

## Investigation of Preservice Teachers' Perceptions of Online Privacy Through Metaphors

Article Type	Received Date	Accepted Date
Research	26.06.2024	25.04.2025

**Ayşe Aktaş \***  
**Seyhan Eryılmaz Toksoy \*\*\***

**Tuba Kopuz \*\***  
**Yiğit Emrah Turgut \*\*\*\***

### Abstract

In this study, preservice teachers' perceptions of online privacy were determined through metaphors. The study participants consisted of 111 preservice teachers studying in different departments at the faculty of education of a state university. In the study, conducted in a phenomenological design, the data collected through the questionnaire were analyzed by content analysis method. As a result of the analysis, 75 different metaphors created by preservice teachers about online privacy were grouped under 11 categories. The metaphors created were classified under the theme of media, information, and person, and the analysis revealed that most metaphors were in the theme of media privacy. In the distribution of metaphors created for media privacy, the analysis revealed that the private space category contained the most metaphors. The analysis revealed that the valuable category came to the fore in the information and personal categories in the person themes. It was determined that preservice teachers perceived online privacy as an area where personal information is available and a private environment that needs to be protected.

**Keywords:** Online privacy, preservice teacher, metaphor, media privacy.

\* Doctorate student, Recep Tayyip Erdoğan University, Faculty of Education, Department of Computer Education and Instructional Technology, Rize, Türkiye. E-mail: ayse\_aktas23@erdogan.edu.tr, <https://orcid.org/0000-0002-8838-9561>

\*\* Teacher, Ministry of National Education, Rize, Türkiye. E-mail: tuba\_kopuz23@erdogan.edu.tr, <https://orcid.org/0000-0001-6418-4580>

\*\*\* Assoc. Prof. Dr., Recep Tayyip Erdoğan University, Faculty of Education, Department of Science Education, Rize, Türkiye. E-mail: seyhan.eryilmaz@erdogan.edu.tr, <https://orcid.org/0000-0002-8643-1017>

\*\*\*\* *Corresponding Author:* Assoc. Prof. Dr., Recep Tayyip Erdoğan University, Faculty of Education, Department of Computer Education and Instructional Technology, Rize, Türkiye. E-mail: yigitemrah.turgut@erdogan.edu.tr, <https://orcid.org/0000-0002-6306-4090>

# Öğretmen Adaylarının Çevrim İçi Mahremiyete Yönelik Algılarının Metaforlar Aracılığıyla İncelenmesi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	26.06.2024	25.04.2025

**Ayşe Aktaş \***  
**Seyhan Eryılmaz Toksoy \*\*\***

**Tuba Kopuz \*\***  
**Yiğit Emrah Turgut \*\*\*\***

## Öz

Bu çalışmada, öğretmen adaylarının çevrim içi mahremiyet algıları metaforlar aracılığıyla belirlenmeye çalışılmıştır. Çalışmanın katılımcılarını, bir devlet üniversitesinin eğitim fakültesinde farklı bölümlerde öğrenim gören 111 öğretmen adayı oluşturmaktadır. Olgu bilim deseninde yürütülen çalışmada, anket yoluyla toplanan veriler içerik analizi yöntemiyle incelenmiştir. Analizler sonucunda öğretmen adaylarının çevrim içi mahremiyete yönelik oluşturdukları 75 farklı metafor 11 kategori altında toplanmıştır. Oluşturulan metaforlar ortam, bilgi ve kişi mahremiyeti temasında sınıflandırılmış, en fazla metaforun ortam mahremiyeti temasında yer aldığı tespit edilmiştir. Ortam mahremiyetine yönelik oluşturulan metaforların dağılımında özel alan kategorisinin en fazla metaforu içerdiği saptanmıştır. Bilgi temasında değerli kategorisinin, kişi temasında ise kişisel kategorisinin ön plana çıktığı tespit edilmiştir. Öğretmen adaylarının, çevrim içi mahremiyeti sadece kişisel bilgilerin bulunduğu bir alan olarak değil, aynı zamanda korunması gereken mahrem bir ortam olarak algıladıkları belirlenmiştir.

**Anahtar Sözcükler:** Çevrim içi mahremiyet, öğretmen adayı, metafor, ortam mahremiyeti.

\* Doktora öğrencisi, Recep Tayyip Erdoğan Üniversitesi, Eğitim Fakültesi, Bilgisayar ve Öğretim Teknolojileri Eğitimi Anabilim Dalı, Rize, Türkiye. E-posta: ayse\_aktas23@erdogan.edu.tr, <https://orcid.org/0000-0002-8838-9561>

\*\* Öğretmen, Milli Eğitim Bakanlığı, Rize, Türkiye. E-posta: tuba\_kopuz23@erdogan.edu.tr, <https://orcid.org/0000-0001-6418-4580>

\*\*\* Doç. Dr., Recep Tayyip Erdoğan Üniversitesi, Eğitim Fakültesi, Fen Bilgisi Eğitimi Anabilim Dalı, Rize, Türkiye. E-posta: seyhan.eryilmaz@erdogan.edu.tr, <https://orcid.org/0000-0002-8643-1017>

\*\*\*\* Sorumlu Yazar: Doç. Dr., Recep Tayyip Erdoğan Üniversitesi, Eğitim Fakültesi, Bilgisayar ve Öğretim Teknolojileri Eğitimi Anabilim Dalı, Rize, Türkiye. E-posta: yigitemrah.turgut@erdogan.edu.tr, <https://orcid.org/0000-0002-6306-4090>

## Introduction

People's daily engagement in digital activities such as online chatting, video, and photo sharing, and e-commerce has led to the need to share their personal data (Morse & Birnhack, 2022). These activities largely reflect users' real lives through online behaviors, and this process raises sensitive issues such as privacy (Eroğlu, 2018). In addition, the fact that developing artificial intelligence-supported technologies has advanced and popularized these activities has also facilitated the collection of personal data, which has increased the importance of acting consciously about privacy and confidentiality (Yengin & Bayrak, 2024). Privacy involves different normative decisions regarding the legitimate use of private information in interaction processes on the Internet (Pańkowska, 2019). Online privacy is related to the level of privacy and security of personal information shared consciously or unconsciously on the Internet (Aslanyürek, 2016). A privacy-aware user is expected to reflect the importance of protecting personal data and the extent to which they know the consequences of disclosing personal data (Cavoukian & Chibba, 2018). Unconscious sharing of personal information in online environments may cause serious privacy issues in the future.

Users unaware of potential dangers, such as sharing personal information in online environments, may need more knowledge about online privacy. Not having enough knowledge can create uncertainty and anxiety about how individuals should protect themselves in online environments. Taking measures to protect online privacy in digital environments requires a cognitive effort, which is confusing or challenging for many users (Walker, 2016). Gerber et al. (2018) state that users do not make a significant effort to protect their personal data even though they consider privacy a significant issue. Although users think that they attach great importance to protecting their privacy and personal data while performing their digital activities on the Internet when their online history is examined, it is generally seen that they exhibit the opposite behavior, and this phenomenon is called the privacy paradox (Barnes, 2006; Pötzsch, 2009). The privacy paradox can be considered as a criterion in creating privacy awareness. In this direction, users' understanding and recognition of the privacy paradox can also facilitate the protection of privacy.

To protect their online privacy, users should not only rely on technical knowledge but also be able to generate solutions as informed users (Pötzsch, 2009). Education is vital in shaping users' awareness of protecting their privacy online by increasing their ability to acquire and use digital information (Yuanyuan et al., 2023). Teachers, as designers of educational environments, are one of the stakeholders in this process. The widespread use of educational technologies in the design of educational environments increases the role of online platforms in learning environments (Haleem et al., 2022). A preservice teacher with online privacy awareness can evaluate the security of online environments and provide more effective guidance to learners in online behaviors. Thus, they can raise awareness at the cognitive and behavioral level to raise privacy awareness in online environments. In addition, preservice teachers, who will be the guides of future generations, will also assume the responsibility of managing sensitive information, including the personal data of the institutions they will work in and their students. It is important to determine the perceptions of preservice teachers, who have a social responsibility for online privacy, towards this concept. It is thought that this situation will provide insights about being and raising individuals who are conscious of privacy in online environments.

There are quantitative (Soumelidou & Tsohou, 2021; Korkmaz et al., 2021; Avcı & Kayıran, 2023) and qualitative (Bostancı, 2019; Öz & Kılıç, 2020) studies on online privacy in the relevant literature. However, no study can provide an in-depth understanding through metaphors focusing on the concept of online privacy. Individuals, when explaining a concept, often refer to a concept from a different field of knowledge and strive to make sense of the information and express it effectively by connecting it to their own experiences and knowledge (Clarken, 1997). Yılmaz and Güven (2015) stated that metaphors can be used to have detailed information about people's perception of a subject. In this study, metaphors were utilized to determine preservice teachers' perceptions of online privacy in depth.

## Aim

This study aimed to determine the perceptions of preservice teachers studying at a faculty of education regarding online privacy. To this end, answers to the following questions were sought.

- 1) Through which metaphors do preservice teachers explain their perceptions of online privacy?
- 2) Under which conceptual categories are the metaphors created by preservice teachers about online privacy grouped?

## Method

### Research Design

Phenomenology, one of the qualitative research methods, was used in the study's design. Phenomenology focuses on phenomena that are recognized but do not have an in-depth and detailed understanding (Yıldırım & Şimşek, 2016). Surveys or scales used to obtain data from large masses are limited in revealing feelings and thoughts (Wilson & Elliot, 2016). Therefore, metaphors can communicate complex concepts more simply and effectively (Leavy et al., 2007). For this reason, metaphors were used in this study to gain an in-depth understanding of preservice teachers' perceptions of online privacy, and a phenomenological design was chosen.

### Study Group

In phenomenological research, data sources are individuals or groups who experience the phenomenon that the research focuses on and who can express or reflect this phenomenon (Yıldırım & Şimşek, 2016). The convenience sampling method, one of the non-random sampling methods, was used to determine the study group. In this method, participants are selected from the closest individuals until the appropriate sample is reached or the current participants are reached (Cohen et al., 2007). The preservice teachers who constitute the study group of this research are studying at a state university in Türkiye where the researchers are also working. The pre-service teachers who formed the study group were selected due to their potential roles in shaping future generations. The study was conducted with 111 preservice teachers studying at the faculty of education. Demographic information of the study group is presented in Table 1.

**Table 1.** Demographic information of the study group

Variables	Groups	n	%
Gender	Female	90	81.1
	Male	21	18.9
	Guidance and Psychological Counseling	31	27.9
	Classroom Teacher Education	23	20.7
Department	Social Studies Teacher Education	15	13.5
	Elementary Mathematics Teacher Education	14	12.6
	Turkish Language Education	11	9.9
	Art Teacher Education	9	8.1
	Science Teacher Education	8	7.2
Grade	Grade 1	27	24.3
	Grade 2	28	25.2
	Grade 3	22	19.8
	Grade 4	34	30.6

According to Table 1, 90 of the preservice teachers who participated in the study were female, and 21 were male. The highest number of participants was from the Department of Guidance and Psychological Counseling (27.9%), and the lowest was from the Department of Science Education (7.2%). The highest number of participants was from 4th grade (30.6%), and the lowest was from 3rd grade (19.8%).

### Research Instruments and Procedures

The study data were collected through a questionnaire developed by researchers. To ensure the content validity of the form created by the researchers, the opinions of two experts who have experience in online privacy and are competent in qualitative research methods were obtained. According to the opinions received, the content validity of the form items was ensured, examined in terms of spelling and grammar, some items were rewritten more understandably, and then a pilot study was conducted

with ten preservice teachers. After the pilot study, the definition of the metaphor was added to the questionnaire in line with the expert opinions, the sample metaphor sentence was changed, and the data collection tool was finalized. The data were collected online through Google Forms prepared by researchers in a two-month period between December 2023 and January 2024. The preservice teachers were first asked to answer questions to determine their technology use, and then they were asked to complete the sentence “Online privacy is like ....., because .....” to create a metaphor about online privacy.

### **Data Analysis**

The research data were analyzed using content analysis technique. Accordingly, each participant was numbered P1- P111. The metaphors created by the participants were reviewed, and the survey data of 24 participants who did not create a metaphor or did not provide a justification even though a metaphor was created were excluded from the study. Categories were created after analyzing the metaphors and determining the commonalities between the codes. To ensure the validity and reliability of the study, as stated by Yıldırım and Şimşek (2016), the categories and themes revealed as a result of the analysis were tabulated, and direct quotations supported the raw data. Moreover, the framework created for online privacy in the data analysis was in line with the dimensions of privacy in the literature (Rosenberg, 1992; Holvast, 1993). The researchers repeated the data analysis at different times, and after confirming the results between them, they received opinions from two field experts for coding. Categories and themes were finalized in line with the expert opinions. The inter-coder agreement was examined using Miles and Huberman's (1994) formula. As a result of the comparison, it was calculated as  $(106/106+5) \times 100 = 95.5\%$ .

### **Ethical Procedures**

This study was evaluated by Recep Tayyip Erdoğan University Social and Human Sciences Ethics Committee, and ethics committee approval was granted with the decision numbered 2023/341 at the meeting dated 22.11.2023. The data were obtained with the prerequisite that the participants confirmed their voluntary participation in the study.

### **Results**

In this section, preservice teachers' metaphors about online privacy are organized within the framework of the determined conceptual category and theme and are presented in tables. The relevant tables were elaborated by including quotations as well as explanations.

#### **Metaphors for Online Privacy Concept**

The metaphors that preservice teachers created about online privacy and the codes of the participants who created these metaphors are presented in Table 2.

When Table 2 is investigated, it is seen that 111 preservice teachers created 74 different metaphors for online privacy. It was determined that the most frequently used metaphors by the participants were home (12), curtain (6), family (5), diary (5) and secret (5). In addition, privacy in our daily lives, shield, closed box, a locked chest, locked chest, box, pomegranate, private, and our body was determined as repeated twice, while the remaining metaphors were not repeated.

**Table 2.** *Metaphors for online privacy*

Row	Metaphor	Participant	Row	Metaphor	Participant
1	home (12)	P5, P12, P25, P54, P67, P70, P71, P73, P77, P80, P85, P107	38	Islam	P51
2	curtain (6)	P3, P16, P31, P40, P55, P100	39	a closed box	P28
3	family (5)	P6, P21, P22, P24, P82	40	black box	P101
4	diary (5)	P50, P64, P65, P69, P104	41	safe box	P15
5	secret (5)	P7, P72, P75, P99, P111	42	your own home	P86
6	privacy in our daily lives (2)	P13, P45	43	our own room	P68
7	shield (2)	P60, P62	44	clothes	P58
8	closed box (2)	P14, P26	45	locked safe	P38
9	a locked chest (2)	P41, P42	46	Identity	P9
10	locked chest (2)	P46, P76	47	one's own room	P74
11	box (2)	P44, P36	48	one's private space	P2
12	pomegranate (2)	P34, P66	49	personal space	P106
13	private (2)	P17, P63	50	personal privacy	P23
14	our body (2)	P39, P79	51	neighbor	P87
15	sunflower	P20	52	sand grain	P95
16	brain	P83	53	sacred	P27
17	a box full of knowledge	P35	54	jewelry	P56
18	glass lantern	P52	55	ownership	P91
19	mosque	P109	56	honor	P47
20	walnut	P102	57	room door	P33
21	wallet	P37	58	private life	P92
22	flower	P105	59	freedom	P11
23	our child	P103	60	pandora's box	P32
24	sea	P19	61	money	P98
25	a pebble by the sea	P4	62	police	P93
26	a boat in the sea	P89	63	our principles	P90
27	between four walls	P108	64	profile	P61
28	my emotions	P18	65	scene	P110
29	house key	P88	66	hidden box	P1
30	privacy in the home	P78	67	chest	P84
31	house interior	P53	68	flood	P94
32	etiquette rules	P10	69	love	P48
33	rose	P81	70	zero	P30
34	security	P57	71	transparent	P8
35	pearl	P29	72	salt	P96
36	human	P49	73	tulle curtain	P43
37	the differences between human beings at home and outside	P59	74	bedroom	P97
				Total	111

### Themes of Metaphors for the Concept of Online Privacy

The metaphors created by the preservice teachers regarding online privacy were categorized under three main themes: media privacy, information privacy, and personal privacy. These themes encompassed 11 distinct categories: valuable, hidden, scope, personal, control, protective, private space, special knowledge, sharing, precaution, and danger (Table 3).

**Table 3.** *Themes of metaphors for online privacy*

Theme	Category	Metaphor	f	%
Media privacy	private space (16)	home (7), family (3), between four walls, privacy in the home, a closed box, closed box, your own home, our own room	60	54.05
	scope (9)	pomegranate (2), a box full of knowledge, privacy in our daily lives, Islam, sand grain, private life, scene, zero		
	precaution (7)	curtain (5), a locked chest (2)		
	valuable (6)	mosque, flower, home, privacy in our daily lives, freedom, chest		
	control (6)	home, shield, locked chest, room door, private, Pandora's box		
	hidden (4)	diary (2), a pebble by the sea, pearl		
	personal (4)	home, human, the differences between human beings at home and outside, neighbor		
	danger (4)	a boat in the sea, rose, salt, tulle curtain		
	protective (2)	walnut, curtain		
	sharing (2)	family, one's private space		
Information privacy	valuable (8)	secret (2), family, wallet, our child, identity, our principles, jewelry	32	28.8
	special knowledge (6)	security, home, closed box, safe box, private, secret		
	hidden (5)	glass lantern, black box, secret, brain, box		
	danger (5)	wallet, house key, house interior, flood, transparent		
	control (2)	one's own room, money		
	protective (2)	diary, security		
	sharing (2)	personal privacy, home		
	scope (1)	hidden box		
Personal privacy	personal (1)	box	19	17.12
	personal (6)	diary, locked safe, sacred, profile, love, our body		
	private space (4)	locked chest, personal space, ownership, bedroom		
	hidden (3)	my emotions, diary, our body		
	protective (3)	shield, clothes, police		
	valuable (2)	etiquette rules, honor		
	control (1)	sunflower		
Total			111	100

As shown in Table 3, the majority of metaphors were grouped under the theme of media privacy ( $n = 60$ ), followed by information privacy ( $n = 32$ ), and personal privacy ( $n = 19$ ). There are ten different categories in the theme of media privacy, which refers to privacy in digital and technological environments. The information privacy theme, which refers to controlling personal data collection, storage, processing, and distribution, consists of nine categories. There are six categories in the theme of personal privacy, which refers to inappropriate/unjustified interventions into the individual's physical existence.

Metaphors emphasizing the perception of personal space/space were grouped under the "private space" category. The private space category contains the highest number of metaphors (20). There are 16 metaphors in the theme of media privacy and four in the theme of personal privacy. In this category,

it was determined that home (7) and family (3) metaphors were repeated, while the other ten metaphors were not repeated. In this direction, for the “home” metaphor in the theme of privacy of the environment, P71 stated it “What happens inside is only our business” while P21 stated it “What happens in the family should stay in the family” and likened it to “family”. From a similar point of view, P76, who was on the theme of personal privacy, likened online privacy to a “locked chest” and stated, “It is private to the person, and only the person should have the key.”

16 metaphors containing expressions about being valuable regarding quality and quantity were collected in the “valuable” category. There are eight metaphors in the information privacy theme and six in the media privacy theme. In this category, it was determined that the secret (2) metaphor was repeated, while the other 14 metaphors were not. In this context, for the “secret” metaphor in the information privacy theme, P99 stated, “It should be carefully protected.” while P56 compared it to “jewelry” and stated, “It should always be protected.” For the “chest” metaphor in the theme of media privacy, P84 used the expression “Special and valuable things are hidden.”

Expression emphasizing the hiding of online privacy was evaluated in the “hidden” category. There are five metaphors in the theme of information privacy, four in the theme of media privacy, and three in the theme of person privacy. It was determined that the metaphors in this category, except for the “diary” metaphor, did not repeat. However, for the “black box” metaphor in the theme of information privacy, P101 stated, “The information inside is very confidential.” P50 likened it to a “diary” and stated, “The most private memories and moments of a person are hidden there.” P18 explained the metaphor of “my emotions” in the theme of personal privacy saying “I do not want anyone to see it.”

Expressions referring to personal situations other than media and information were analyzed in the “personal” category. There are six metaphors in the personal privacy theme, four in the media privacy category, and one in the information privacy category. The metaphors in this category do not repeat. In this context, P39 expressed the metaphor of “our body” in the theme of personal privacy stating “It is special to us.”, while P85 expressed the metaphor of “home” in the category of media privacy stating “What happens in it concerns us, it is special.” From the same point of view, P36 explained the “box” metaphor in the theme of information privacy saying “What is inside is only for human beings.”

Ten metaphors with expressions about what is included in the concept of online privacy were collected in the “scope” category. There are nine metaphors in the theme of media privacy and one metaphor in the theme of information privacy. Within this category, except for two participants who likened online privacy to “pomegranate”, the other eight metaphors were not repeated. In this context, P66 used the expression “Although it looks like a whole from the outside, there are dozens of details inside it.” for the “pomegranate” metaphor in the theme of media privacy. At the same time, P35 expressed his opinion by using the expression “You can find everything in it.” for the metaphor of “a box full of knowledge”. With a similar approach, for the metaphor of a “hidden box” in the theme of information privacy, P1 stated, “It contains all the information.”

The nine metaphors containing expressions about the decision being in the person were analyzed in the “control” category. There are six metaphors in the theme of environment privacy, two in the theme of information privacy, and one in the theme of person privacy. It was determined that the metaphors in this category did not repeat. In this direction, P46 for the “locked chest” metaphor in the theme of media privacy states, “Only the key in the owner can open it.” P98, for the “money” metaphor in the theme of information privacy, stated, “When you lose it, it travels from hand to hand, and you do not know who it reaches.” Similarly, for the metaphor of “sunflower” in the theme of personal privacy, P20 stated, “Sunflower blooms only facing the sun. In other words, we make references only to the person we want to be, the person we want to show.”

The expressions referring to the negative consequences of the concept of online privacy were evaluated under the category of “danger”. There are five metaphors in the information theme and four in the environment theme. It was observed that the metaphors in this category did not repeat. In this context, P88 explained the metaphor of “house key” in the information privacy theme saying “If it falls into the hands of the wrong people, you lose your existence.”, while P89 explained the metaphor of “a boat in the sea” in the environment theme saying “It does not make you feel safe enough.”



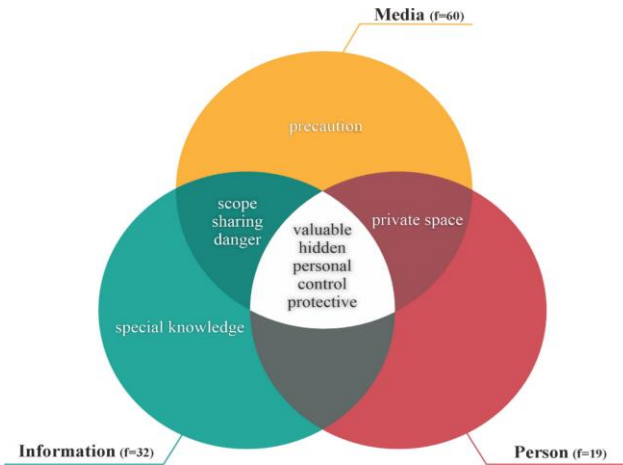
Metaphors that include expressions and concrete measures for what can be done for protection were grouped under the category of “precaution”. In the media privacy theme, there are seven metaphors, including a curtain (5) and a locked chest (2). In this direction, P40 expressed the “curtain” metaphor saying “It keeps us away from disturbing things from outside.” P42 expressed the “a locked chest” metaphor saying “Only the one who has the key should open it because it contains private things.”

The metaphors containing situation expressions that serve the purpose of protection were analyzed in the “protective” category. There were three metaphors for personal privacy and two for information and media privacy. It was determined that these metaphors did not repeat. In line with this information, P62 explained the “shield” metaphor in the theme of personal privacy stating “It protects the person.” while P104 explained the “diary” metaphor in the theme of information privacy stating “It keeps our private information.” Similarly, P100 explained the “curtain” metaphor in the theme of media privacy stating “When that curtain is lifted, the inside of our homes, which is our private space, is seen as it is from the outside.”

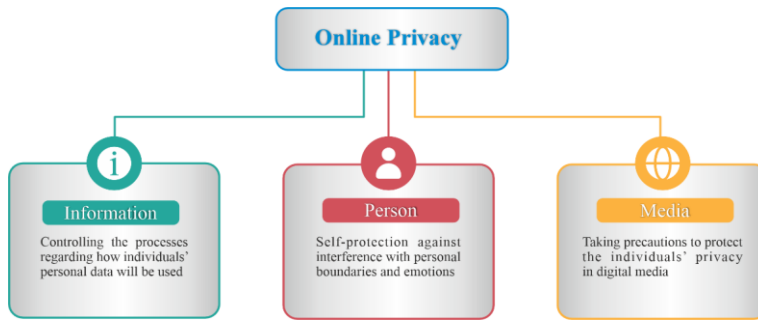
There are six metaphors in the “special knowledge” category in which expressions about the existence of personal information are analyzed. It was determined that these metaphors in the theme of information privacy did not repeat. In this context, P7 stated the following about the “secret” metaphor: “It contains most private information of the person.” Meanwhile, P15 stated the following about the “safe box” metaphor: “Its password is only for the individual.”

Metaphors containing expressions emphasizing sharing or not sharing were evaluated in the “sharing” category. There are two metaphors, each of which is a theme of environment and information privacy. In this direction, P2 explained the metaphor of “one's private space” in the theme of media privacy saying “Private information is shared.” while P23 explained the metaphor of “personal privacy” saying “One should not share one's confidential information.”

This study handled online privacy under three headings, and themes were formed (Figure 1).



As illustrated in Figure 1, a classification structure similar to the concept of privacy has emerged. The definitions of the dimensions of online privacy (information, person, and media privacy) put forward within the scope of the study were made as shown in Figure 2.



### Discussion, Conclusion and Recommendations

This study examined preservice teachers' perceptions of online privacy through metaphors. Among the 74 metaphors created for online privacy, it was determined that the metaphors of home, curtain, family, diary, and secret were repeated (Table 2), and the participants adopted online privacy as an environment that needs to be protected, a protective shield and an important element that needs to be

kept. This result shows that preservice teachers not only perceive online privacy as a place where personal information is located but also have the awareness that it is a private area that needs to be protected, like home. It also reveals that the participants perceive that online privacy acts as a protective shield against external threats and that personal information should be kept safely in this environment. Similarly, Öztürk et al. (2022) and Türten (2018) stated that university students and graduate students had privacy concerns and awareness, respectively. In their study, Korucu and Gürkez (2019) found that preservice teachers' online privacy concerns did not differ according to various variables. This shows that university students ignore their privacy in digital media. There may be different situations in which various factors such as social environment, socioeconomic status, technology use, purpose of using the Internet, and use of artificial intelligence applications may affect preservice teachers' approaches to privacy. In this context, the reasons for this difference can be examined with studies focusing on in which cases these factors are prioritized, and privacy is ignored.

According to the findings of the study, the metaphors created by preservice teachers were distributed into 11 categories (Table 3). Among these categories, the "private space" category, which characterizes individual privacy (Rath & Kumar, 2021), was found to contain most metaphors. The metaphors distributed under 11 categories were grouped under three themes: information, person, and media (Figure 1). This result is consistent with Rosenberg's (1992) and Holvast's (1993) definition of privacy in terms of three sub-dimensions (territorial, personal, and informational privacy). The concept of territorial privacy is expressed as media privacy in this study. Privacy, which generally refers to a physical region (Akgül & Toprak, 2019), refers to the virtual environment in this study in the context of online privacy. It was determined that media privacy was the theme with the most categories in the study. This result shows that preservice teachers care about media privacy. In their study with university students, Akgül and Toprak (2019) concluded that students did not hesitate to disclose their personal spaces even if they were careful in their privacy behaviors. Kütükoğlu (2021) and Aslanyürek (2016) stated that although people know the concept of privacy, they continue to engage in behaviors that damage their privacy in online environments. This shows that there is an inconsistency between knowledge and behavior. It can be stated that this result supports the paradox of privacy. It was determined that most of the metaphors created by the preservice teachers were related to the theme of media privacy and covered most of the metaphors in the theme of information and personal privacy (Figure 1). This may be because preservice teachers prioritize the privacy dynamics of the online environment more, although they have the perception of person and information privacy. These findings show the complexity of online privacy and the diversity of reasons underlying conflicting behaviors. Therefore, there may be sociological, psychological, or cultural reasons behind conflicting behavior. Rath and Kumar (2021) stated that privacy-related research has a cultural dimension. In this direction, comparative results can be obtained by conducting interdisciplinary studies within the scope of the subject, ensuring that the concept is addressed in a broad perspective. Obtaining comparative results

may help better understand the privacy dynamics of the online environment and determine which variables affect the perception of online privacy.

According to the study results, it was concluded that another theme with the most categories after the media privacy category was the information privacy theme. It was determined that the "valuable" category came to the fore under the related theme. This result shows that preservice teachers value information privacy. Indeed, the privacy of valuable resources should be protected (Rath & Kumar, 2021). However, research shows that students are not only willing to share their personal data but also have concerns about information privacy (Rath & Kumar, 2021; Yavalar, 2021). It can be said that the metaphors in the category of "danger" in the theme of information privacy support this statement. However, the data that people accept as personal data may be different from each other (Yavalar, 2021). Differences in the perception of personal data may affect people's attitudes toward security and privacy. Increasing individuals' awareness of personal data security can create a more secure and responsible digital culture. Although information privacy is an increasingly public issue (Solove & Schwartz, 2020), it cannot directly impact users' information-sharing behaviors (Mitchell & El-Gayar, 2020). Similarly, the fact that preservice teachers created two metaphors for the category of sharing can be interpreted as the fact that their perceptions about sharing information in the online environment are not sufficiently developed and deepened. In this context, courses such as Media Literacy, where the concept of online privacy is discussed in undergraduate education programs, and Information Technologies can be increased, and various activities focusing on this issue can be integrated into different courses within the education programs.

The third and final theme reached in the study is personal privacy. The theme of personal privacy contains the least number of categories in this study. This finding shows that preservice teachers associate the concept of online privacy less with personal privacy compared to media and information privacy. Individuals' efforts to protect their personal boundaries and themselves against emotional interference constitute the essence of personal privacy. However, personal privacy in the online environment may be perceived differently due to the virtual nature of the environment. Therefore, the fact that preservice teachers created fewer metaphors about personal privacy can be associated with the natural comfort of being in the virtual environment. Similarly, Canbolat (2022) found that the participants exhibited an indifferent attitude toward personal privacy perception. When the metaphors created for personal privacy were examined, it was determined that the preservice teachers associated personal privacy with the physical domain with the metaphor "our body" and the emotional domain with the metaphor "my emotions". The reason for this situation may be that although the physical integrity of preservice teachers is generally not threatened in virtual environments, they have the potential to face negative situations such as cyberbullying emotionally. Akgül (2020) stated that in environments with no face-to-face communication, the sense of empathy towards the communicator disappears, and online environments facilitate using power against others. From another perspective, it was found that university students' online privacy concerns were related to their emotional intelligence (Yabancı et al., 2018). Another study found that university students did not give enough importance to the phenomenon of privacy while focusing on factors such as personal pleasure, happiness, and curiosity, which are elements of psychological satisfaction (Kozan, 2021). This situation shows that emotional factors such as curiosity and happiness can affect individuals' approaches to privacy. In this context, the reasons for this difference can be examined with studies focusing on cases where emotional factors are prioritized, and personal privacy is ignored.

One of the significant responsibilities of preservice teachers is to correctly manage personal data in the institutions where they will be assigned. The findings obtained from this research indicate that preservice teachers are aware of the necessity to protect personal data and ensure security in online environments. Their creation of a greater number of metaphors regarding the online environment points to both an awareness of the importance of privacy in virtual settings and their potential to create secure digital environments. It was also determined that preservice teachers' perceptions of media and information privacy were higher than their perceptions of personal privacy, likely due to the virtual nature of the environment. In this context, training activities can be organized to raise awareness among preservice teachers that the emotional impacts on individuals' privacy in virtual environments may lead to important consequences. Through drama training, preservice teachers can be made aware of the

emotional effects of online privacy on individuals. In addition, digital stories, animations, and similar digital content could be prepared to inform preservice teachers about this issue. In doing so, preservice teachers' overall awareness of online privacy can be increased, thereby contributing to the development of individuals who are emotionally more resilient.

### References

- Akgül, G. (2020). The theoretical explanations on the causes of cyberbullying. *Journal of Development and Psychology, 1*(2), 149-167.
- Akgül, M., & Toprak, H. H. (2019). Transformation of privacy in social networks: Instagram case. *AJIT-e: Academic Journal of Information Technology, 10*(38), 75-114. <https://doi.org/10.5824/1309-1581.2019.3.004.x>
- Aslanyürek, M. (2016). Internet and social network users' opinions and awareness regarding internet security and online privacy. *Maltepe University Communication Faculty Journal, 3*(1), 80-106.
- Avcı, A., & Kayıran, D. (2023). Investigation of screen addiction and online privacy awareness of child development associate's degree students. *Journal of Inonu University Health Services Vocational School, 11*(3), 1802-1815. <https://doi.org/10.33715/inonusaglik.1288292>
- Barnes, S. B. (2006). A privacy paradox: Social networking in the United States. *First Monday, 11*(9). <https://doi.org/10.5210/fm.v11i9.1394>
- Bostancı, M. (2019). Digital parents' perception of privacy on social media. *AJIT-e: Academic Journal of Information Technology, 10*(38), 115-128. <https://doi.org/10.5824/1309-1581.2019.3.005.x>
- Canbolat, K. (2022). *A critical research on the representation of persons with disabilities in the media* (Unpublished master's thesis). Çanakkale Onsekiz Mart University, School of Graduate Studies, Interdisciplinary Master of Science in Media and Cultural Studies.
- Cavoukian, A., & Chibba, M. (2018). Start with privacy by design in all big data applications. In S. Srinivasan (Ed.), *Guide to big data applications* (pp. 29-48). Springer. [https://doi.org/10.1007/978-3-319-53817-4\\_2](https://doi.org/10.1007/978-3-319-53817-4_2)
- Clarcken, R. H. (1997). Five Metaphors for Educators.
- Cohen, L., Manion, L. ve Morrison, K. (2007). *Research methods in education*. (6th ed.). Taylor & Francis e-Library.
- Eroğlu, Ş. (2018). The concept of privacy and personal data in digital life: Analysis of perceptions of students' at Hacettepe University Department of Information Management. *Hacettepe University Journal of Faculty of Letters, 35*(2), 130-153. <https://doi.org/10.32600/huefd.439007>
- Gerber, N., Gerber, P., & Volkamer, M. (2018). Explaining the privacy paradox: A systematic review of literature investigating privacy attitude and behavior. *Computers & Security, 77*, 226-261. <https://doi.org/10.1016/j.cose.2018.04.002>
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers, 3*, 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Holvast, J. (1993). Vulnerability and privacy-Are we on the way to a risk-free society? *Facing the Challenge of Risk and Vulnerability in an Information Society, 33*, 267-279.
- Korkmaz, Ö., Vergili, M., & Karadaş, E. (2021). Developing online privacy awareness scale: Reliability and validity study. *Turkish Scientific Researches Journal, 6*(2), 297-311.
- Korucu, A. T., & Gürkez, Ş. (2019). An analysis of online privacy concerns of teacher candidates. *Participatory Educational Research, 6*(2), 15-25. <https://doi.org/10.17275/per.19.9.6.2>
- Kozan, E. (2021). A research on the dimensions of reception in social media use of the Z-generation. *International Social Sciences Studies Journal, 7*, 2492-2507. <https://doi.org/10.26449/sssj.3227>
- Kütükoğlu, E. (2021). *Social media and privacy in the context of generations*. Egitim Publishing.
- Leavy, A. M., McSorley, F. A., & Boté, L. A. (2007). An examination of what metaphor construction reveals about the evolution of preservice teachers' beliefs about teaching and learning. *Teaching and Teacher Education, 23*(7), 1217-1233. <https://doi.org/10.1016/j.tate.2006.07.016>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.

- Mitchell, D., & El-Gayar, O. (2020, January). The effect of privacy policies on information sharing behavior on social networks: A systematic literature review. In *Proceedings of the 53rd Hawaii International Conference on System Sciences*. University of Hawai'i at Mānoa. <https://doi.org/10.24251/HICSS.2020.517>
- Morse, T., & Birnhack, M. (2022). The posthumous privacy paradox: Privacy preferences and behavior regarding digital remains. *New Media & Society*, 24(6), 1343-1362. <https://doi.org/10.1177/1461444820974955>
- Öz, M., & Kılıç, D. (2020). Examining the relationship between personal data and online privacy through content analysis method. *KMU Journal of Social and Economic Research*, 22(39), 206-224.
- Öztürk, D., Eyüboğlu, G., & Baykara, Z. G. (2022). Privacy consciousness of university students. *Gazi Journal of Health Sciences*, 7(2), 68-77. <https://doi.org/10.52881/gsbdergi.1014500>
- Pańkowska, M. (2019). Privacy awareness monitoring. *Problemy Zarządzania*, 17(5), 111-131. <https://doi.org/10.7172/1644-9584.85.7>
- Pötzsch, S. (2009). Privacy awareness: A means to solve the privacy paradox? In *The future of identity in the information society* (pp. 226-236). Springer.
- Rath, D. K., & Kumar, A. (2021). Information privacy concern at individual, group, organization and societal level A literature review. *Vilakshan-XIMB Journal of Management*, 18(2), 171-186. <https://doi.org/10.1108/XJM-08-2020-0096>
- Rosenberg, R. S. (1992). *The social impact of computers*. Elsevier.
- Solove, D. J., & Schwartz, P. M. (2020). *Information privacy law*. Aspen Publishing.
- Soumelidou, A., & Tsohou, A. (2021). Towards the creation of a profile of the information privacy aware user through a systematic literature review of information privacy awareness. *Telematics and Informatics*, 61, 101592. <https://doi.org/10.1016/j.tele.2021.101592>
- Türten, E. (2018). Perception of mastersstudents' social media privacy: Gümüşhane University Faculty of Communication example. *Akdeniz University Journal of Faculty of Communication*, (29th Special Issue), 143-162. <https://doi.org/10.31123/akil.460160>
- Walker, K.L. (2016) Surrendering information through the looking glass: transparency, trust, and protection. *Journal of Public Policy & Marketing*, 35(1), 144-158. <https://doi.org/10.1509/jppm.15.020>
- Wilson, E. J., & Elliot, E. A. (2016). Brand meaning in higher education: Leaving the shallows via deep metaphors. *Journal of Business Research*, 69(8), 3058-3068. <https://doi.org/10.1016/j.jbusres.2016.01.021>
- Yabancı, C., Akça, F., & Ulutaş, E. (2018). Investigating the relationship between anxiety and emotional intelligence with regard to online privacy. *Istanbul University Journal of Communication Sciences*, 54, 191-218. <https://doi.org/10.26650/CONNECTIST406310>
- Yavalar, D. E. (2021). *Digital migrants' perception of privacy on social media*. Egitim Publishing.
- Yengin, D., & Bayrak, T. (Eds.). (2024). *New media studies and artificial intelligence - I*. İKSAD Publishing.
- Yıldırım, A., & Şimşek, H. (2016). *Qualitative research methods in social sciences*. Seçkin Publishing.
- Yılmaz, G. K., & Güven, B. (2015). Determining the teacher candidates' perceptions on distance education by metaphors. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 6(2), 299-322.
- Yuan, G., Yi, D., & Qingguo, M. (2023). Does the citizen's education level and digital information ability affect their internet rights protection willingness? In *24th Annual International Conference on Digital Government Research - Together in the unstable world: Digital government and solidarity (DGO 2023)*, July 11-14, 2023, Gdańsk, Poland. ACM. <https://doi.org/10.1145/3598469.3598479>

