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The concept of privacy in the digital world according to teenagers

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Abstract

Aim This study aims first to explore how adolescents define the idea of online privacy and how well they understand all the implications of using their data online, using emergent themes modeling. A co-occurrence analysis comparing narratives was performed to better understand how the concept of online privacy differed according to participants' age.

Subject and methods Five hundred eighty-eight adolescents (64.8% female) completed a narrative task about their definition of online privacy. "Reflection of self-online," "digital safe," "human right," and "ability to surf the web and emotional consequences" are the four emergent themes closely related to the adolescents' definition and meaning of online privacy.

Results The results did not show differences between the two age groups in the interpretation of the construct, except for the concept of *safety*. Adolescents older than 15 years used more emotional content.

Conclusion The findings are discussed in terms of how understanding young people's online privacy can help to design a safer Internet.

Keywords Online Privacy · Adolescents · Internet · Personal Data · Qualitative analysis

The evolution of online platforms used by teens, previous and extensive use of social networks, and changing norms about sharing increase the likelihood of exposure to the risks associated with a lack of privacy protection (Madden and Smith 2010; Moscardelli and Divine 2007). These risks are related to technological affordances and digital ecology, but also to children's and adolescents' own online practices and attitudes. The web context, especially social media, encourages adolescents to share sensitive personal information, exposing them to potential dangers and risks such as stolen, disclosed, or misused personal or private information, grooming, and fraud. With growing concerns about children's and adolescents' online privacy and the commercial use of their data, it is crucial that children's understanding of the digital environment, their digital skills, and their capacity to consent are considered in interventions, regulation, and policy (Livingstone 2008).

In terms of current legislation governing the processing of minors' personal data online, both the US Children's Online Privacy Protection Act (COPPA; Children's, Online Privacy Protection Act 1998) and the European General Data Protection Regulation (GDPR; Voigt and Von dem Bussche 2017) prohibit the collection and use of children's personal data under the age of 13 without prior parental consent. However, these laws do not protect the privacy of individuals over the age of 13. Therefore, adolescents are treated as adults, making it necessary for them to develop the privacy awareness necessary to protect their personal information (Moscardelli and Devine 2007).

Current literature suggests that adolescents are only partially aware of the concept of online privacy and the implications of sharing personal information and data in different online contexts (Peter and Valkenburg 2011). Soffer and Cohen (2014) showed that although youths value data protection and privacy, they tend to trade off privacy for other perceived benefits. Barnes (2006) talks about the privacy paradox: young people claim to be concerned about privacy, yet they provide a great deal of personal information through social media. Unlike adults who seem to be concerned about online risks, adolescents share personal and sometimes intimate information on social networking sites, provide personal information online, and are unaware of the

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online privacy policies of platforms. This makes them vulnerable to privacy violations and easy targets for online risks (Peter and Valkenburg 2011; Moscardelli and Divine 2007). In addition, adolescents between the ages of 13 and 17 are more likely than adults to provide online data collection practices for commercial reasons (Gervey and Lin 2000). In line with these findings, researchers have emphasized the need to improve adolescents' awareness of online threats, especially concerning privacy (e.g., Steijn and Vedder 2015) and online information disclosure. Despite the relevance of this issue, there is still a need for research that is sensitive to developmental differences and addresses the meaning of privacy from the perspective of adolescents (Peter and Valkenburg 2011; Patchin and Hinduja 2010; Soffer and Cohen 2014).

The relevance of online privacy in the adolescents' developmental process

To address the construct of adolescents' online privacy, it is crucial to adopt a developmental perspective that is sensitive to developmental tasks and to interindividual differences. Indeed, the role of online privacy in fostering and shaping individuality needs to be understood concerning the major developmental tasks of adolescence (Peter and Valkenburg 2011). Westin's (1967) definition of online privacy highlights its four important functions: personal autonomy, self-evaluation, limited and protected communication, and emotional release. From a developmental perspective, it is possible to find a parallel between these functions and the main evolutionary tasks of adolescents in their road to achievement of psychosocial autonomy: identity formation, development of a sense of intimacy, and sexual growth (Peter and Valkenburg 2011). Privacy is thus a tool for achieving goals as part of an individual's self-identity. Self-presentation and self-disclosure are different skills that adolescents use to accomplish these developmental tasks, which also happen to be very closely related to online privacy. Self-presentation involves selectively presenting aspects of oneself to others, and self-disclosure involves revealing intimate aspects of one's true self (Peter and Valkenburg 2011). Both need to be learned, practiced, and rehearsed in face-to-face communication as well as online communication. Autonomy is achieved through the ability to navigate the web independently and safely through the development of decision-making and cognitive and behavioral independence (Steinberg 2008). For the development of their identity, adolescents present themselves to others, receive reactions from online peers, self-evaluate themselves, and adjust their self-presentation according to the reactions of others, thus validating their social identities. In addition, the development of intimacy is linked to the privacy function

of communication; in the online context, youths choose which information about themselves to share, in what ways, and sometimes with whom. However, whether adolescents' privacy-sensitive behaviors are understood within functional developmental processes is not accessible and conscious to teens.

In addition, we need to consider that adolescents may be different from one another. Adolescents' experience with online privacy varies according to different aspects such as cultural background, levels of media literacy, personal motivations for Internet use, and personality traits (Grant 2006). Adolescents' attitudes toward online privacy may differ from those of adults in their assessment of privacy violations. For example, a study by Livingston (2008) showed that, unlike older generations, many youths do not consider certain personal information posted on social networking sites to be private, such as age, relationship status, or sexual orientation. In fact, the author emphasizes that from childhood on, youths have little awareness of the future implications of data traces, especially about a distant future that is difficult to predict or imagine (e.g., Bowler et al. 2017; Murumaa-Mengel 2015; Pangrazio and Selwyn 2018). Even as they reach adolescence, youths need to gain more knowledge about data flows or infrastructure, and they mostly see data as static and fractured when residing on different platforms (Bowler et al. 2017), which can create a false sense of security.

In the literature, the voices of adolescents on issues related to their online privacy and data responsibilities are rarely reported (De Wolf and Vanden Abeele 2020). The only study that focused on this issue using a qualitative approach was conducted in the UK with adolescents aged from 11 to 16 years and aimed to explore the understanding and the management of privacy in three different digital contexts—interpersonal, institutional, and commercial—using focus groups (Stoilova et al. 2020). The methodology used—participatory research tools such as visuals, games, pen-and-paper tasks, and workshop activities to engage students—did not fully explore the definition of online privacy and the meaning of the construct from the perspective of teens through different stages of adolescence.

The current study

The aim of this study is to explore how adolescents define—and consequently mean—the concept of online privacy, attempting to deepen age and developmental differences. Adolescents' perspectives will emerge through a qualitative approach in which participants were asked to explain their definition of online privacy. The narrative task allows one to gain an understanding of online privacy through the eyes of young people (Grant 2006). Qualitative research design

helps to generate useful knowledge from individual perceptions to the workings of global systems that allow for in-depth knowledge (Fioretti et al. 2020). Only by understanding how adolescents understand online dynamics and their sharing of personal information online can we defend them and help them make the most out of the web.

The analysis will consider age differences (i.e., up to 15 years vs over 15 years). In fact, according to Grant (2006), older adolescents have more autonomy and independence, and have increased decision-making capacity, and consequently their exposure to commercial influences may be greater.

Method

Participants and procedure

Participants were selected from a larger study sample to explore how children and adolescents conceptualize online privacy and their concerns about it. The survey was conducted by the Italian Safer Internet Centre (SIC), which designed a cross-sectional, school-based public survey involving a nationally representative sample of 2.472 students (62.5% female) from Italian middle and high schools. Inclusion criteria consisted of answering the narrative task included in the survey. Non-responses and meaningless answers were filtered out. The final sample consisted of 588 participants (64.8% female). Of these, 160 (27.2%) attended middle school and 427 (72.6%) attended high school. The age of the participants varied from less than 11 years to more than 18 years old. Specifically, 2 (0.3%) students were less than 11 years old, 563 (95.7%) students were ranged between 11 and 18 years old,[1] 20 (3.4%) students indicated an age above 18 years, and finally 3 (0.5%) participants did not answer about their age. Regarding the geographic distribution, 255 (43.4%) participants were from the North of Italy, 138 (23.5%) were from the South of Italy, 143 (24.3%) were from the center of Italy, 39 (6.6%) were from the Islands, 7 (1.2%) students declared that they did not live in Italy, and finally 6 (1%) participants did not answer about their own geographical residence.

Regarding the procedure, the survey was conducted during the Safer Internet Day 2022, delivered to students with the support of the Safer Internet Center (Italian SIC). A popular student website for sharing notes and getting help with homework (Skuola.net) was used to collect data, through a pop-up window asking the users to participate in the study.

The survey consisted of 39 questions related to technology use habits, knowledge of the online risks, concern about online surfing, the knowledge of the GDPR, the positive use of the Internet, children's habits of sharing their data online, and online privacy. All respondents provided explicit informed consent at the beginning of the survey. It was possible to leave the survey at any point by simply closing the pop-up window. All data collected were anonymous.

Data analysis

Qualitative analyses were conducted using T-Lab software (Lancia 2004). Participants were asked to complete a narrative task: *If you had to define what "my online privacy" is, what would you refer to?*. The narratives collected on the definition of online privacy were filtered by removing meaningless responses and responses that did not fit the topic (e.g., swearing). The 588 remaining narratives were merged into one file and analyzed. The first step was to analyze the occurrence of the most frequently used words in the narratives. Then, through the analysis of the elementary contexts, it was possible to identify the number of themes that make up and unite the narratives produced by the participants. The subsequent modeling of emerging themes made it possible to extrapolate and link the words that make up the themes. This type of analysis discovers, examines, and extrapolates the main themes (or topics) that emerge from the text using the co-occurrence patterns of keyword analysis through a probabilistic model that uses the latent Dirichlet allocation (Blei et al. 2003). The results of the data analysis are several themes describing the main contents of a textual corpus. The authors discussed the results of these analyses to bring out deeper reflections on the selected themes. They selected the elementary context derived from the analysis that better explained each theme. Indeed, this type of textual analysis is therefore suggested in studies that aim to deepen unexplored themes and identify variables related to a specific type of experience that should be further investigated (Cortini and Tria 2014). Finally, to better understand how the concept of online privacy may be viewed differently depending on the age of the participants, a co-occurrence analysis was performed using the T-Lab software, comparing the narratives of participants aged over 15 with those of participants aged 15 or younger. Two students answered that they were under the age of 11 but in high school; due to the inconsistency, they were excluded from the age group analyses.

Results

In total, the collected narratives settle a corpus of 7414 words. On average, each definition of online privacy is composed of 12.6 words. Table 1 shows the results of the

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[1] Specifically, 6 (1%) students were 11 years old, 27 (4.6%) students were 12 years old, 95 (16.2%) students were 13 years old, 93 (15.8%) students were 14 years old, 93 (15.8%) students were 15 years old, 88 (15%) students were 16 years old, 89 (15.1%) students were 17 years old, and 72 (12.2%) students were 18 years old.

Table 1 The occurrence of the most reported 20 words for the definition of online privacy

Word	Occurrence
Data	194
Personal	137
Safety	68
Online	65
Information	52
People	37
Sites	36
Right	36
Password	36
To share	36
Me	35
Photo	35
Social	33
Internet	31
Reference	31
Sensitive	28
Web	22
Privacy	21
Life	20
Surfing	20

occurrence analysis on all 588 narratives and the 20 words most used by the participants.

Modeling of emerging themes

Starting from 588 narratives, the T-Lab software revealed four themes in the modeling emergent themes analysis. Table 2 summarizes the emergent themes and the main words associated with each of them.

The online self

Regarding the definition of privacy online, the first and most representative theme concerns "the online self," which is explained by 27% of the lemmas. Adolescents share a deep reflection suggesting that privacy online is everything that concerns a personal and intimate part of one's identity that is transferred to the Internet world. Privacy online is everything that teenagers search, share, download, or publish, according to their taste, character, and way of being or thinking. A female narrates: "It is that set of things that can be traced back to my being […], e.g., my personal data, browsing history, online shopping data, chats with people I talk to, photos I share, etc." (Participant n. 226) while a male stated: "I would refer to all data concerning my person but in digital. The aspects that concern my phone number, my home address, etc.…." (Participant n. 361). Similarly, other teens report: "Privacy is ourselves put by writing on an electronic device

[…]" (Participant n.527) and "It is me, but virtually so, as in reality, I decide who should know certain information about me" (Participant n.235).

Digital safe

The second theme is saturated by 26% of the lemmas and is labeled "digital safe." Participants consider online privacy as a safe place on the Internet. It consists of all those digital spaces whose access or use is forbidden to outsiders, i.e., what we can find in the online world that can protect us and/or is protected by access keys such as passwords, for example, access to various social accounts, personal mail, or the activation of antivirus software. All these elements can protect one's private data (e.g., photos, messages, videos, sensitive information). One participant writes: "It is like a safe; others can't access your strictly personal data unless you give them the credentials. […]" (Participant n. 221). In this narrative, online privacy is compared to the safes we use in the real world, objects in which we place valuables and enter a private code to prevent them from being stolen. A female participant states: "It is a private bubble in which I'm the only one that can enter or the only one that can give the keys of this bubble to others that I want" (Participant n. 375). The common element in these narratives is the representation of Privacy, like an environment that we can find online and where we can be safe.

Right

The third theme, saturated by 23% of the lemmas, recognizes online privacy as a "right." Participants explain online privacy as something that must be guaranteed, "[…] a right like freedom, etc., so it should not be taken lightly […]." (Participant n. 213).

In this theme, teens assume that online privacy represents the possibility of not becoming victims of illegal acts in the Internet world. Therefore, adolescents claim online privacy as something they deserve: to be able to surf the net freely and to be protected from any risks and dangers. Participants share this idea with narratives such as: "It is a fundamental right. I have the right to have my privacy online!" (Participants n. 251); "Is an inviolable right that others must respect." (Participant n.377) and "For me, it is a human right." (Participant n. 131).

The ability to surf the web safely and emotional correlates

The last theme, saturating 22% of the lemmas, concerns "the ability to surf the web safely and emotional correlates." This theme includes all those narratives in which adolescents claim to feel effective in ensuring themselves

Table 2 Themes of the definition of privacy online and specific words for each of them

Definition of online privacy

Theme 1 "The Online self" (27%)			Theme 2 "Digital safe" (26%)			Theme 3 "Right" (23%)			Theme 4 "The ability to safe online surfing and emotional correlates" (22%)		
Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence
Sites	29	36	Private	12	18	Life	16	21	Surfing	19	20
Web	16	22	Account	10	10	Private	14	16	Shared	12	13
Chronology	15	16	Protection	10	12	Knowledge	13	14	Network	9	9
Protection	9	9	Permission	8	8	Us	12	12	Safe	8	8
Shared	8	8	Number	8	8	For me	10	10	Confidentiality	8	11
Use	8	8	Address	8	8	Maintain	10	10	Processing	7	7
To search	8	10	Phone	8	8	All	10	11	I surf	6	6
Visit	7	7	Space	8	10	Private	10	13	Safe	6	7
Access	6	6	World	7	7	Keep	9	10	Contents	6	7
Use	6	6	Home	7	7	Looking for	8	8	Circle	5	5
To share	6	7	Search	6	6	Own	7	7	Together	5	5
Right	6	7	Digital	6	6	Stay	7	10	Peacefulness	5	5
App	5	5	Network	6	6	Need	6	6	Private	5	5
Enterprise	5	5	Secure	5	5	Obviously	6	7	Spread	4	4
Must	5	6	Sharing	5	5	Fundamental	5	5	Be concerned	4	4
Surely	4	4	Friend	5	5	Chat	5	5	Safe	4	4
Put	4	4	Safe	5	6	Wish	5	5	Risk	4	4
Contact	4	4	Enter	5	6	Refer	5	6	Aims	4	4
Control	4	4	Know	5	6	Put	4	4	Used	4	4
Identity	3	4	Decide	4	4	Share them	4	4	Surveyed	3	4
Cookies	3	4	Spread	4	4	Avoid	4	4			
			Devices	4	4	Done	4	4			
			Ask	4	4	Shared	4	4			
			Antivirus	4	5	Regard	4	5			
			Unknown	4	4	Decide	3	4			
			School	4	4	Face	3	4			
			Use	4	5	Attention	3	4			
			E-mail	4	5						
			Show	4	5						
			Strangers	3	4						

Table 2 (continued)

Definition of online privacy

	Theme 1 "The Online self" (27%)			Theme 2 "Digital safe" (26%)			Theme 3 "Right" (23%)			Theme 4 "The ability to safe online surfing and emotional correlates" (22%)		
	Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence	Word	Occurrence in the theme	Total occurrence
				Publish	3	4						

a sense of online protection and safety online. They also consider their resulting sense of peace while surfing the net. The narratives of this theme concern two different characteristics. The first one refers to the effect of the personal ability to keep certain information private. In this case, teens report a personal sense of agency that derives from the awareness that online privacy also depends on themselves and their actions online. Thus, online privacy is partly controllable. A female, 15 years old, narrates: "The ability to surf the Net keeping my personal data private." (Participant n.10), while a male narrates: "It is the set of data and information that I choose to share or keep private online. It is to be considered respected when my instructions regarding my data are followed, and so when my data are shared, only if I have accepted it." (Participant n. 344).

The second one refers to all the narratives included in this cluster that better reflect the emotions associated with the ability to surf the web. Most of the participants describe online privacy as a personal ability to browse in peace without worrying about or risking being robbed of their personal information. Teens also describe their tendency to remain calm while online. A female narrates: "I would define it as the security of surfing the Internet without having the anxiety that someone can steal my personal data." (Participant n. 247). Another narrates: "[…] not having to worry that some site can retain my sensitive data and have security measures that make me feel comfortable" (Participant n.162).

Co-occurrence analysis

Analysis of co-occurrences by age group

Because the adolescent period is made up of changes and growth and because the participant's age range in the study is wide, from 11 to 18 years old, it was interesting to explore any differences in meaning between the younger participants and those, instead, which are approaching the young adult stage. By examining the keywords that emerged from the analysis of occurrences and separating the sample into two different groups based on age ≤ 15 and > 15 (314 narratives and 269 narratives, respectively), it was found that the same words emerged in the narratives of both subgroups' words. These words were analyzed in more detail through co-occurrences. Table 2 compares the co-occurrences between words.

Security

As illustrated in Fig. 1, among the words most associated with "security" in the group of adolescents aged 15 or under were: "use" ($\chi^2 = 5.927$; $p = 0.015$); "digital" ($\chi^2 = 4.076$; $p = 0.044$); "protection" ($\chi^2 = 4.076$; $p = 0.044$); "network"
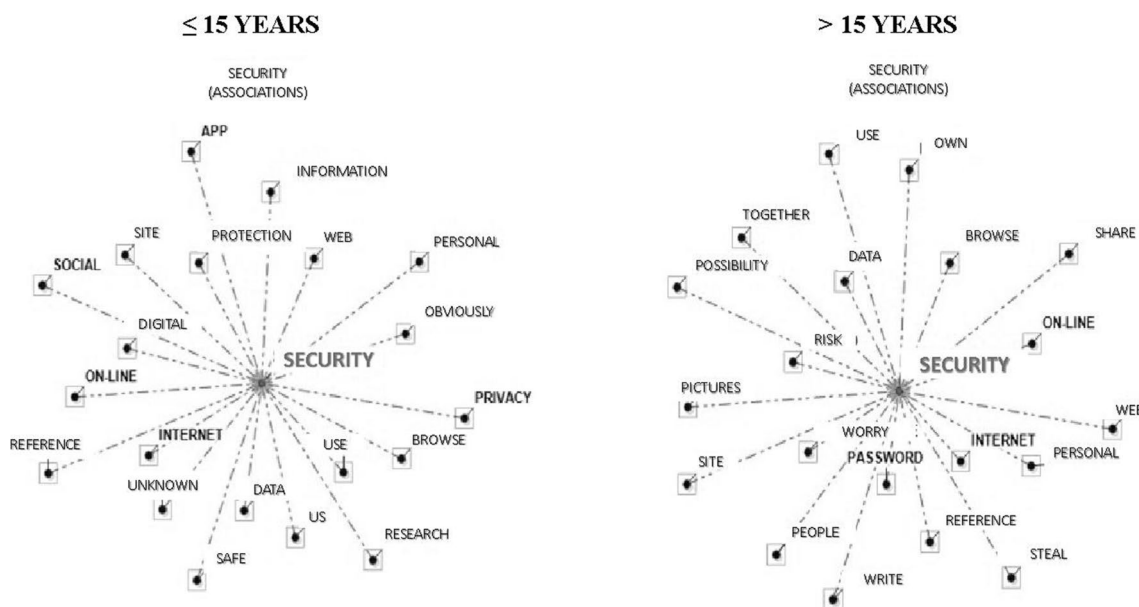
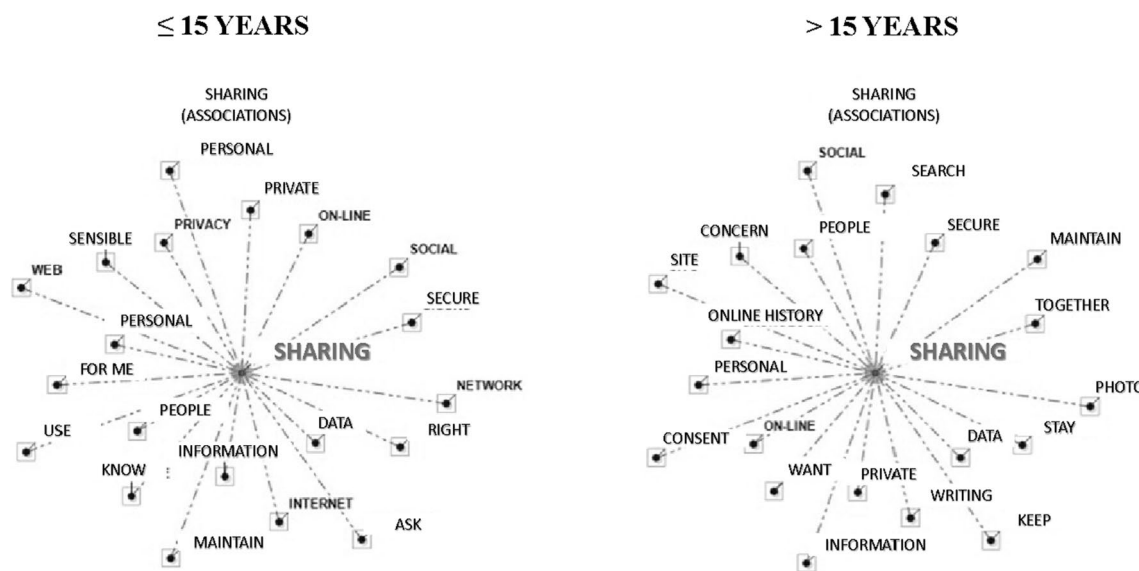**Fig. 1** Word association trees for the word "security"

Fig. 2 Association trees for the word "sharing"

($\chi^2 = 4.076$; $p = 0.044$). In the group of adolescents over the age of 15 they were: "risk" ($\chi^2 = 5.371$; $p = 0.020$); "worry" ($\chi^2 = 5.371$; $p = 0.020$); "password" ($\chi^2 = 5.179$; $p = 0.023$); "Internet" ($\chi^2 = 5.179$; $p = 0.023$).

Regarding the word "security," by comparing the associated terms that emerged in the two groups we find some similarities; for example, both use concepts related to the Internet and its use (e.g., use, browse, publish, online, digital) even if, in the group of older adolescents we also find words with an emotional content (e.g., risk, concern).

Sharing

As illustrated in Fig. 2, among the words most associated with "sharing" in the group of adolescents aged 15 or under were: "personal" ($\chi^2 = 5.034$; $p = 0.025$); "people" ($\chi^2 = 12.629$; $p < 0.001$); "for me" ($\chi^2 = 6.625$; $p = 0.010$); "information" ($\chi^2 = 12.629$; $p < 0.001$); "data" ($\chi^2 = 7.002$; $p = 0.008$); "safe" ($\chi^2 = 5.574$; $p = 0.018$). Among the words most associated with "sharing" in the group of adolescents over the age of 15 were: "chronology" ($\chi^2 = 9.058$;
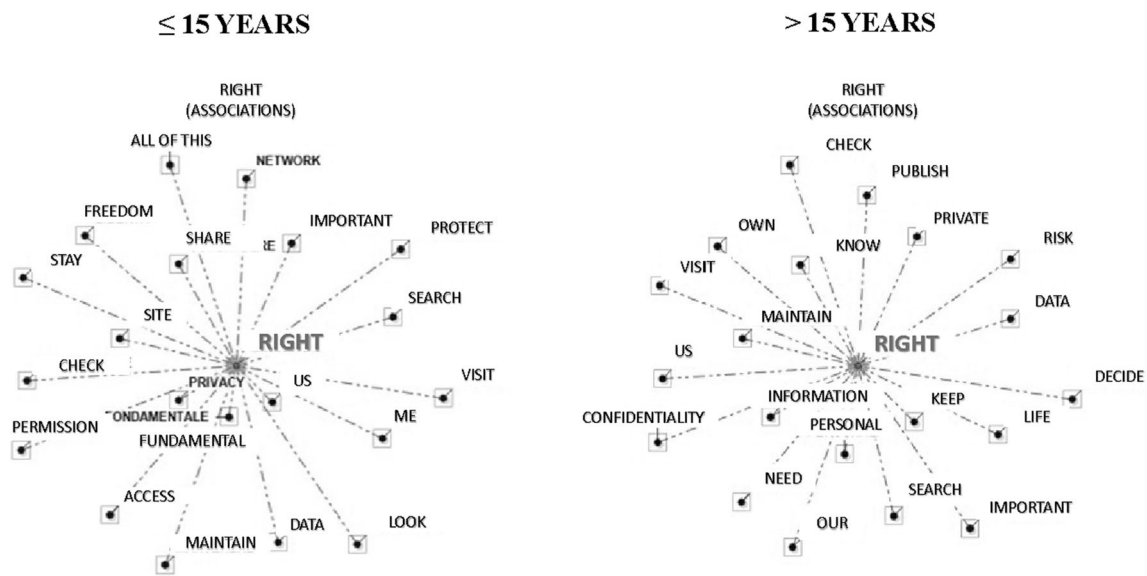
Fig. 3 Association trees for the word "right"

$p = 0.003$); "together" ($\chi^2 = 7.556$; $p = 0.006$); "write" ($\chi^2 = 7.556$; $p = 0.006$); "birthmark" ($\chi^2 = 7.556$; $p = 0.006$); "safe" ($\chi^2 = 7.316$; $p = 0.007$); "private" ($\chi^2 = 7.097$; $p = 0.008$); "people" ($\chi^2 = 6.046$; $p = 0.014$); "remain" ($\chi^2 = 5.974$; $p = 0.015$); "online" ($\chi^2 = 5.420$; $p = 0.020$); "maintain" ($\chi^2 = 3.937$; $p = 0.047$).

With respect to the word "sharing," which can be interpreted as referring to privacy in terms of choosing what is lawful to share with other people or not; in the younger group the most associated words refer, in particular, to the sphere of personal information and everything that concerns and revolves around the adolescent (e.g., "for me"; "personal"; "people"; "data") while in the group of children over 15 the words refer to their choice, intention, and willingness to share (e.g., "desire"; "keep"; "stay"; "consent").

Right

As illustrated in Fig. 3, among the words most associated with "right" in the group of adolescents aged 15 or under are: "privacy" ($\chi^2 = 31.134$; $p < 0.001$); "we" ($\chi^2 = 53.831$; $p < 0.001$); "fundamental" ($\chi^2 = 48.875$; $p < 0.001$); "site" ($\chi^2 = 6.687$; $p = 0.010$); "share" ($\chi^2 = 4.109$; $p = 0.043$); "important" ($\chi^2 = 5.185$; $p = 0.023$). Among the words most associated with "right" in the group of adolescents over the age of 15, we found: "information" ($\chi^2 = 6.549$; $p = 0.010$); "hold" ($\chi^2 = 16.206$; $p < 0.001$); "personal" ($\chi^2 = 4.172$; $p < 0.041$); "keep" ($\chi^2 = 7.564$; $p = 0.006$); "know" ($\chi^2 = 6.011$; $p = 0.014$).

Concerning the terms most associated with the word "right," it is possible to observe similarities in the two subsamples; both groups, in fact, agree in using concepts that refer to the value that privacy has for them and to the fact

that it is something that is up to each of us regardless of what we search or do online. It is possible to distinguish words that turn around the faculty of having online privacy (e.g., keep, maintain) and words referable to a more intimate dimension (e.g., important, us, fundamental, personal).

Privacy

As illustrated in Fig. 4, the words most associated with "privacy" in the group of adolescents aged 15 or under are: "fundamental" ($\chi^2 = 20.021$; $p < 0.001$); "ask" ($\chi^2 = 20.021$; $p < 0.001$); "we" ($\chi^2 = 32.801$; $p < 0.001$); "straight" ($\chi^2 = 31.134$; $p < 0.001$); "important" ($\chi^2 = 11.222$; $p = 0.001$); "site" ($\chi^2 = 16.086$; $p < 0.001$); "network" ($\chi^2 = 17.056$; $p < 0.001$); "allowed" ($\chi^2 = 4.090$; $p = 0.043$); "share" ($\chi^2 = 6.626$; $p = 0.010$). While the words most associated with "privacy" in the group of adolescents over the age of 15 are: "need" ($\chi^2 = 5.138$; $p = 0.023$); "reference" ($\chi^2 = 31.200$; $p < 0.001$); "our" ($\chi^2 = 18.738$; $p < 0.001$); "relate" ($\chi^2 = 18.738$; $p < 0.001$); "own" ($\chi^2 = 5.138$; $p = 0.023$); "social" ($\chi^2 = 9.037$; $p = 0.003$); "use" ($\chi^2 = 18.738$; $p < 0.001$), "desire" ($\chi^2 = 5.138$; $p = 0.023$).

Concerning the term "privacy," the focus of the investigation; in both groups, there are associated words related to the value of privacy (e.g., important, fundamental, right, need, own, ours); with the difference that in the younger group, there are also concepts that revolve around the idea that privacy is something for which only the legitimate owner has the right to make decisions or choices (e.g., permission, ask, share) while in the group of the older ones, there are also terms that can refer to their choices or actions and to their
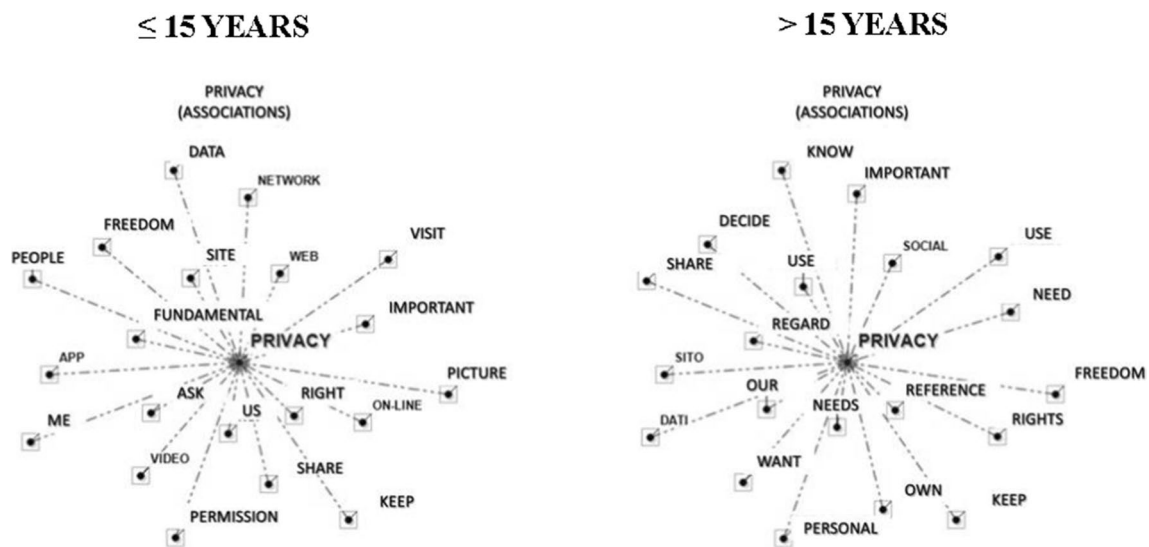
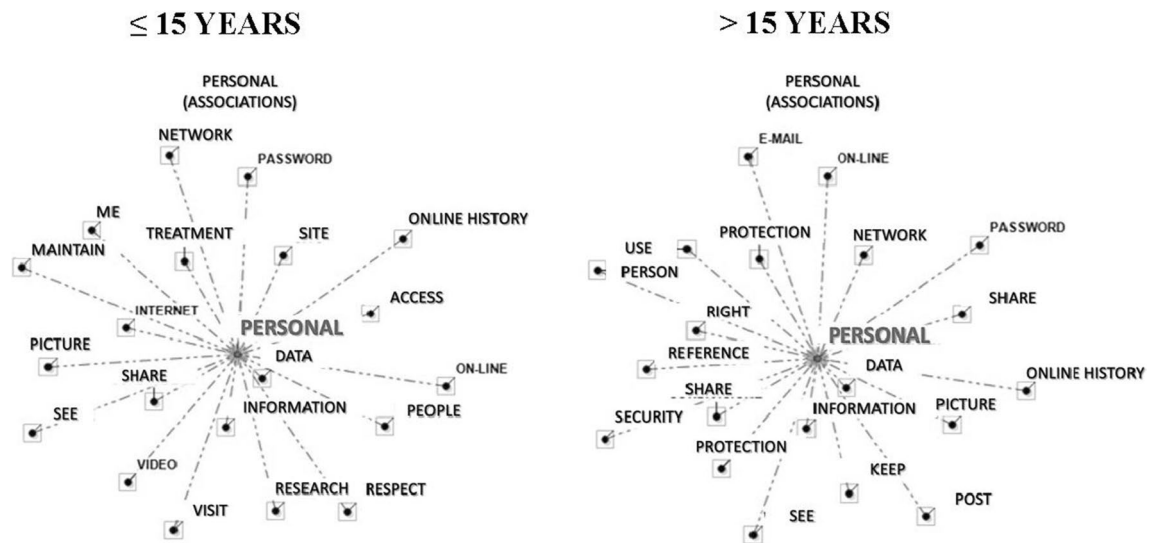**Fig. 4** Association trees for the word "privacy"

Fig. 5 Association trees for the word "personal"

abilities/possibilities to guarantee privacy (e.g., use, desire, concern).

Personal

As illustrated in Fig. 5, among the words most associated with "personal" in the group of adolescents aged 15 or under we found: "data" ($\chi^2 = 107.241$; $p < 0.001$); "information" ($\chi^2 = 14.510$; $p < 0.001$); "Internet" ($\chi^2 = 4.417$; $p = 0.020$); "access" ($\chi^2 = 7.112$; $p = 0.008$); "website" ($\chi^2 = 3.953$; $p = 0.047$). Among the words most associated with "personal" in the group of adolescents over the age of 15 were found: "data" ($\chi^2 = 57.158$; $p < 0.001$); "information"

($\chi^2 = 14.347$; $p < 0.001$); "protection" ($\chi^2 = 57.697$; $p = 0.006$); "sharing" ($\chi^2 = 11.543$; $p = 0.001$); "straight" ($\chi^2 = 4.172$; $p = 0.041$).

Compared to the word "personal," in the group of younger people, the most associated terms mainly focus on what is published, inserted, or written online (e.g., information, photos, videos, data) and what they choose to do, see, visit in the context of the Internet. On the contrary, in the group of children over 15 years of age, the words most associated with "personal" revolve not only around the information entered online but also the need for and the right to protection, and the choice of what to share or not (e.g., sharing, password, right, security, protection).

Discussion

This study aims to explore how adolescents define the concept of online privacy and, consequently, what they mean by it. This is because the literature seems to lack studies on young populations that aim to define this construct, as well as the difference between concern about one's privacy and actual knowledge of the subject. The analysis of the participants' narratives reveals that adolescents place a high value on the general concept of privacy, which is maintained by moving into the online context. Online privacy is primarily defined as a reflection of the *online self,* an intimate and personal part brought into the digital universe. Therefore, most adolescents bring out a philosophical–existential reflection that revolves around the sense of their being, leading them to consider how the concept of self today is, at least in part, influenced by the evolution of the surrounding world. In this case, the self seems to be influenced by the birth of the Internet, a virtual place where people, including youths, transpose their identity, understood in terms of their personal tastes (e.g., sites visited, music listened to, likes on social networks, etc.) and everyday experiences (e.g., sharing photos, posts, etc.). These findings are consistent with Wängqvist and Friséns' (2016) narrative review, which highlights the role of online contexts in adolescents' identity exploration and self-presentation.

In contrast to a definition such as the one outlined above, which we can define as theoretical, ideal, and individual-centered, adolescents propose a more concrete and material one, presenting online privacy as a digital entity. More specifically, the second emerging theme is that of the *digital safe.* Therefore, some adolescents see privacy as a protected space on the Internet, capable of shielding against possible dangers or theft and intended to store valuable information, referring both to downloadable programs that identify and eliminate computer viruses in electronic devices and to all those pages/websites that are protected by access codes. This second theme moves toward the idea that respect for privacy in the digital world becomes a moral and legal imperative that must guide the behavior of individuals and regulate their actions online with respect for others. This ties in well with the third emerging theme. Indeed, youths also define online privacy as a *human right.* As with the first theme, this definition takes the form of a theoretical one. In this case, privacy is defined as a legal basis and an inalienable right that every person must have. According to the current scientific literature, the concept of online privacy is recognized as a fundamental human right, which argues for the need to consider this in the current debate inherent in the construct (Lapenta and Jørgensen 2015). In line with this, in this study online privacy is understood by adolescents not only in terms of a safe space in the digital world but also as something that

belongs to everyone, that can be owned and defended, and that can protect everyone from harm. It is clear from this last theme that youths claim online privacy as a right. The last emerging theme in order of prevalence offered by the adolescents on how to interpret the concept of privacy online does not concern a value that belongs to us but rather a characteristic that depends exclusively on our abilities, namely *the ability to surf the web safely and the emotional correlates.* In this sense, compared to the previous cluster where youths were passive and asked for something that belonged to them, youths are now becoming active agents. Privacy depends in part on their personal skills and competencies. These skills could be related to the four privacy functions identified by Westin (1967). Online safety requires that teens learn to be independent and competent when using the Internet, to evaluate themselves, understand their strengths and weaknesses, and use this knowledge to protect themselves. Additionally, young people should also learn how to communicate wisely online, knowing when, how, and with whom to talk in the digital world. Finally, another aspect related to *the ability to surf the web safely and the emotional correlates* is undoubtedly knowing how to manage emotional release. In fact, while some adolescents emphasize the importance of knowing how to navigate online (e.g., avoiding dangerous sites or knowing what information to give in their profiles and what to keep confidential), others focus more on the emotional benefits that using the Internet properly can have—especially with a sense of calm sailing.

Regarding differences in the definition of online privacy between younger participants (i.e., pre-adolescents—adolescents up to 15 years) and those, instead, who are approaching young adult stage (i.e., adolescents over the age of 15), generally, there is a general agreement in interpreting the construct. Indeed, despite the widespread belief that older adolescents are more media literate (e.g., Grant 2006), this study shows no differences between the two groups. The main differences concern the concept of *safety* where, although words relating to the Internet are used in both groups, terms with emotional content appear in the group of older youths. This may be because the awareness of emotions develops during adolescence, allowing youths to better manage their emotions and reflect rationally on their feelings (e.g., Casey et al. 2008). Thus, older adolescents may be better able to consider complex issues such as the one under consideration, from an emotional standpoint as well. Regarding the ideas of "sharing," "privacy," and "personal," late adolescents differ from the younger participants. They connect these concepts not just to what they share online but also to their abilities and intentions to keep certain information private. They also consider the importance of safeguarding themselves and deciding what to share or withhold. On the other hand, there is an agreement among the participants regarding the words associated with the term right. All the

youths include ideas related to the capacity for digital privacy and words connected to a more personal sphere, such as life, us, and personal, which likely encompass everything that should be kept secure.

In sum, this study highlights young people's reflections on defining the concept of online privacy. Students show a deep awareness of the topic under study, articulating the construct according to four main themes, ranging from reflections with a more metaphorical, ideal, and profound slant (e.g., online self), to more concrete and material definitions (e.g., digital safe, right), to others with an emotional and active connotation (the ability to surf online and the emotional correlates). In terms of age differences and the specific adolescent phase, older adolescents show greater awareness and mastery of the subject matter, with more in-depth reflections that are not limited to considering what needs to be kept confidential or not, but also their active role in trying to guarantee privacy, by both acting in such a way as to protect themselves and by maturing the claim and desire for privacy. Thus, adolescents not only offer us a very interesting point of view, but they also give us a complete overview of an important concept, namely that of the confidentiality of their personal information and private life, a construct that is very complex and delicate, especially when transferred to the online context.

Strengths, limitations, and future perspectives

This study has several strengths, including the focus on adolescents' points of view. The use of narratives is a valuable tool for gathering information about personal experience. Then, given the age of the sample, the process of creating meaning is important to promote the evolutionary processes of this developmental age, such as the definition of self and identity and the growth of autobiographical process capacities (Habermas and Bluck 2000). Furthermore, given the complexity of this developmental period and the differences in emotional and cognitive development between early and late adolescence, the study enriched the analysis by comparing co-occurrences between adolescents under 15 and those over 15. This provided a more accurate picture of the youths' conceptualization of online privacy. Despite these strengths, the study's findings should be interpreted considering several limitations. First, the sample used for this research was part of a larger sample. Because of the length of the online survey, several youths did not complete the required narrative section. Second, the survey included only middle and high school students and did not consider the proportion of adolescents in the Italian population who are not currently involved in education. In fact, Grant's study (2006) finds that youths' experience of online privacy varies according to different aspects such as geographic background,

levels of media literacy, or personal motivation for Internet use. This supports the idea that further studies should consider the different economic and cultural experiences of adolescents. Furthermore, the analysis did not reveal any inter-individual differences that might be related to the personal characteristics of the adolescents and their life contexts. Rather, the study aimed to elicit adolescents' representations and conceptualizations of online privacy. The proposed narrative task was limited to asking how youths define the construct without going into emotional and personal aspects or how they manage their privacy in the digital context.

In conclusion, our findings highlight that adolescents value the concept of online privacy. Adolescents' narratives indicate that they are aware of the importance of their privacy and security in the digital context, as well as the problems and threats associated with it. Furthermore, the narratives show that the growing awareness of the potential risks of the online environment also seems to have led to an increase in young people's ability to respond to risks related to online privacy. In fact, teens emphasize their knowledge of various tools (e.g., antivirus, passwords) that they can use to protect their privacy, and they recognize their active role in the process of securing their sensitive information and data.

Data availability The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Code availability Qualitative analyses were conducted using T-Lab software.

Declarations

Ethical approval The survey is part of a larger project that meets all ethical guidelines.

Consent to participate All respondents provided explicit informed consent at the beginning of the survey.

Consent for publication Not applicable.

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