technological devices in the early stages of concept acquisition will enrich their learning environments, which will contribute to how children acquire concepts. In the study conducted by Li and Atkins (2004), it was determined that children who had access to a computer learned concepts better. In the study conducted by Oluwadare (2015), it was determined that using information and communication technologies in the preschool period contributed to children's understanding of concepts related to numbers and natural sciences. Multimedia content thus enables children to learn basic concepts at an early age. According to Bracken and Schaughnessy (2003), the earlier children learn basic concepts, the sooner they will understand their environment, adapt to the environment and communicate effectively. In addition, children's learning the basic concepts at an early age will form the basis of their future schooling. As a matter of fact, in the study conducted by Östergren and Traff (2013), it was determined that knowledge of numbers acquired in the early childhood period positively influenced first-grade arithmetic skills'.

Parents should be advised to encourage children to use technological devices not only for entertainment and games, but also for educational purposes, especially during the current period when children are forced to remain at home due to the pandemic. In this regard, it is suggested that parents consider technological devices not only as tools that can distract and engage children, but as multimedia device that provide children with learning environments. This study examined the role of multimedia in the concept learning process on the basis of parents' views. Further studies could be carried out including observations of the actual time children spend in multimedia environments.

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