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Understanding the impact of group characteristics on individual’s privacy behavior–a systematic literature review

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Understanding the Impact of Group Factors on Individual's Privacy Behavior – A Systematic Literature Review

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ABSTRACT

As a result of on-going digital transformation, privacy concerns and resulting privacy behavior play an important role in everyone's life and affect both individuals as well as groups of individuals. However, there is a lack of literature on the impact of group characteristics on individual privacy behavior. Thus, the goal of this work is to provide an overview of the group-level factors that influence an individuals' privacy behavior. By conducting a systematic literature review, we identified a total of 14 articles which investigate several factors influencing privacy behavior on the group-level. We find the theory of multilevel information privacy (TMIP) as most promising avenue to understand the role of group factors for individual privacy behavior and extend TMIP by group characteristics, group behaviors, as well as privacy concerns. Finally, even though several papers investigated the impact of group factors, there is still a big need for more research in this area.

Keywords: Group factors, group characteristics, individual privacy behavior, TMIP

INTRODUCTION

As digital transformation influences nearly everyone's life, almost all individuals are constantly asked to make privacy decisions when browsing for information, shopping online, sharing pictures with friends on social media, using personalized products and services, etc. (Acquisti et al. 2015; Data Privacy Manager 2020; Sutanto et al. 2013). The factors driving these privacy decisions can thereby vary for each individual user (Statista 2021). In many situations,

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such privacy decisions are not only influenced by individual factors but group level factors play an important role (Smith et al. 2011) because almost every individual usually belongs to multiple groups at once (Bélanger and Crossler 2011). As the majority of current literature in IS has only focused on privacy behavior on the individual level, various calls for a better understanding of research on the group level have already been made (e.g., Bélanger and Crossler 2011; Smith et al. 2011). At the same time, group privacy is a research field that touches upon many disciplines, such as psychology (e.g., Dhir et al. 2017; Stuart et al. 2019) or sociology (e.g., Laufer and Wolfe 1977; Van den Broeck et al. 2015). Therefore, we want to provide an overview of the main group level factors influencing an individuals' privacy behavior by investigating IS and related literature. We pose the following research question: *How and which group level factors impact an individuals' privacy behavior?*

To answer this question, we conduct a systematic literature review with focus on information systems (IS) research but complement this with literature from other fields to gain a broader understanding of group characteristics and group behaviors that influence individual privacy behavior online. We examine how and why privacy is a multilevel construct, consisting of an individual- and a group-level, and how a group is classified. We continue with a description of our literature review approach. Then we present our results with an overview of the most important group-level factors that are influencing an individual's privacy behavior. Finally, we discuss our main findings and describe the limitations of our work.

THEORETICAL FOUNDATION

In the following section, we define privacy and discuss privacy concepts as well as theories that are of relevant for our study. In the second part, we will examine what a group is, and especially how individuals know that they are part of a certain group.

Privacy

A clear definition of privacy is still lacking in current research, but most research agrees that privacy concepts and definitions are elastic and depend on the context (Dinev et al. 2013; Stuart et al. 2019). Furthermore, privacy can be present on two levels, the individual- and the group-level. While most research has focused on privacy on the individual-level, privacy on the group-level has mainly been neglected in IS literature (Bélanger and James 2020; Bélanger and Xu 2015). Nonetheless, privacy has been recognized as a group-level construct for several decades (Laufer and Wolfe 1977; Westin 1967). To explain these two different levels of privacy, we follow the definitions of Bélanger and James (2020) who define individual information privacy as an individuals' ability "to construct, regulate, and apply the rules (i.e., norms) for managing his or her information and interaction with others" (p. 512). Group information privacy on the other hand is described as a groups' ability "to construct, regulate, and apply the rules (i.e., norms) for managing their information and interaction with others" (Bélanger and James 2020, p. 513). In line with these definitions, it is obvious that groups do have their own structure and identity, and therefore have their own privacy concerns. This means that the groups' information privacy concerns oftentimes differ from the individual privacy concerns of the members of the group (Bélanger and Crossler 2011; Watson-Manheim and Bélanger 2002). To conclude, it can be summarized that privacy can be on the individual- and group-level and there are different privacy concerns for each of those levels.

Relevant Theories in Privacy Research

This section gives an overview of the most relevant privacy theories in the literature which include groups: the privacy calculus perspective and the communication privacy management (CPM) theory. Laufer and Wolfe (1977) developed the privacy calculus which had been adapted to the IS context (e.g., Dinev and Hart 2006; Kehr et al. 2015). This theory states that individuals tradeoff risk and benefits before they make any privacy decision or disclose any personal information (Dinev and Hart 2006; Xu et al. 2009). While privacy benefits refer to the advantages that arise from disclosing personal information, privacy risks describe an individuals' perception that the disclosure of information leads to a negative outcome (Malhotra et al. 2004).

The second relevant privacy theory is communication privacy management (CPM) which focuses "on how people collectively manage private objects (information)" (Stuart et al. 2019, p. 4). CPM theory uses the term boundaries to describe the borders of private information flow in order to help understanding how privacy can be controlled or managed (Anderson and Agarwal 2011; Petronio 2002). These boundaries can vary from being fully open to being fully closed or even secret (Sutanto et al. 2013). While an open boundary means that private information is easily accessible, a closed boundary means that information is private, not accessible, and well protected (Trepte and Reinecke 2011). CPM sets rules and norms to help making decisions on how such boundaries can be maintained and to aid in managing privacy (Anderson and Agarwal 2011). Thereby, the desired levels of privacy can be reached (Trepte and Reinecke 2011).

Groups

To classify what a group is and how individuals identify with groups, we are looking at two different points of view. Firstly, we have a look at the characteristics of Smith et al. (2011). According to them, three main key components characterize a group: (1) the members of a group are striving for interdependent goals, (2) the members of a group are able to react to each other and also know of each other, and (3) the members of a group view themselves as a group (Smith et al. 2011), e.g., youth organizations, sport teams, or alliances of women. Secondly, we look at the social identity theory (SIT), which aims at examining how individuals identify with multiple groups and behave in terms of these groups (Bélanger and James 2020; Tajfel and Turner 2004). In SIT, three processes are central. First, "an individual categorizes others into groups based on common characteristics meaningful to him or herself" (Bélanger and James 2020, p. 519) (social categorization). Then the individual identifies him or herself with one or more groups based on shared characteristics (social identity). Finally, different groups can be compared to one another by the individual (social comparison) groups (Bélanger and James 2020; Tajfel and Turner 2004). As mentioned previously groups have their own structures and constructs even though individuals are their key components (Bélanger and Crossler 2011). In line with that different groups form their own different norms and rules (Watson-Manheim and Bélanger 2007).

METHODOLOGY

We conduct a systematic literature review approach following the guidelines of Webster and Watson (2002) and apply the process of Xiao et al. (2013). We focus our literature search on peer-reviewed articles on three databases: EBSCO host, ProQuest, and Web of Science. The search string consists of two parts and we search for our search terms in title, abstract, and keywords. The first part contains "privacy", while the second part aims at the group aspect of our research: [privacy] AND [group* OR group-level OR multi-level OR multilevel]. We receive 853 results on EBSCO host, 1387 results on ProQuest, and 1377 results on Web of Science (as of June 2021). In our first screening process, we read title, abstract and keywords of all articles and exclude all articles that are duplicates, are not related to IS, do not mention any group-level factors or are neither empirical nor conceptual journal articles. We end up with 126 relevant articles (41 from EBSCO host, 41 from ProQuest, and 44 from Web of Science). Another exclusion criterion is quality; we only use journals with the quality Q1 on Scimago. We end up with an initial shortlist of 54 relevant articles (20 from EBSCO host, 20 from Web of Science, and 14 from ProQuest). Moreover, we conduct a forward and backward search on these 54 articles and apply the exclusion rules to them as well. This led to four additional articles. As next step, we conduct a full analysis of these 54 articles in more detail and exclude further articles which do not include a link between privacy and group-level characteristics. Our final sample consists of 14 relevant articles. We carefully analyze and classify the final pool of papers by focusing on group-level factors and their impact on users’ individual privacy behavior. The co-authors independently check and align the classification using deductive and inductive reasoning (Xiao et al. 2013). Eventually, we summarize our results in Table 1.

RESULTS

In the following, we present the most prevalent group-level factors that influence an individuals’ privacy behavior (see Table 1) to answer some of the calls for a group-level analysis in previous literature (e.g., Bélanger and Crossler 2011; Smith et al. 2011). We develop a model based on the theory of multilevel privacy (TMIP) of Bélanger and James (2020) and extend it by several factors which we find in our results. First, we examine how group characteristics influence individual privacy behavior. Second, we integrate the group factors into TMIP.

Table 1. Group Factors Influencing Individual Privacy Behavior (Excerpt of Concept Matrix)

Author	Factors	
Bélanger and Crossler (2011)	• Group dynamics/characteristics	
Bélanger and James (2020)	• MIPD • Privacy calculus • Information privacy norms (IPNs)	• IPN development • Environmental characteristics • Salient social identity • Experiential feedback
Bergström (2015)	• Age • Education	• Gender
Budak et al. (2015)	• Culture/Country • Age	• Gender • Education
De Wolf et al. (2014)	• Age • Gender	• Education • Group dynamics
Dhir et al. (2017)	• Age • Gender	
Elueze and Quan-Haase (2018)	• Age	

Krasnova et al. (2012)	• Culture
Kruikemeier et al. (2020)	• Social contract perception (neutral, carefree, wary, highly-concerned, ambivalent)
Miltgen and Peyrat-Guillard (2014)	• Age • Culture
Moustaka et al. (2019)	• Age • Culture • Gender • Education
Park et al. (2015)	• Peer pressure/herding behavior
Van den Broeck et al. (2015)	• Age
Wisniewski et al. (2016)	• Relationship boundaries

Group Characteristics

Country/Culture

Culture impacts the influence of several factors (protection and regulation, trust, responsibility) on individual privacy concerns as well as the way in which privacy concerns impact the individual privacy behavior in form of disclosure behavior (Miltgen and Peyrat-Guillard 2014). These impacts of culture differ depending on the country. Miltgen and Peyrat-Guillard (2014) find that people from collectivistic countries (CCs), such as Spain, trust institutions more and generally have a higher level of trust than people from individualistic countries (ICs), such as France. The same cultural difference applies for the trust in public regulation. Furthermore, people from ICs have been shown to be more responsible for their data and information use as well as more reluctant towards the disclosure of personal information or data. Contrasting these findings, privacy concerns of Facebook users have a more negative impact in cultures that tend to be more uncertainty avoidant (CCs) (Krasnova et al. 2012). Additionally, users from CCs have been shown to be less likely to trust the social network sites' (SNS) provider and fellow users, and therefore are disclosing less of themselves on Facebook than users from ICs (Krasnova et al. 2012). Overall, it can be said that country and culture influence an individuals' privacy behavior, but that this influence differs depending on country and culture. Moreover, findings on ICs and CCs show divergent outcomes.

Age

In terms of age, research found different age groups to be differently concerned about privacy and to show different privacy behavior. Older people are more afraid of possible data misuse and have higher privacy concerns (Miltgen and Peyrat-Guillard 2014; van de Broeck et al. 2015). Moreover, older people predominantly categorize as citizens wishing for better data protection (Budak et al. 2015). Older individuals also use individual privacy management strategies more often than younger age groups (De Wolf et al. 2014). Nonetheless, they are not a homogenous group, all having the same privacy attitudes and behaving in the same way towards privacy. While the majority of them can be classified as privacy pragmatists, weighing out the risks and benefits of data disclosure, their privacy attitudes are still varying (Elueze and Quan-Haase 2018). While young people are less afraid of data misuse and have lower privacy concerns than older age groups, they feel more responsible for their own data use online and are more confident in their capability to control their own data (Miltgen and Peyrat-Guillard 2014). As they are more confident in controlling their privacy, they are also more likely to disclose their information to a bigger audience (van de Broeck et al. 2015). Moreover, young people update their privacy settings on Facebook far more often than other age groups. Additionally, younger individuals' use more personal data protection strategies and tend to lie more often when it comes to the disclosure of personal information online (Miltgen and Peyrat-Guillard 2014).

Gender

Results about gender influences on individual privacy behavior have been inconclusive in previous research (Moustaka et al. 2019). While Budak et al. (2015) found no gender differences at all in the groups they divided Balkan citizens into, Dhir et al. (2017) and De Wolf et al. (2014) found female social media users to be more concerned about privacy than male users. In conclusion, it can be said that findings on gender influence on individual privacy behavior have always been, and still are, inconclusive.

Education

Several studies investigate the link between education and privacy concerns, respectively the attitude towards privacy. A higher level of education usually is linked to people having more knowledge about privacy and therefore being more concerned (Budak et al. 2015; Moustaka et al. 2019). Bergström (2015) found lower education to be linked to lower privacy concerns. Thereby it can be said that the level of education has an impact on individual privacy behavior.

Group Behaviors

Group behaviors not only influence the group IPNs' development, but also privacy concerns and privacy behavior of individuals (Bélanger and James 2020). Bélanger and Crossler's (2011) identify several group dynamics' (e.g., group cohesion, group centrality, group characteristics, etc.) and highlight their influence on group information privacy concerns as well as on individual information privacy concerns. Furthermore, members who form a common bond with their group are more likely to apply privacy management strategies. Group members with educative roles, such as group leaders, are even more likely to apply privacy management strategies (De Wolf et al. 2014). In contrast, group compositions do not show a significant influence on privacy behavior, e.g., privacy management strategies (De Wolf et al. 2014).

Further group behaviors influencing the development of group IPNs' are carry-over behaviors and primacy. While carry-over behavior describes the actions that a new group member takes, based on some previous group memberships, primacy describes the situation if an explicit norm for a specific behavior in a group does not yet exist and the way this situation is dealt with for the first time suddenly becomes the new norm (Bélanger and James 2020).

Theory of Multilevel Privacy (TMIP)

The TMIP provides an explanation of the reasons why a social unit makes a specific multilevel information privacy decision (MIPD) at a certain point in time under certain circumstances. According to them, a MIPD consists of two components: Information and interaction. While information refers to the information about whose disclosure has to be decided, interaction refers to the recipient of this information. A MIPD requires, in line with the CPM theory, the use of privacy rules or norms (e.g., information privacy norms (IPNs)) to manage both of these components, information and interaction. Which IPNs are applied in a particular MIPD depends on the social identity that is salient at the moment of the MIPD (Bélanger and James 2020; Turner and Reynolds 2011). This normative, rule-based MIPD is being made unless a counter-normative decision, usually referred to as privacy calculus, outweighs this normative decision. This privacy calculus is, as well as the IPNs and the salient social identity influenced by the above-described environmental characteristics (Bélanger and James 2020). The final MIPD then determines the multilevel information privacy behavior (MIPB). This in turn leads to experiential feedback, which can either be positive or negative and which might lead to an IPN refinement or an adjustment of the risks or benefits relevant for the privacy calculus, over time (Bélanger and James 2020). Moreover, it is also essential to provide an explanation of how IPNs are developed and refined. On one hand, because IPN development is part of the TMIP, but also because it links our findings from the TMIP to other findings from other papers and researchers. Every individual or group starts out with an initial set of IPNs in order to manage its MIPDs. Individuals develop this IPN set based on individual characteristics (e.g., age, gender, culture), while groups develop it based on group characteristics, such as group composition, size, and other factors (Bélanger and James 2020). These initial IPNs might be constantly refined over time through, e.g., the change of group members, which influences the group composition and requires a refinement of the group norms. In this situation, an individual joining a group might want to refine its personal norms to adapt to the group norms. We provide a complete overview of all group-level factors that influence an individuals' privacy behavior and we therefore extend Bélanger and James' (2020) TMIP in Figure 1.

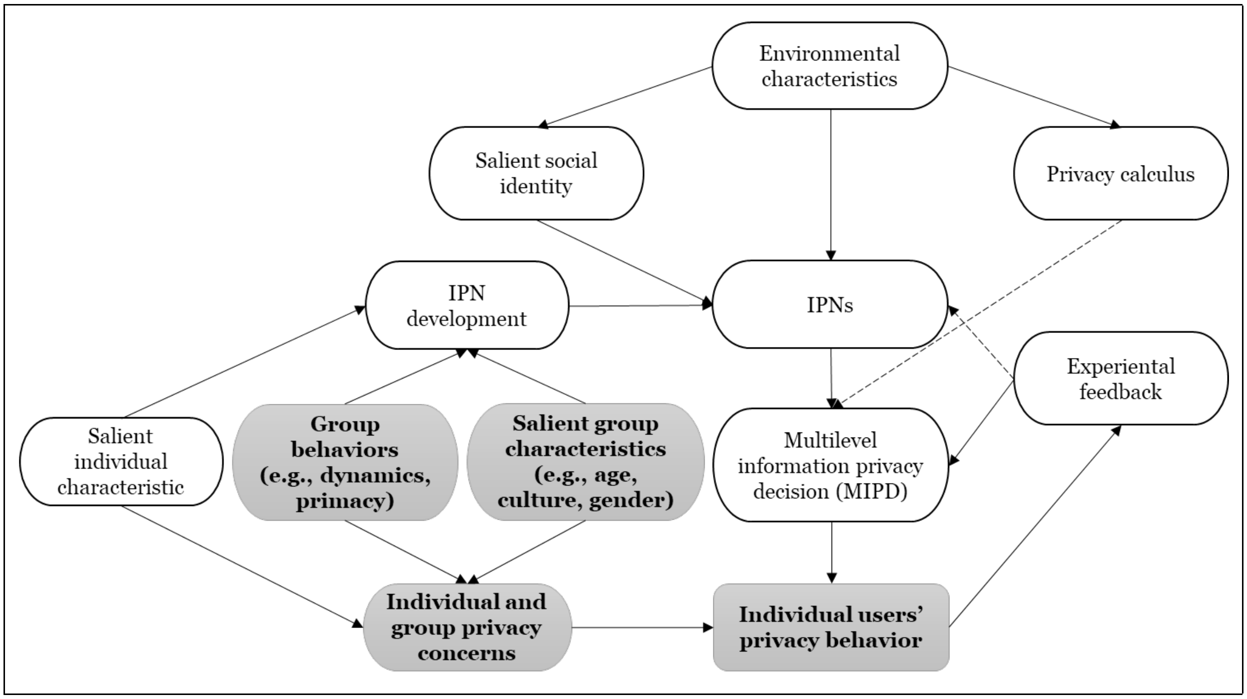
Environmental characteristics
Salient social identity
Privacy calculus
IPN development
IPNs
Experiental feedback
Salient individual characteristic
Group behaviors (e.g., dynamics, primacy)
Salient group characteristics (e.g., age, culture, gender)
Multilevel information privacy decision (MIPD)
Individual and group privacy concerns
Individual users' privacy behavior

Figure 1. The interplay of information privacy norms and salient individual and group-level factors based Bélanger and James (2020); (extended factors in grey)

DISCUSSION

In our work, we sought to give an overview of the main group-level factors that guide an individuals' privacy behavior. The foundation of our work is based on the TMIP developed by Bélanger and James (2020) and then extended by several other important factors that we found across research. According to the TMIP, the MIPB follows a MIPD, which in turn is mainly determined by a groups' or individuals' IPNs. These IPNs are mainly influenced by the salient social identity as well as the environmental characteristics, such as location, people, and the information and its primary characteristics, and can only be outweighed if the result of a risk-benefit tradeoff is more effective. Moreover, experiential feedback can lead to a refinement of these IPNs and thereby also lead to a different MIPD at a later point in time. In general, every group and individual starts with its own initial set of IPNs guided by group and individual characteristics (Bélanger and James 2020). This also marks the interface where we extend the TMIP, by the mentioned group and individual characteristics as well as the social contract perception.

We found several studies and papers proving a connection between individual characteristics and individual privacy behavior, even though their findings have partly been kind of inconclusive, especially regarding culture and gender. In terms of group characteristics, we found primacy, carry-over behavior as well as peer pressure, and herding behavior to influence individual privacy behavior. Higher peer pressure for example has been proven to raise the likelihood of personal information disclosure (Bélanger and James 2020; Park et al. 2015). Furthermore, group members with an educative role, such as group leaders, and the common bond be-tween group members have been shown to positively influence privacy management strategies (De Wolf et al. 2014).

Finally, we also found differences between members of groups with different social contract perceptions, regarding privacy behavior. It has been shown that groups who perceive the social contract to be less reliable, are more likely to adapt their behavior to protect their privacy (Kruikemeier et al. 2020).

Implications

As there are only few papers focusing on the influence of group-level factors on individual privacy behavior we extend the literature in this field through our work. Thereby we answer the various calls for more literature in the field (Bélanger and Crossler 2011; Smith et al. 2011). Moreover, we are not only investigating the group-level perspective but also how individual characteristics are linked to it and how they are also directly influencing individual privacy behavior. Considering the fast pace at which the digital transformation is taking place all over the world and the fact that every individual belongs to multiple groups at once it is crucial to know, how and which factors influence an individual's privacy behavior on the group level.

Limitations

We have to acknowledge some limitations to our work. First, we only used journals with a quality of Q1 according to the Scimago quality ranking. Thereby we tried to online include journals with high quality and lots of citations. But we might have also excluded relevant articles in lower quality journals through that exclusion criteria. Secondly, the papers about a country's and culture's impact on privacy behavior we found, were conducted in several countries, mostly European ones, but certainly, not all countries in the world and might therefore not be representative for every country. Additionally, as there is almost no research focusing solely on the group-level, despite of many calls for it (e.g., Bélanger and Crossler 2011; Smith et al. 2011), we did not have a lot of articles to choose from, especially compared to research on the individual-level. Moreover, it has been proven to be difficult, if not impossible, to fully separate the individual-level and the group-level as they are so inter-connected.

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