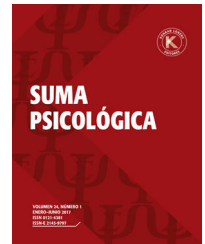




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## Millennials sex differences on Snapchat perceived privacy

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### ABSTRACT

Snapchat offers a distinctive feature from other social networks in that its users control the visibility of the contents they share with others by defining how long these contents may be available. Snapchat is changing the way men and women perceive online information privacy and content management. This paper aims to illustrate the relevance of social representation theory to evaluate perceived privacy in Snapchat users, with a sample of 268 young adults residing in Bogotá. A survey method was employed for data collection purposes. The results reveal that Snapchat users are concerned about their networks' privacy, with no significant sex differences, although men's perception of Snapchat privacy is safer than that of women. Finally, a discussion is presented as to the limitations and implications of these results for further studies.

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### Diferencias por sexo de los «Millennials» sobre la privacidad percibida en Snapchat

### RESUMEN

De las redes sociales existentes, Snapchat ofrece a sus usuarios el rasgo distintivo de permitirles controlar el tiempo que será visible el contenido que comparten con otros. Snapchat plantea un cambio en la manera cómo se concibe la privacidad de la información y el manejo de contenidos *online* por parte de hombres y mujeres. El objetivo de este trabajo es ilustrar la relevancia de la teoría de representaciones sociales para evaluar la privacidad percibida en usuarios de Snapchat a través de una muestra de 268 adultos jóvenes residentes en Bogotá. Con el diseño y aplicación de una encuesta especialmente adaptada se pudo observar que a los usuarios de Snapchat les preocupa la privacidad de sus redes sin que existan diferencias significativas por sexo; aunque, en comparación con sus pares femeninos, los hombres perciben que Snapchat es más segura. El artículo finaliza con una discusión sobre las limitaciones e implicaciones de estos resultados para futuros estudios.

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#### Palabras clave:

Snapchat

Privacidad

Seguridad

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Sexo y seguridad

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The popularization of digital social networks like Facebook, Instagram or Twitter offers novel paths for analyzing human behavior in the digital sphere. The data provided by these networks allows the study of different topics such as ideological consumerism in political campaigns (Correa & Camargo, 2017), promotion of health (Kite, Foley, Grunseit, & Freeman, 2016), or segregation patterns in cities (Boy & Uitermark, 2016).

A sensitive topic associated with the use of these networks entails the concepts of privacy and security by young users (Vanderhoven, Schellens, Valcke, & Raes, 2014). According to Arab and Díaz (2015), adolescents have no clear boundaries between what should be “public” and what should be “private” in their social networks. The public–private division is somehow extensible to young adults. For instance, Hoy and Milne (2010) observed that women are more concerned about their privacy being invaded, and this might explain why they are more likely than men to take proactive self-protective behaviors in Facebook. These concerns, however, are reduced for users of the so-called “ephemeral social media” like Yik Yak, Slingshot, Frankly Chat or Snapchat (Bayer, Ellison, Schoenebeck, & Falk, 2015).

Ephemeral social media share some properties of synchronous communication like face-to-face conversations, but differ in that they are typically asynchronous; that is, the contents of the social interactions are not transmitted in a steady stream but intermittently, according to the users’ availability to interact. Before the popularization of online social networks, scholars have noticed the importance of studying this type of communication in adolescents who used short message service or multimedia messaging services (Häkkinä & Chatfield, 2005). Although most social networks provide communication tools to its users, Snapchat has been gaining popularity for young adults between 18 and 34 years old, who are also known as “Millennials” (Sashittal, DeMar, & Jassawalla, 2016; Utz, Muscanell, & Khalid, 2015).

Snapchat – first launched in April 2011 – is a smartphone app that allows users to share photos or videos, known as “snaps”, to one or several friends with the unique feature of dissolving these snaps after few seconds. In comparison with Facebook and other social networks where posts are persistent and frequently visible to a broader audience, Snapchat offers the opportunity of a less persistent and a more private communication. Known uses of Snapchat include sending funny pictures, selfies, flirting, sexting or sending sexual or pseudo-sexual material (Piwek & Joinson, 2016). According to Bayer et al. (2015) the social interactions via Snapchat were perceived as more enjoyable as they were associated with more positive mood than other networks, but this does not exclude the possibility that these interactions were also associated with lower social support, as they include sharing mundane experiences with close ties through a lightweight channel.

These results show that research interests, so far, center on the use of Snapchat. However, the perceived privacy of the ephemeral communications occurring in this network is taken for granted without adequate exploration. Needless to mention, that perceived privacy is a phenomenon

that has taken place after the popularization of online social networks. As such, perceived privacy was not considered in classical conceptions of social psychology and related theoretical frameworks. Our aim in this paper is to fill this gap by highlighting the social representation theory (Howarth, 2006; Joffe, 2003), as a relevant framework for understanding perceived privacy in this network. The rest of this paper is structured as follows. The next section describes the relevance of the social representation theory for understanding social interactions in Snapchat; Section “Method” presents the method we followed in this study; and Sections “Results” and “Discussion” present the results and the discussion, respectively.

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### Social representation: a relevant framework for understanding perceived privacy in Snapchat

The theory of social representations has its roots in the seminal works of Serge Moscovici (Howarth, 2006) and further extensions proposed by Jean-Claude Abric (Rateau, Moliner, Christian, & Abric, 2012). Social representations are systems of values, ideas or practices that enable communication among members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the different features of their world and their individual and group history. Given the parallels between the theory of social representations and the classical approach of “Social Cognition” (Wagner, 1992), it is worth noting their differences. Such differences highlight the convenience of social representations for the study of Millennials’ sex differences on Snapchat perceived privacy.

As stated by Wagner (1992), social cognition is concerned with social knowledge and cognitive processes. The social psychology of cognitive processes is the formal discipline that aims the study of the stages, structures, and dynamic mechanisms involved in the receipt of information, as well as in its encoding, storage, and retrieval. Although social knowledge may differ between social groups, cognitive processes work at the level of the individual regardless the specific content of knowledge systems, as well as the discipline that aims testing generalizability of research results is cross-cultural psychology. The reference population is the human species as a cognitive process unity. The theory of social representations, in contrast, is concerned with culture and ideology. Its reference population is a specific social group (e.g., Millennials residing in Bogotá city). Cultural and social contents characterize, define and differentiate social groups from each other. The difference between both frameworks is better understood as follows: “No student of social representations would claim that his or her findings (...) could be generalized to other social or cultural groups” (Wagner, 1992, p. 111). Thus, the theory of social representations is adequate for “case studies”, where all of its members share common characteristics such as their spoken language, their history (e.g., the country they were raised) and their present (e.g., their country of residence).

The theory of social representations has been employed for the analysis of the so-called “risk perception” (Joffe, 2003).

The notion of risk perception is extremely relevant for understanding the concept of perceived privacy in ephemeral social networks like Snapchat. According to Joffe (2003), a key concern in this theory relates to how knowledge about a phenomenon (i.e., communication in ephemeral social media), changes into lay thinking. It is well-known that mass media play the leading role of transforming expert knowledge into lay knowledge. The person's first contact with a potential danger (e.g., being exposed to cyberbullying or mocking) is often found in the interaction with others. In fact, recent studies highlight how social representations of cyberbullying might be associated with Millennials suicides (Young, Subramanian, Miles, Hinnant, & Andsager, 2016). Cyberbullying is an intentional act carried out by a group or individual, known as bullies, who employ electronic communication against a victim who cannot easily defend himself or herself. As cyberbullying occurs when bullies communicate with their victims after seeing their public profiles and personal information, victims look for defenses that prevent further contacts with bullies (e.g., select or limit the audience who can look up for personal information, see and share future posts, or make future contact).

Traditional news media, friends and, acquaintances do not merely present a 'photocopy' of the expert knowledge that suggests the use of ephemeral media for reducing potential risks, like cyberbullying, in social networks. Instead, they simplify and sensationalize it, and set up debates concerning responsibility and blame, in the hope of attracting the attention of more users. As long as users perceive that their communication with friends and acquaintances is "safe", they will engage in using these networks more often. The idea of "risk" appears when communication is shared with unknown persons who are introduced by a friend or an acquaintance. Following Abric's ideas regarding social representations, these social dynamics activate the two components of social representations: the central system and the peripheral system (Rateau et al., 2012).

The central system is directly linked and determined by socio-historic conditions. As such, it constitutes the common collectively shared basis of representation which, in turn, proves to be consensual. Since this central system is said to be stable, coherent and resistant to change, its linguistic manifestation can be seen by common words shared by the majority in the community. This central system, however, is accompanied by a peripheral system which permits the integration of individual experiences, supports some sort of heterogeneity and even bear contradictions among members of a community. As such, this peripheral system allows the adaptation to concrete reality, the content differentiation while it protects the central system itself. Assuming that most common words reflect the central system of social representations, its exploration can be done by the "word counting" technique. Roughly speaking, the most common words shared by the members of a community will provide a list with the ideas and values composing the central system of the social representation of perceived privacy in Snapchat. In contradistinction, less frequent words will provide a list with the ideas and values composing the peripheral system of perceived privacy in Snapchat. If perceived privacy in Snapchat works differently according to the user's sex, then males' central system will be

composed by a list of words which will be different of their female counterpart.

## Method

### Participants

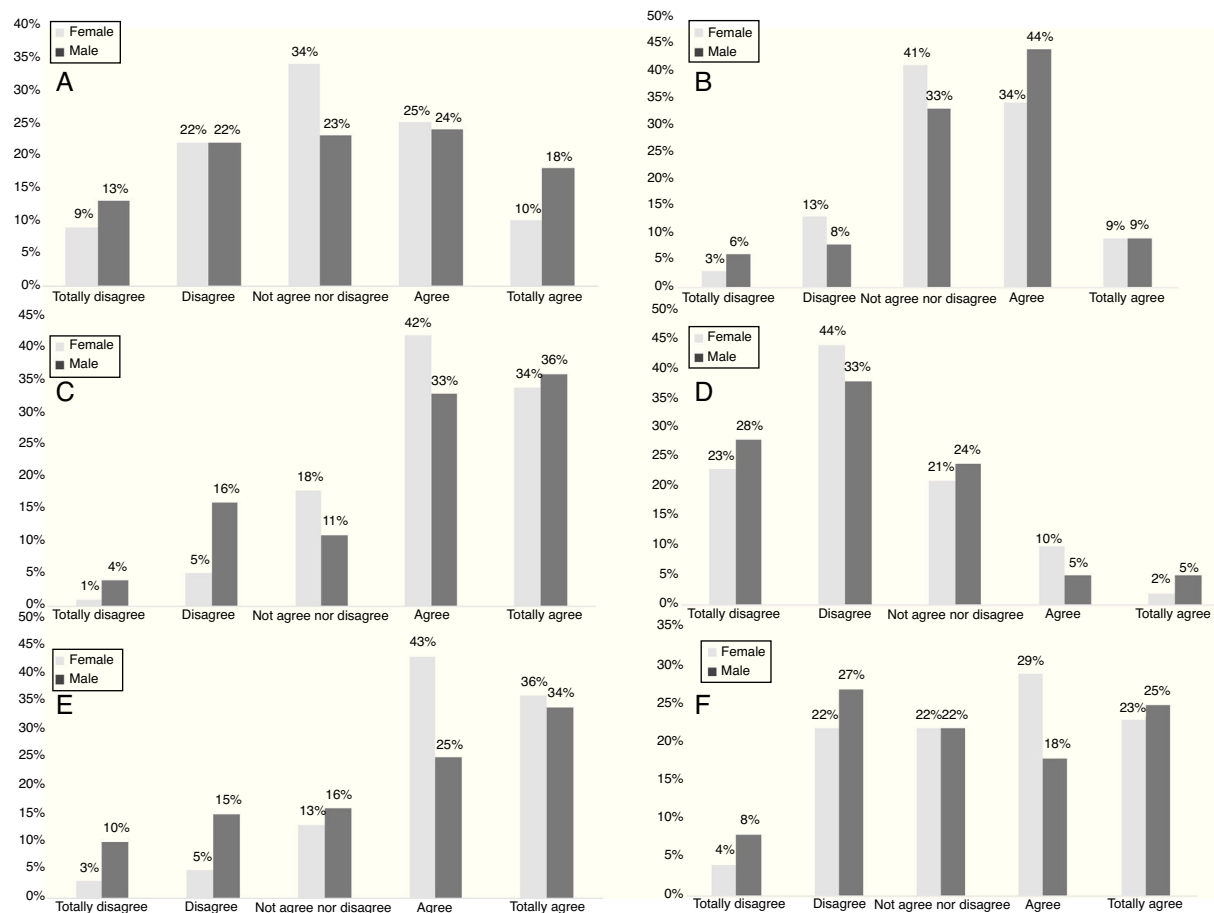
We recruited 268 Snapchat users of both sexes and all socio-economic statuses. All participants declared that they were regularly using Snapchat during the last 6 months before the study. Participants resided in Bogotá city, aged between 18 and 25 years old (60% females) and declared their voluntary willingness to participate in the study. Subjects were told that the information was going to be used for academic purposes, preserving confidentiality.

### Procedure

In a first phase, we conducted a qualitative exploration with a focus group composed by seven Snapchat users who were asked to report a list of items or features that allows the classification of social networks according to known criteria. The list reported by participants of this focus group was used to build a questionnaire aiming to evaluate social representations of privacy in Snapchat. The second phase of the study comprised the development of this questionnaire. Such development was based on a re-adaptation of a pool of items aiming to evaluate the social representations associated to hedonic food intake in restaurants in a sample of individuals from Bogota, D.C. (Padrón Mercado & Barreto, 2011). The resulting questionnaire was as follows: one item requests the subject to report a list with the first six ideas that pop up in their mind when thinking about privacy in Snapchat. A second item requests the subject to choose two of the most important out of these six. Other five items explore characteristics of the Snapchat user (e.g., age, sex, frequency of Snapchat use, time of use, economic status). Finally, six Likert-scale items aim to explore users' concerns about privacy in Snapchat. The adequacy of this questionnaire was assessed through an expert validation with two judges. The result of this validation – calculated with the Finn's index of agreement (Kozłowski & Hatrup, 1992) – revealed acceptable adequacy ( $F=0.953$ ;  $p<.0001$ ). This validation was conducted with the aid of the package "irr" (Gamer, Lemon, Fellows, & Sing, 2012) inside the R environment (R Core Team, 2017). Sex differences on each item were evaluated with non-parametric tests of analysis of variance also inside the R environment. The questionnaire developed is available in Spanish under request.

### Instruments

The items of the questionnaire aiming to evaluate the social representation of privacy in Snapchat were written in Spanish and adapted into an electronic form provided by the SurveyMonkey® platform. This electronic questionnaire was then administered via email invitation to the recruited participants. The items were set as mandatory, so the subjects cannot leave the form until completing all responses.



**Fig. 1 – Statistical distributions for the following statements: (A) “I have concerns about the privacy of the contents I share via Snapchat”, (B) “Snapchat does a good job to protect my privacy”, (C) “To me, it is very important knowing how my personal info will be used when published”, (D) “I know about the use that is given to my info in my profile”, (E) “I wish I could be notified every time a company looks into my personal use of Snapchat”, (F) “I worry that my contacts can print screen my pictures”.**

## Results

We began our analysis by describing the statistical distribution of the responses to the items of privacy concerns. Fig. 1A shows what men and women think about the following statement “I have concerns about the privacy of the contents I share via Snapchat”. The results show that in this regard their concerns proved to be not significantly different ( $F = 0.318$ ;  $p = .573$ ). Fig. 1B shows the differences between men and women regarding the job done by Snapchat to protect their privacy. These differences were not statistically significant ( $F = 0.99$ ;  $p = .321$ ). Fig. 1C depicts the importance for Snapchat users of knowing the use of their personal information. In this case, there were significant differences between men and women, being more important for women ( $F = 4.734$ ;  $p = .03$ ). Fig. 1D illustrates that there were no significant differences between men and women regarding the statement “I know about the use that is given to my info in my profile” ( $F = 0.107$ ;  $p = .74$ ). Fig. 1E shows significant differences between men and women regarding the statement “I wish I could be notified every time a company looks into my personal use of Snapchat”

( $F = 10.729$ ;  $p = .001$ ). Finally, Fig. 1F shows that men and women did not show significant differences on the statement “I worry that my contacts can print screen my pictures” ( $F = 0.903$ ;  $p = .343$ ).

A further scrutiny regarding social representations of privacy in Snapchat was conducted with the analysis of the most frequent words shared by female and male users. Table 1 summarizes the list of Spanish words reflecting males and females’ central system of social representation of Snapchat. Females’ common words list proved to be similar to the males’ list, with slight differences in their relative frequencies.

## Discussion

The aim of this paper was the exploration of Millennials sex differences on Snapchat perceived privacy. As an emerging phenomenon associated with the popularization of online social networks, the concept of perceived privacy is fragmented, and usually discipline-specific (Dinev, Xu, Smith, & Hart, 2012). The first contribution of our study showed the relevance of the theory of social representations (Rateau et al.,



**Table 1 – List of Spanish (and English) words reflecting central system of social representation of Snapchat.**

Female's list	Frequency	Relative frequency	Male's list	Frequency	Relative frequency
Seguridad (security)	63	25%	Seguridad (security)	43	25%
Intimidad (intimacy)	59	24%	Personal (personal)	43	25%
Personal (personal)	54	22%	Intimidad (intimacy)	30	17%
Secreto (secret)	50	20%	Información (information)	27	16%
No (no)	29	12%	Secreto (secret)	26	15%
Privado (private)	25	10%	Privado (private)	18	10%
Mío (mine)	24	10%	Control (control)	16	9%
Ver (see)	19	8%	No (no)	15	9%
Información (information)	16	6%	Mío (mine)	14	8%
Derecho (right)	16	6%	Confidencial (confidential)	13	8%
Vida (life)	16	6%	Respeto (respect)	12	7%
Confianza (trust)	15	6%	Derecho (right)	12	7%
Reservado (reserved)	15	6%	Seguro (safe)	11	6%
Control (control)	13	5%	Propiedad (property)	11	6%
Confidencial (confidential)	13	5%	Datos (data)	11	6%
Solo (only)	13	5%	Confianza (trust)	11	6%
Personas (persons)	12	5%	Oculto (hidden)	10	6%
Oculto (hidden)	11	4%	Contraseña (password)	9	5%
Protección (protection)	11	4%	Público (public)	8	5%
Exclusividad (exclusivity)	11	4%	Protección (protection)	7	4%
Propiedad (property)	10	4%	Contenido (content)	7	4%
Seguro (safe)	10	4%	Solo (only)	6	3%
Espacio (space)	9	4%	Permiso (permission)	6	3%
Cuidado (careful)	9	4%	Restringido (restricted)	5	3%
Limitado (limited)	9	4%	Libertad (liberty)	5	3%
Discreción (discretion)	8	3%	Espacio (space)	5	3%
Quiero (want)	8	3%	Clave (keywords)	5	3%
Respeto (respect)	7	3%	Acceso (access)	5	3%
Público (public)	7	3%	Yo (me)	4	2%
Contenido (content)	7	3%	Tranquilidad (tranquility)	4	2%

2012) to analyze the concept of perceived privacy in Snapchat, with the emphasis placed on the concept of “risk” (Ioffe, 2003). Despite the ubiquitous role of social networks in our lives and the soundness of social representation theory to analyze them, we are not aware of any previous research that has employed this theory for such purposes. In fact, existent reviews targeting theories in online information privacy omit the relevance of social representations (Li, 2012) or define their target populations to young professionals instead of Millennials (Dinev et al., 2012). Needless to say, similar ventures might be followed for the analysis of perceived privacy in non-ephemeral social networks like Facebook, Twitter or Instagram which show a massive use worldwide (Giglietto, Rossi, & Beninato, 2012). Integrated frameworks, such as the one proposed by Li (2012) might be benefited from our approach.

Open questions remain for future research. For instance, is perceived privacy an important concern for geosocial networks like Waze or Google Maps? It is well-known that this sort of networks help their users in commuting through less congested roads and that this help increases as the number of users and their traffic reports remain frequent (Silva et al., 2013). Then, what is the role of perceived privacy in these geosocial networks? Given the relationships that exist between perceived privacy, trust, control and online self-disclosure, it might be possible that perceived privacy in these geosocial networks is of little concern because of the benefits they offer to their users.

Our study revealed that perceived privacy in Snapchat was an important concern for both men and women but this

importance was not statistically different between the sexes. This is in accordance with previous observations conducted in Facebook (Hoy & Milne, 2010) and other communication tools (Frye & Dornisch, 2010). However, further efforts might be oriented toward the evaluation of possible differences across cultures, ages and languages. Recent research on the cultural differences of emotions suggests that they can be mapped in both horizontal and vertical plane to differentiate how culture molds the way human beings process their social cognitions (Marmolejo-Ramos et al., 2016). By understanding social representations as social cognitions (Wagner, 1992), it is relevant to know if these representations vary according to culture. Do Westerners differ from Easterners in their social representation of social networks? And if so, what are the differences? Finally, and in relation to the previous observations, our study has shown a procedure that might be followed in other latitudes to replicate our results and/or evaluate differences of perceived privacy according to the type of social network and its explicit use.

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