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Identifying secondary school students' metaphors for the concept of digital footprint

Ortaokul öğrencilerinin dijital ayak izi kavramına ilişkin metaforların belirlenmesi

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ABSTRACT

Purpose: The purpose of this study was to explore the perceptions of 5th and 6th grade secondary school students about 'digital footprint' through the use of metaphors.
Method: The phenomenological approach was used in the study. The study was conducted with 5th and 6th grade students (N=201) who were studying in the spring term between March and April 2024. The students were asked to fill in an information form where they had to indicate introductory characteristics and complete the sentence "Digital footprint is similar to... either/or. Because...". Data were analyzed using the 'content analysis technique' with descriptive statistics used to analyze the characteristics of the students. In addition, factors affecting the categorical status of the metaphors were examined using the Pearson chi-square test. Data analysis was carried out using the SPSS 25.0 software package.
Results: A total of 197 students participated in the study and provided 40 different metaphors for digital footprints. The three most frequently used metaphors were "footprint in the snow" (14.2%), "seal" (10.7%) and "footprint" (9.6%). The study also found that 66.9% of the metaphors fell into the category of digital traces of personal data. Interestingly, the variables of age, gender, class, parents' education and employment status, income and perceived success had no significant effect on the category of metaphor. However, the type of family structure did play a role, with students from nuclear families more likely to use metaphors related to permanent digital data storage than students from extended families.
Conclusion: Almost all students who participated in the study had an idea of the digital footprint. Paediatric nurses have an important role to play in protecting children from risky behaviour in the digital environment and in promoting safe digital behaviour.

Keywords: Digital footprint; metaphor; nursing; secondary school students

ÖZET

Amaç: Bu çalışmanın amacı metaforlar kullanarak 5. ve 6. sınıf ortaokul öğrencilerinin 'dijital ayak izi' hakkındaki algılarını araştırmaktır.
Yöntem: Çalışmada fenomenolojik yaklaşım kullanılmıştır. Çalışma, Mart ve Nisan 2024 yılları arasında ilkbahar döneminde eğitim gören 5. ve 6. sınıf öğrencileri (n = 201) ile gerçekleştirildi. Öğrencilerden giriş özelliklerini belirtmek ve "dijital ayak izine benzer ... çünkü ..." cümlesini tamamlamaları gereken bir bilgi formu doldurmaları istendi. Veriler, öğrencilerin özelliklerini analiz etmek için kullanılan tanımlayıcı istatistiklerle 'içerik analiz tekniği' kullanılarak analiz edildi. Ayrıca, metaforların kategorik durumunu etkileyen faktörler Pearson ki-kare testi kullanılarak incelenmiştir. Veri analizi SPSS 25.0 yazılım paketi kullanılarak gerçekleştirildi.
Bulgular: Çalışmaya toplam 197 öğrenci katıldı ve dijital ayak izleri için 40 farklı metafor sağladı. En sık kullanılan üç metafor "karda ayak izi" (%14.2), "mühür" (%10.7) ve "ayak izi" (%9.6) idi. Çalışma ayrıca metaforların% 66,9'unun kişisel verilerin dijital izleri kategorisine girdiğini bulmuştur. İlginç bir şekilde, yaş, cinsiyet, sınıf, ebeveynlerin eğitimi ve istihdam durumu, gelir ve algılanan başarı değişkenlerinin metafor kategorisi üzerinde önemli bir etkisi olmamıştır. Bununla birlikte, aile yapısının türü bir rol oynamıştır, çekirdek ailelerden gelen öğrencilerin kalıcı dijital veri depolama ile ilgili metaforları kullanma olasılığı geniş ailelerden gelen öğrencilere göre daha fazladır.
Sonuç: Çalışmaya katılan öğrencilerin hemen hemen hepsi dijital ayak izi hakkında bir fikre sahipti. Çocuk hemşirelerinin, çocukları dijital ortamda riskli davranışlardan korumada ve güvenli dijital davranışı teşvik etmede önemli bir rolü vardır.

Anahtar Kelimeler: Dijital ayak izi; metafor; hemşirelik; ortaokul öğrencileri

Introduction

Technological developments in recent years have led to differences in the means of communication, easy access to the internet, and effective use of digital platforms. The ease use of digital applications by all age groups has revealed some dangers, despite the convenience it offers. People of all age groups now leave a

Bu çalışma 8. Uluslararası Adli Hemşireliği Kongresi'nde Sözel Bildiri olarak sunulmuştur.

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trail of information through their social activities on social media activities, websites visited, online accounts, search engine queries, files downloaded, status updates, cookies accepted, and advertisements clicked (Lambiotte & Kosinski, 2014; Swetha, Buvaneswari & Kottaisamy, 2019; Sürmelioğlu & Seferoğlu, 2019; Karabatak & Alanoğlu, 2022). This situation, defined as a digital footprint, includes data from the person's identity information, thoughts, and habits (Bodhani, 2012; Hengstler, 2017). When the literature is examined, digital footprints are classified as active and passive. Traces classified as active emerge with the activities of individuals in the virtual world. While an active trace emerges in a photo shared in a virtual environment, a message sent, a comment written or location information shared, passive traces are data accessed by the location determination systems of devices such as phones or computers (Girardin, Calabrese, Dal Fiore, Ratti & Blat, 2008). In summary, a digital footprint includes data consisting of a person's identity information, ideas, and habits. It is important to recognise that these digital traces are permanent, and therefore it is crucial to consider the long-term consequences of using digital applications. This highlights the need to use these platforms with caution and an understanding of the potential impact they can have on one's life (Çalışkan & Aktın, 2022).

In the digital age, interaction and communication are extremely important, especially for children, to access information. While technology is a tool that makes life easier, its irregular use causes addiction and decreases the quality of life by increasing energy consumption (Parıltı & Aydın, 2024). In particular, children and adolescents have a higher level of social media use compared to other age groups. Those in the younger age groups, who are defined as digital natives, easily share their identity information and photos without realising that they are leaving traces in the virtual environment. School-aged children also leave their digital footprints while using online games and chat tools. Therefore, children can be the target of cybercriminals by sharing information that can lead to cybersecurity breaches. (Sürmelioğlu & Seferoğlu, 2019). As any careless movement in the digital space increases the risk of cyberbullying and threats (Hinds & Joinson, 2018).

It is also known that sharing on social media causes psychological problems in children, communication problems within the family, and some dangers such as violence, child abuse, child pornography and pedophilia (Duygulu, 2019). A child's digital trace can have negative consequences, especially cyberbullying, such as failure to protect privacy, and can trigger emotional and behavioral problems in children. Cyberbullying is another important problem that seriously threatens children's mental health. When children are bullied online, they can feel isolated, and this can negatively affect their academic success and social life (YEŞİLAY, 2024). For this reason, it is very important to develop conscious internet use to protect the health of children and adolescents (Hinds & Joinson, 2018).

School health nursing applications are particularly valuable in this regard. School health nursing practices for early adolescence include training and counselling services on access to reliable health information, protection from problematic and addictive internet use behaviours, development of electronic health literacy, and protection from cyberbullying (Uludaşdemir & Akca, 2022, YEŞİLAY, 2024). Thus, the aim is to provide children with care in the digital environment while they are still of school age (EAVI, 2019). In paediatric nursing, the metaphor technique should be used to facilitate an accurate understanding of the concept of 'digital footprint'.

Metaphors are concepts that facilitate learning, provide concrete representations of abstract concepts, define desired concepts with fewer words, and facilitate the understanding of experiences and reality (Tanrıverdi & Kahraman, 2018; Yücel-Cengiz & Ekici, 2019). In the literature, there are studies investigating the awareness of digital footprints among secondary school students (Kuh, 2018; Yılmaz Soylu, Demiröz & Akkoyunlu, 2021; Çalışan & Aktın, 2022). Despite the prevalence of the concept of the digital footprint in the virtual environment, it remains a relatively understudied topic in the field of pediatric

nursing (Uludaşdemir & Akca, 2022). Therefore, there is a need for further research to improve understanding of digital footprint awareness, awareness in order to protect children from virtual dangers and develop early nursing-based intervention programmes.

The aim of this study is to assess secondary school students' views on digital footprints using the metaphor technique, and to investigate the factors that influence the content of the metaphor used.

Research Questions

Which metaphors did secondary school students use to describe their perceptions of digital footprint?

What are the variables that influence the metaphors produced?

Methods

Type of Research

Phenomenology is a qualitative research method that seeks to explore how individuals construct meaning, express their emotions, perspectives, and perceptions regarding a particular phenomenon, and how they experience this phenomenon in their daily lives (Tekindal & Uğuz Arsu, 2020). Metaphors provide the opportunity for effective analysis. By using the metaphor technique, it is aimed to reveal the perceptions and real thoughts of the students who took the 'Information Technologies and Software' course at school regarding the digital footprint.

Time and Place of the Study

The research was conducted among 5th and 6th-grade students in a public school affiliated to the Ministry of National Education (MoNE) in the provincial center between the 10th of March and the 15th of April 2024. The school was chosen because it was close to the researcher's place of residence and provided convenience to the researcher during the process of conducting the research

Population and Sample of the Study

The study population consisted of 210 secondary school students enrolled in the 5th and 6th grades during the spring term of the 2023-2024 academic year at a public school. No sampling technique was employed, as the study aimed to include all students available at the time of data collection. The final sample consisted of 201 participants, yielding a participation rate of 95%. The study was based on the criterion that the participants received training on digital footprints for the first time as part of the 'Information Technologies and Software' course and were internet users. The participants received training on digital footprints as part of the 'Information Technologies and Software' course given in the 5th grade curriculum. Since the course was a newly added course to the curriculum, 5th and 6th grade secondary school students taking the course were included in the study.

Inclusion criteria for participants

- 5th and 6th grade students
- Internet users
- Participation in the Information Technologies and Software course

Exclusion criteria for participants

Not participating in the 'Information Technologies and Software' course, not attending or not passing the course, inappropriate metaphors related to 'digital footprint', metaphors with similar meanings and metaphors whose reasons for use do not overlap with each other were excluded from the answers

Data Collection Tools

Data were collected using a semi-structured questionnaire in accordance with the literature (Çalışkan & Aktın, 2022). The questionnaire consists of two parts, asking about descriptive characteristics of students and their perceptions of the concept of digital footprint. In the first part, there are nine questions about descriptive characteristics (age, gender, year in school, family type, parents' education and employment status, income status, perception of success status).

In the second part of the form, without providing any framework to the students, each student was asked to complete the sentence 'The digital footprint is similar to ..... Because .....'. In the research the expression 'Because...' was included so that students could explain the reasons for using metaphors. In this way, the aim was to find out about the perception of the concept of the digital footprint (Çalışkan & Aktın, 2022).

Prosedure

Data were collected through face-to-face interviews conducted in a manner that did not disrupt the students' educational activities. Each interview lasted approximately 15 minutes, ensuring that participants had adequate time to respond thoughtfully. The semi-structured data form was presented to the 5th and 6th grade students during the lesson. The students were asked to fill out the form and each student was asked to complete the sentence 'Digital footprint ..... Because .....' in order to produce a direct metaphor about the digital footprint without being presented with any framework.

Data Analysis

The data were analyzed using the content analysis technique. First, the metaphors generated by the students regarding the digital footprint were reviewed by the researchers. Any responses in which the metaphor and its justification were inconsistent were excluded from the analysis. Among the metaphors produced by the students, data that were not metaphors and whose explanation sentence did not match with the metaphor used were excluded from the evaluation, such as "The digital footprint is like a ruler...because it is measured". The second step was to group similar metaphors. In the next phase, similar metaphors were grouped, resulting in the identification of 40 distinct metaphors. Finally, each metaphor was categorized based on its conceptualization of the digital footprint phenomenon. Each of the metaphorical images produced by the participants and the justification for the metaphor were defined with a specific category by means of evaluating the relationship between them. Categories were created with codes that are related to each other.The metaphors created by the participants for the concept of 'digital footprint' were divided into 3 conceptual categories according to their common features: digital personal data traces, digital permanent data storage, and digital tracking (Çalışkan & Aktın, 2022). This process led to the classification of 37 valid metaphors. For example: "The digital footprint is like a footprint in the snow. Because it leaves a trace when you step on it" (P85), the metaphor "footprint in the snow" was classified under the category "digital personal data" in the evaluation together with its justification. ‘The digital footprint is similar to barcode. Because it stores information.’ (P172), the metaphor "barcode" was classified under the category " digital record data storage " when evaluated together with its justification.

The students' names were not included and the participants were referred to as P1, P2, and P3 for ethical reasons. This entire process was carried out by manual coding in the Excel environment created by the researchers.

Ethical Consideration

Ethical approval for the study was granted by the University Ethics Committee for Non-Interventional Clinical Research (Approval No: 07.03.2024-53) and the Ministry of National Education (Approval No: 05.04.2024-E-32026198-100214700). Additionally, school authorities were informed about the study.

Participation was voluntary, and informed consent was obtained from both students and their legal guardians before the commencement of data collection.

Limitations of Research

The limitations of the study are that it was conducted with 5th and 6th graders in a single institution and the metaphors were not evaluated by more researchers.

Results

In the study, 62.8% of the participants were children aged 10 and 11, 49.4% were female, and 64.5% were in 5th grade. 39.5% of the mothers and 75.0% of the fathers had a high school education or higher. The proportion of mothers and fathers who were were unemployed was 80.8% and 27.9% respectively. 71.5% of the students lived in a nuclear family structure and 73.8% of them reported their income status as good. Perceived success was considered good by 73.5% of the students (Table 1).

Table 1. Distribution of some variables of the students

Variables	N (%)
Age	
10 -11 year	120(59.7)
12-13 year	81(40.3)
Gender	
Female	101(50.2)
Male	100(49.8)
Grade	
5th grade	111(55.2)
6th grade	90(44.8)
Mother's education	
High school and above	80(39.8)
Secondary school and below	121(60.2)
Father's education	
High school and above	156(77.6)
Secondary school and below	45(22.4)
Mother's employment status	
Working	38(18.9)
Not Working	163(81.1)
Father's employment status	
Working	153(76.1)
Not working	48(23.9)
Family type	
Nuclear family	144(71.6)
Extended family	57(28.4)
Income	
Good	143(71.1)
Poor	58(28.9)
Perceived success	
Good	140(69.7)
Poor	61(30.3)

%: Percentage

In the study, 4 out of 201 students did not answer the metaphor question. 197 students produced 40 different metaphors for the digital footprint; 14.2% of the students used the metaphor of a footprint in the snow, 10.7% used the metaphor of a seal and 9.6% used the metaphor of a footprint (Table 2).

Table 2. Metaphors created by students regarding digital footprint

Metaphor Definition	N (%)	Metaphor Definition	N (%)
Footprint in the snow	28(14.2)	Supervisor	2(1.0)
Seal	21(10.7)	Glass	2(1.0)
Footprint	19(9.6)	Expert	2(1.0)
Fingerprint	17(8.6)	Navigation	2(1.0)
Mud	11(5.6)	Stairs	1(0.5)
Walking in the snow	11(5.6)	Light bulb	1(0.5)
Social media	7(3.6)	Tracking device	1(0.5)
Human foot	7(3.6)	Password	1(0.5)
Internet history	7(3.6)	Youtube	1(0.5)
Ink pen	7(3.6)	Internet cookies	1(0.5)
Barcode	6(3.0)	Playdough	1(0.5)
Shadow	5(2.5)	Bread	1(0.5)
Stain	5(2.5)	Message	1(0.5)
Robot	4(2.0)	Paper	1(0.5)
Human mind	4(2.0)	Retina	1(0.5)
Online shopping	3(1.5)	Comment	1(0.5)
Memory	4(1.5)	Addiction	1(0.5)
Identity	3(1.5)	Phone lock	1(0.5)
Footprint in the mud	2(1.0)	Slap	1(0.5)
Concrete mortar	2(1.0)	Smartphone	1(0.5)
Total	**197*(100.0)**		

The metaphors created by the participants for the concept of 'digital footprint' were groupedinto 3 conceptual categories according to their common features: Digital personal data traces, Digital permanent data storage, and Digital tracking. Of the metaphors created, 66.9% were categorized as digital personal data traces, 19.2% were categorized as digital permanent data storage and 11.6% were categorized as digital tracking (Table 3).

Table 3. Participants' conceptual categories regarding the concept of digital footprint

Categories	Metaphors	Number of Metaphors (n)	f
Digital Personal Data Traces (%66.9)	Concrete mortar, footprint in the mud, identity, online shopping, foot, walking in the snow, mud, footprint, fingerprint, seal, footprint in the snow, glass, password, retina, comment, phone lock, slap	17	131
Digital Permanent Record Data Storage (%19.2)	Memory, mind, stain, barcode, internet history, social media, expert, smartphone, Youtube, internet cookie, message, ink pen	12	46
Digital Tracking (%11.6)	Navigation, robot, shadow, controller, stair step, light bulb, tracking device, addiction	8	17

Three of these 40 participants generated metaphors (dough, bread, paper) were not included in the categorization because they did not contain metaphors characterizing the digital footprint. The conceptual categories and citation examples are described in detail below.

Category 1: Digital Personal Data Traces

The metaphors defined in the category 'Digital Personal Data Traces' were formed as fingerprint, seal, footprint in the snow, glass, password, etc. The participants' explanations of the category 'Digital personal data traces' are given below:

‘A digital footprint is like a fingerprint. Because everyone's fingerprint is different.’ (P186).

‘A digital footprint is like human mind. Because every mind is different.’(P194).

‘Digital footprint is like identity. Because it carries our trace for life.’ (P155).

Category 2: Digital Record Data Storage

The metaphors defined in the category 'Digital Permanent Data Storage' were formed as memory, mind, stain, barcode, and internet history. The reasons why participants used the metaphors that formed the category 'Digital Permanent Data Storage' are given below.

'The digital footprint is like a robot. Because it records everything and does not forget.' (P184).

'The digital footprint is like a memory. Because it remains stored.' (P153).

'The digital footprint is like barcode. Because it stores information.' (P172).

In the category of ' permanent digital storage' (19.2%), participants emphasized the indelible aspect of the digital footprint, with a particular emphasis on its permanence.

Category 3: Digital Tracking

The metaphors defined in the category 'Digital Tracking' were formed as navigation, robot, shadow, and supervisor. The metaphors that make up the Digital Tracking category, and the reasons for using them are listed below;

'Digital tracking is like a shadow. Because it follows us all the time.' (P171).

'Digital footprint is like an addiction. Because it attracts people to itself all the time.' (P157).

'Digital footprint is like the history of the internet. Because the searches we do are recorded and come with us.' (P123).

Table 4. Distribution of basic variables of students according to the status of the metaphor defining paediatric nursing

	Digital personal data traces	**Digital permanent record data storage**	**Digital tracking**		
Variables	**N(%)**	**N(%)**	**N(%)**	**χ^2**	**P**
Age					
10-11 year	82(70.1)	24(20.5)	11(9.4)	0.925	0.630
12-13 year	54(67.5)	15(18.8)	11(13.8)		
Gender					
Female	67(67.7)	19(19.2)	13(13.1)	0.777	0.678
Male	69(70.4)	20(20.4)	9(9.2)		
Grade					
5th grade	74(69.2)	21(19.6)	12(11.2)	0.004	0.998
6th grade	62(68.9)	18(20.0)	10(11.1)		
Mother's education					
High school and above	48(61.5)	18(23.1)	12(15.4)	3.809	0.149
Secondary school and below	88(73.9)	21(17.6)	10(8.4)		
Father's education					
High school and above	102(66.7)	32(20.9)	19(12.4)	1.949	0.377
Secondary school and below	34(77.3)	7(15.9)	3(6.8)		
Mother's employment status					
Working	24(64.9)	7(18.9)	6(16.2)	1.172	0.556
Not working	112(70.0)	32(20.0)	16(10.0)		
Father's employment status					
Working	104(68.4)	29(19.1)	19(12.5)	1.268	0.531
Not working	32(71.1)	10(22.2)	3(6.7)		
Family type					
Nuclear Family	95(66.0)	36(25.0)**	13(9.0)	10.241	**0.006**
Extended family	41(77.4)	3(5.7)	9(17.0)		
Income					
Good	96(68.6)	28(20.0)	16(11.4)	0.055	0.973
Poor	40(70.2)	11(19.3)	6(10.5)		
Perceived success					
Good	90(66.2)	30(22.1)	16(11.8)	1.795	0.408
Poor	46(75.4)	9(14.8)	6(9.8)		

The participants who used metaphors in the category of 'digital tracking' (11.6%) stated that it meant being followed in digital environments, being monitored all the time, and leaving traces.

The study examined the distribution of variables according to the categorised metaphors. Age, gender, class, mother's education and employment status, father's education and employment status, income and perceived success variables had no effect on the category of metaphors produced ($p>0.05$). The family type variable did have an effect on the metaphor categories. Students with a nuclear family structure used more metaphors for permanent digital storage (25.0%) than those with an extended family structure (5.7%) ($p<0.05$, Table 4).

Discussion

It explored both responsibility for using the internet at a young age and awareness of how to use technology in a conscious way. Secondary school students used metaphors to describe their perceptions of the concept of 'digital footprint' and the metaphors they used were evaluated in detail. The way parents guide their children in the digital world is directly related to their economic, social and cultural capital (Zhao, Bazarova & Valle, 2023). Families' employment and income status, place of residence, and location may influence individual digital experiences (Helsper, 2021) and parents' engagement with children's digital access (Clark, 2012; Nelson, 2010) and its quality.

Almost all of the students who participated in the research have an idea about the digital footprint. Footprint in the snow, seal, and footprint were the most commonly used metaphors out of 40 valid metaphors produced for the concept of 'digital footprint'. In another study conducted with secondary school students, the most frequently used metaphors for the concept of 'digital footprint' were 'GPRS', 'brain' and 'application' (Çalışkan & Aktın, 2022). The majority of participants believe that every action in the digital realm leaves a trace, according to the metaphors they have created. This finding is consistent with the study of Yılmaz Soylu et al. (2021) and there are similar studies in the literature that support the research result (Özbek, Çoklar & Gündüz, 2016; Sürmelioğlu & Seferoğlu, 2019; Taş & Bülbül, 2021; Koçyiğit, 2022). The generated metaphors were classified into the categories of digital personal data traces, digital permanent record data storage, and digital tracking. In another study, the metaphors preferred by secondary school students for the concept of 'digital footprint' were categorized as digital personal data traces, digital object, digital permanent record data storage, historicization of digital information, digital tracking, and digital identity recognition. The metaphors were most frequently associated with the category of 'digital personal data traces' (Çalışkan & Aktın, 2022). In fact, the metaphors produced in this study were most prevalent in the category of 'digital personal data traces'. This shows that there is a high level of awareness among respondents about the sharing of personal information. Sensitivity to the need for caution in sharing personal information is at the forefront of the reasons given. Similarly, the digital footprint has been described in several studies as a personal trace left in the digital environment due to the inclusion of personal data (Vervier, Zeissig, Lidynia & Ziefle, 2017; Çalışkan & Aktın, 2022). There are many opportunities for them to develop skills such as listening, speaking, reading and writing in the virtual environment. School children spend more time in the digital environment for games and lessons. Therefore, private information such as home address, phone number, school information, and ID number are requested for membership in lesson and game platforms. For this reason, students' perception of personal data privacy is more prominent in digital monitoring (Bracken & Fischel, 2008; Linebarger & Piotrowski, 2009).

In the studies, the category of 'digital tracking', often emphasised the fact that what is done in digital environments can be tracked, seen by others, and controlled without permission. We see that the preferred explanations for this category define digital footprint rather than digital tracking. In the study, children created metaphors about digital tracking, but it was seen that the reasons for the metaphor were mostly

related to 'Personal Data Traces'. For example, 'digital footprint..is like online shopping..because..it is personal'. Therefore, the explanations given in this category suggest that students do not pay enough attention to digital tracking and have a low level of awareness (Sanin, 2022). Information shared on the Internet has the potential to exist for a very long time, to be recorded and stored by others, and to be made available to others. The low level of digital monitoring awareness is closely related to the fact that children have not yet reached the conscious age (Öden Akman, Çuhacı Çakır & Kocabaş, 2021). It is seen that students' digital awareness is high and that they are especially careful about "personal data sharing". However, the source of this awareness is closely related to media literacy trainings in schools and the high digital awareness of parents. Studies show that parents with higher levels of education use the Internet more frequently and, accordingly, their perceptions of digital parenting self-efficacy are significantly different. Therefore, it is thought to be directly related to education level and income status. The children of these families also spend more time on the Internet and especially on social media (Huang, Li, Chen & Straubhaar, 2018; Yaman, Yurdakul, Akbulut & Dönmez, 2024).

In the category of 'permanent digital data storage', participants placed particular emphasis on permanence. Another study compared the digital footprint more to the brain and emphasized that the information is indelible and permanent in the ''permanent digital data storage' category (Çalışkan & Aktın, 2022).

For those below a certain age, the use of digital spaces should be controlled. In a study conducted among secondary school students, it was found that children in younger grades did not have personal mobile phones or social media accounts. Therefore, they asked their parents for permission before sharing on digital media. The protection and role of the family is very important for young children who are not yet aware of the dangers of the digital space. In particular, parents in the nuclear families pay more attention to children's health by paying more attention to their children and the bonds created are stronger (Güngörmüş, 2001; Öden Akman et al., 2021). In the literature, the nuclear family has the equivalent of a happy family with few children, well-educated parents, a relatively higher income level, and less conflict. A study shows that children in extended families experience more stress and intensity in the family due to the large number of people living in the family, therefore, not enough attention and importance is given to children and not enough time is allocated, leading to differences in attitudes in the family. Children living in extended families described the family environment as negative and stated that they had difficulty in communicating within the family (Gürsoy & Coşkun, 2004). Therefore, for children from nuclear families, the idea of being monitored, protected, and controlled comes to the fore.

Parental attitudes should not be overlooked in children's online experiences and in maintaining well-being. Parental digital mediation is the approach parents take to regulate their children's social media use, ranging from engaging in conversations with children about appropriate social media use to direct supervision by logging into children's social media accounts (Livingstone et al., 2017; Ho, Lwin, Chen & Chen, 2019). One study on digital parenting and child well-being found that active mediation was associated with reduced social media risks for children, including being a perpetrator or victim of cyberbullying, whereas parental monitoring (e.g., authoritarian or non-intrusive supervision) and restrictive mediation were more frequently associated with such risks (Beyens, Keijsers & Coyne, 2022). It is shown that digitally savvy parents know how to build a safe and healthy framework that encourages their children to use social media positively through setting limits on or non-intrusive observation of their children's digital activities and through active mediation with parental guidance (Zhao et al., 2023).

Conclusions and Recommendations

The research was carried out only with secondary school students in grades 5 and 6. Almost all students who participated in the research were able to come up with a metaphor for the digital footprint. It was found that awareness of the digital footprint is high among students aged 10-12, and it is appropriate to start teaching safe digital footprinting to this age group. It is recommended to plan research by including participants from different socio-economic groups and younger age groups (kindergarten and primary school). Pediatric nurses have an important role to play in ensuring safe digital behaviour by protecting children of all ages from all types of risky behavior in the digital environment. In this context, making the most of the benefits of the digital world, acquiring electronic health literacy knowledge and skills to protect against digital health risks, and raising awareness of safe internet use are part of the paediatric nurse's role.

The research also aims to develop a conscious attitude towards children's digital footprint in collaboration with educators and parents. In this regard, it can be recommended that the MoNE prepare educational publications and materials with digital content (games, cartoons) and present them to students in the classroom and in guidance services in order to raise awareness of the digital footprint.

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