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TRANSPARENCY IN THE PRIVACY CONTEXT: A STRUCTURED LITERATURE REVIEW

Research Paper

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Abstract

Transparency features, such as privacy policies and privacy seals, frequently offer users information about an online service's collection and handling of personal data. While transparency is a heavily studied topic in the privacy context, the findings are equivocal, due to mixed results on the effects of transparency and heterogeneous conceptualizations of the term transparency. This is worrisome as transparency is widely recognized as a key instrument to empower users and guide their decisions, making the effects of transparency of fundamental importance for regulators, online service providers, and users. To address missing conceptual clarity and differing effects of transparency, we conducted a structured literature review on transparency in the privacy context. We extract three distinct conceptualizations of transparency and two subdimensions of privacy information, which impact user decisions. We provide a research agenda for future studies, investigating the effects of transparency in the privacy context.

Keywords: transparency, privacy, privacy calculus, data disclosure, structured literature review

1 Introduction

Transparency about the collection and handling of user data is an important concept to ensure users' privacy and to foster trust in an online service (Morey et al., 2015). The impact of transparency on consumers' decision-making can be observed in many real-world settings. For example, a change of WhatsApp's privacy policy at the beginning of 2021, was widely perceived as intransparent and caused millions of users to switch the messenger service (e.g., Hern, 2021). WhatsApp reacted to this lack of transparency and negative word of mouth by quickly providing more detailed explanations about the recent changes, in an attempt to create more transparency for users and to counter privacy concerns (WhatsApp, 2021). Another example for the impact of transparency on user behavior is the implementation of new features conducted by Facebook in 2009 (Sanghvi, 2009), which increased transparency and control about the recipients of Facebook posts for users. This increase in transparency and control led to significant changes in Facebook users' information sharing behavior on the platform, as shown by Cavusoglu et al. (2016). Transparency is therefore widely recognized as not only an important factor that can influence the data disclosure behavior of individuals (e.g., Morey et al., 2015; Betzing et al., 2020), but also as a key instrument for regulators to empower users in their decision-process and to ensure their privacy, which is why transparency is one of the core principles of the General Data Protection Regulation (GDPR.eu, 2021).

From a theoretical standpoint, transparency in the privacy context refers to the extent to which features are provided that help consumers to "see through" an online service's data collection and data handling practices, and thus inform consumers how their information is used and protected (Awad and Krishnan, 2006; Karwatzki et al., 2017; Martin et al., 2017). Studies investigating the effects of transparency features have used multiple conceptualizations to explain the effects of transparency on data disclosure behavior. For example, one approach to study transparency in the privacy literature is to investigate how

important privacy information is to users and how this rated importance of transparency affects users' decision-making (e.g., Awad and Krishnan, 2006; Dinev et al., 2013). This group of studies focuses on mechanisms in the decision process, caused by the valuation of privacy information and the resulting impact on disclosure decisions. Another approach is to investigate how concrete changes of the provided privacy information impact user decisions and to draw implications for the effects of transparency (e.g., Karwatzki et al., 2017; Betzing et al., 2020; Kim et al., 2019). This group of studies focuses on manipulating the provided amount or content of information and measuring the resulting impact on the decision-making process of users. While these two examples of different approaches both investigate important aspects of transparency and its effects on user behavior, the different approaches also show different ways in which transparency can influence privacy decisions. Hence, for researchers, these different conceptualizations, which show various mechanisms influenced by transparency in a decision-making process, make it challenging to understand and consider all the different aspects of transparency with their resulting impact on user behavior.

Further, studies on transparency in the privacy context observe equivocal consequences of transparency for user behavior. While many studies find transparency to significantly impact user decisions (e.g., Esmailzadeh, 2019; Kim et al., 2019; Tsai et al., 2011), other studies find the disclosure behavior to remain unaffected by the provision of transparency features (e.g., Karwatzki et al., 2017; Betzing et al., 2020). Furthermore, in many cases transparency leads to positive effects on the willingness to disclose personal data (e.g., Esmailzadeh, 2019; Andrade et al., 2002), but in other study contexts, it also reduces users' disclosure behavior (e.g., Marreiros et al., 2017; Kim et al., 2019). The variety of effects of transparency features on disclosure behavior highlight the complexity of the underlying decision mechanisms. Different conceptualizations focusing on different aspects of transparency may not only impede a clear operationalization of the term but also cause equivocal findings on the effects of transparency on consumers' data disclosure behavior.

Without clear conceptualizations and a detailed understanding of the effects of transparency features, implemented transparency features and regulations for transparency could affect user behavior in unintended ways. From a user's perspective, this could lead to misguided decisions based on inappropriately designed or poorly implemented transparency features, which could hinder them from using online services or even threaten users' privacy. For example, some users could shy away from otherwise beneficial personalization features due to concerns for their privacy when the type and amount of collected data, as well as the protection and usage of data remain unclear. To address this issue, it is necessary to investigate different aspects and conceptualizations of transparency. However, to the best of our knowledge, there hasn't been a structured approach to investigate the effects of transparency on disclosure behavior so far. Therefore, the objective of this study is to provide a structured overview of transparency effects in the privacy context by investigating the following research question: *What are the effects of transparency in the privacy context?*

This literature review allows us to identify the existing conceptualizations and to connect these conceptualizations with effects on data disclosure decisions by individuals in the privacy context. From our review of the literature, three distinct conceptualizations of transparency emerged: *objective transparency*, *perceived transparency*, and a user's *need for transparency*. While objective transparency describes actual information about data collection and handling practices being communicated to users, perceived transparency measures how users interpret the transparent provision of privacy information. Finally, the need for transparency describes a user's situational desire for privacy information, which can stem from individual characteristics of a user as well as situational aspects of the disclosure decision. Further, we identified two subdimensions of transparent privacy information, namely the *amount of information* and the *direction of information* and their influence on disclosure decisions. While the direction of information describes whether privacy information is perceived positively or negatively, the amount of information reflects how much privacy information is disclosed by an online service.

In sum, we contribute in two ways to research on the effects of transparency in the privacy context. First, by offering three conceptualizations of transparency and two subdimensions of provided privacy information. These conceptualizations can be applied to distinguish between different effects of transparency and to guide future research towards a more holistic understanding of transparency.

Second, we contribute by identifying three gaps in the current literature on the effects of transparency in the privacy context. The first potential avenue for future research lies in the investigation of potential interactions of the three identified conceptualizations and the two subdimensions, to clarify interdependencies of different conceptualizations and to advance understanding of their respective roles within data disclosure decisions. Second, we observe a focus of current research on high-effort and negligence of low-effort decision-making and its effects on disclosure behavior. Considering advances in the privacy literature on low-effort decision-mechanisms (e.g., Dinev et al., 2015; Adjerid et al., 2013), a stronger focus on these mechanisms could help to understand the equivocal effects of transparency. Third, the influence of transparency on disclosure behavior via different mediators and their respective weightings in the decision-making process can be further investigated to achieve a fine granular view on decision-making mechanisms underlying the impact of transparency on disclosure behavior.

2 Theoretical Background

Transparency in the privacy context describes the extent to which features are provided that inform users about the collection and handling of user data by an online service (Awad and Krishnan, 2006; Karwatzki et al., 2017; Martin et al., 2017). Therefore, transparency describes a level of availability and accessibility of information (Granados et al., 2010; Zhu, 2004), which distinguishes transparency from related concepts like *awareness* or *comprehension* (e.g., Malhotra et al., 2004; Betzing et al., 2020; Marreiros et al., 2017) that depend on the processing of information by an individual. Thus, transparency can be seen as a prerequisite for users, to process and understand privacy-related information.

In the literature, different possible sources for transparency features are recognized. Online service providers themselves can implement transparency features directly into their service, for example by providing privacy statements, cookie banners, or explanations for advertisements (Karwatzki et al., 2017; Kim et al., 2019; Esmailzadeh, 2019). Furthermore, control features can increase transparency. For example, a request for specific data access permissions by a smartphone app, which asks for the collection and processing of specific personal data, enhances transparency for consumers (Betzing et al., 2020; Chen and Sundar, 2018). In addition to those features implemented by online services themselves, also third-party features, like seals of approval or special privacy features in search engines, can increase transparency (Tang et al., 2008; Tsai et al., 2011). Even media reports can be an important source of transparency since they can inform users about the data handling practices of an online service (Gerlach et al., 2015).

To understand the consequences of enhanced transparency, the interactions of transparency with numerous decision-relevant variables have been studied in the literature. For example, the impact on user perceptions of privacy risks and privacy concerns as well as the positive effect of transparency on trust and the resulting consequences for users' disclosure behavior have been studied by previous research in the privacy domain (e.g., Zeng et al., 2020; Song et al., 2016; Esmailzadeh, 2019; Karwatzki et al., 2017; Bansal et al., 2015). The studies typically explain the resulting consequences in user behavior by the application of nomological networks and the interaction of the different constructs under investigation. Most models about user decision-making processes are based on rational decision-making, in which positive and negative influences on disclosure behavior are weighed against each other and ultimately lead to the disclosure decision of an individual (e.g., Awad and Krishnan, 2006; Chang et al., 2018; Gerlach et al., 2015; Dinev et al., 2013).

Privacy calculus theory, as the dominant theory to explain data disclosure decisions by individuals in the privacy context, builds on such a rational weighing of positive and negative factors (Dinev et al., 2015; e.g., Smith et al., 2011; Dinev and Hart, 2006; Culnan and Armstrong, 1999; Laufer and Wolfe, 1977). According to privacy calculus theory, users perform a weighing of perceived privacy risks against perceived benefits at the core of their decision-process, before disclosing personal data (Laufer and Wolfe, 1977; Smith et al., 2011). By integrating concepts like privacy concerns, trust, emotions, heuristics and biases, as well as several antecedents like awareness or personality, the privacy calculus theory has been enhanced throughout the years to explain privacy decision-making beyond the mere

rational weighing of risks against benefits (Dinev et al., 2015). Previous research in the privacy field has investigated a vast number of these decision-relevant factors to explain their impact on a user’s willingness to disclose personal information (Dinev et al., 2015; Smith et al., 2011). Hence, to investigate the effects of transparency on different decision-relevant factors, privacy calculus theory offers an established framework to analyze decision-making mechanisms and interpret the effects of transparency on the final disclosure decision. Thus, several previous studies utilize privacy calculus theory to investigate how transparency features influence data disclosure decisions by individuals (e.g., Awad and Krishnan, 2006; Cavusoglu et al., 2016; Hui et al., 2007; Li et al., 2016).

In this study, we also use established decision-making mechanisms from privacy calculus theory as a theoretical lens to investigate how the effects of transparency features influence disclosure decisions. Integrating established privacy decision-making mechanisms from privacy calculus theory allows us to draw conclusions on the final impact of transparency on data disclosure behavior. For example, if a study finds a negative impact of transparency on risk perception, we will treat this finding as a positive impact on data disclosure behavior, since according to privacy calculus theory, lower perceptions of privacy risks increase users’ willingness to disclose personal data (Smith et al., 2011).

3 Method

To identify a wide range of existing studies on transparency, we conducted a structured literature search. Following Webster and Watson (2002) and vom Brocke et al. (2009) we conducted a keyword search on the academic literature platforms EBSCOhost (database: Business Source Premier) and Scopus, which provide access to leading IS journals. We limited our keyword search to journals in the AIS Basket of Eight and the Financial Times 50 ranking to find research published in leading journals in the fields of information systems and management. Our goal was to find research investigating the effects of transparency on decision-making in the privacy context. Our search string was (transpar*) AND (priva* OR data* OR information OR disclos*). The initial search with our search string delivered 1,799 hits.

The 1,799 titles were then screened manually by one researcher and filtered by the relevance of the title after which 412 articles remained. We filtered for articles that investigate individual data disclosure decisions towards an online service, affected by transparency. Hence, we included studies that either examine the direct effects of transparency features on a users’ willingness to disclose or their actual disclosure behavior, as well as studies that investigate the effects of transparency on decision-relevant variables like trust or risk perceptions, which have been shown to affect disclosure behavior, according to privacy calculus theory (Dinev et al., 2013; Chang et al., 2018; Malhotra et al., 2004). After a further screening of the keywords and abstracts, a subsample of 32 potential studies was read in detail and filtered further which resulted in a subsample of eleven articles. We conducted a forward and a backward search, that was not limited to the FT50 and the AIS Basket and obtained a total of 29 journal articles investigating the effects of transparency on disclosure decisions. The results of the search process are summarized in Table 1.

Step	Keyword search	Title screening	Keyword and Abstract screening	Full text screening	Forward & backward search
Papers remaining	1,799	412	32	11	29

Table 1. Overview of the structured literature search process

We analyzed the sample of articles in an iterative process. In the first step, one researcher read the articles in detail and identified different conceptualizations of transparency, which were then discussed by the authors. To increase validity and avoid groupthink we invited two external researchers to a workshop (45 minutes) and discussed the conceptualizations which resulted in the distinction of three different conceptualizations that all researchers agreed on. One author continued to group the sample of studies according to our three identified conceptualizations of transparency.

In the second step, we used privacy calculus theory to group articles into a *positive effect of transparency on disclosure decisions*, when the identified effects would increase disclosure willingness, according to established mechanisms from privacy calculus theory. Vice versa, we classified them as a *negative effect of transparency on disclosure decisions* when the identified effects would decrease the willingness to disclose.

In the last step, we analyzed the sample for mechanisms and effects on data disclosure decisions, induced by transparency. Drawing on privacy calculus theory and established decision-making mechanisms from previous research in the privacy field, we identified two subdimensions of privacy information that affect disclosure behavior. We discussed the subdimensions in two more workshops of 45 minutes each with the two external researchers until an agreement on the clear distinctions was reached. One author went on to group the studies according to our identified subdimensions.

4 Findings

Our analysis of the literature on transparency in the privacy context revealed various effects of transparency on disclosure behavior. To analyze the varying effects of transparency, different conceptualizations and aspects of transparency need to be regarded in detail.

Table 2 gives an overview of different effects, conceptualizations, and mechanisms of transparency within the investigated articles. The articles are grouped into three main effects (column one), describing the observed effect of transparency on disclosure decisions by individuals. Since many articles do not state the analyzed information explicitly, we categorized the studies based on established mechanisms from privacy calculus theory or by analyzing the studies' utilized definitions, research designs, and applied measurements. Hence, the effect on disclosure decision is either drawn directly from a study's results, if disclosure behavior is the dependent variable, or inferred from the investigated effects within the studies that don't explicitly investigate changes in disclosure behavior. For example, if a study finds an increase of perceived risks due to transparency, we considered it as a negative effect on disclosure decision according to the privacy calculus, since perceived risks will decrease a user's willingness to disclose (Smith et al., 2011). Column two lists the studies and column three shows the investigated conceptualizations of transparency within the articles. The three conceptualizations describe different aspects of transparency that affect disclosure behavior. The conceptualizations of transparency manifest themselves in the definitions, research design, and measurements of the studies. For example, we classified manipulations of the amount or content of information that is provided to users as *objective transparency* (e.g., Hui et al., 2007), while measuring the perceptions of users about the transparency of an online service as *perceived transparency* (e.g., Esmailzadeh, 2019). Column four shows the considered subdimensions of privacy information that describe two major approaches of manipulations, which both affect disclosure behavior. Column five lists investigated constructs of the studies that either influence or explain the effects of transparency on disclosure behavior in the decision-making process. Column six indicates whether high-effort (H) and low-effort (L) decision-making mechanisms are distinguished and considered in the study. The last column of the table shows the disclosed data type and, if investigated by the study, considerations of differences in data sensitivity (added inside brackets).

Effect on Disclosure Decision	Study	Conceptualization of transparency	Subdimension of privacy information considered	Mediators and moderators to explain the effects of transparency	Consideration of high-effort (H) and low-effort (L)	Data type (considered differences in the data sensitivity within the study)
Positive effect of transparency on disclosure decision	Andrade et al. (2002)	Objective transparency & Perceived transparency	Amount	Privacy concerns	H	Different types of data affected privacy concerns (from low to high)
	Leimeister et al. (2005)	Objective transparency	Amount	Trust	-	Health data
	Hui et al. (2007)	Objective transparency	Amount	Trust	-	Different types of personal data (low vs. high)

	Tang et al. (2008)	Objective transparency & Perceived transparency	Amount	Trust	-	Not specified
	Morey et al. (2015)	Objective transparency	Amount	Trust	-	Not specified
	Bansal et al. (2015)	Perceived transparency	Amount & Direction	Trust, privacy Concerns	H+L	Not specified
	Li et al. (2016)	Perceived transparency	Amount	Perceived risk	H	Social media data
	Esmailzadeh (2019)	Perceived transparency	Amount	Trust	-	Health data
	Nam (2019)	Perceived transparency	Amount	-	-	Communication data
	Rowe et al. (2020)	Perceived transparency	Amount & Direction	Perceived risk	-	Health data
	Esmailzadeh (2020)	Perceived transparency	Amount	Trust	-	Health data
	Wiencierz and Lünich (2020)	Objective transparency & Perceived transparency	Amount	Trust	-	Smart city app data
	Guo et al. (2021)	Objective transparency & Perceived transparency	Amount & Direction	Benevolence, vulnerability, privacy concerns	H	E-Commerce data
	Chang et al. (2018)	Perceived transparency	Amount	Perceived risk, privacy control, privacy concerns, trust	H	Online banking data
Negative effect of transparency on disclosure decision	Awad and Krishnan (2006)	Need for transparency	None	-	H	Not specified
	Dinev et al. (2013)	Need for transparency	None	Perceived risk	H	Not specified
	Martin (2016)	Objective transparency	Amount	Trust	-	Different types of personal data (from low to high)
	Marreiros et al. (2017)	Objective transparency	Amount	Privacy concerns	H+L	Different types of personal data (low vs. high)
Either mixed (positive and negative) or no effects of transparency on disclosure decision	Tsai et al. (2011)	Objective transparency	Amount & Direction	-	-	E-Commerce data
	Gerlach et al. (2015)	Objective transparency	Direction	Perceived risk	H	Social media data (low vs. high)
	Cavusoglu et al. (2016)	Objective transparency	Amount	-	H	Social media data
	Venkatesh et al. (2016)	Need for transparency	Amount & Direction	Trust	H	E-government service data
	Martin et al. (2017)	Objective transparency & Perceived transparency	Amount & Direction	Emotional violation, Control, trust	H	E-commerce data
	Kim et al. (2019)	Objective transparency	Direction	Trust, information flow revealed	H	Advertisement tracking data (low vs. high)
	Dogruel (2019)	Objective transparency	Amount	Trust	H	Advertisement tracking data (low vs. high)
	Portes et al. (2020)	Perceived transparency	Amount	Trust, engagement	H	E-commerce data
	Zeng et al. (2020)	Objective transparency	Amount & Direction	Privacy concerns	H	E-commerce data
	Karwatzki et al. (2017)	Objective transparency & Perceived transparency	Amount	Disposition to value privacy	H	Personal data for event app
	Betzing et al. (2020)	Objective transparency	Amount	Comprehension	H	Location data for shopping app

Table 2. Investigated conceptualizations of transparency and subdimensions of privacy information, affecting disclosure behavior in the privacy context.

4.1 Equivocal effects of transparency on disclosure decisions

Analyzing the effects of transparency on individual disclosure behavior under the lens of privacy calculus theory revealed three opposing conclusions that can be found in the literature. The first group of studies finds a positive effect of transparency on data disclosure decisions by individuals (e.g., Chang et al., 2018; Dogruel, 2019; Wiencierz and Lünich, 2020; Guo et al., 2021; Esmailzadeh, 2019; Tsai et al., 2011; Bansal et al., 2015). The second group of studies finds solely negative effects of transparency on users' disclosure behavior (e.g., Marreiros et al., 2017; Martin, 2016) and the third group of studies finds either no effect or mixed effects of transparency on consumer decisions (e.g., Karwatzki et al., 2017; Betzing et al., 2020; Marreiros et al., 2017; Martin et al., 2017; Zeng et al., 2020).

The first group of studies explains the positive effects of transparency on disclosure behavior mainly by its positive influence on trust (e.g., Esmailzadeh, 2019; Chang et al., 2018). Furthermore, reductions of privacy concerns, perceived risks, and vulnerability as well as increasing perceptions of control and benevolence lead to positive effects on disclosure behavior (Chang et al., 2018; Guo et al., 2021). The studies observe that transparency heightens one's willingness to disclose personal data and draw the implication that firms can use transparency features as a tool to enhance users' perceptions of the service and to increase disclosure levels (e.g., Esmailzadeh, 2019; Wiencierz and Lünich, 2020).

The second group of studies explains solely negative effects of transparency on disclosure behavior. According to these findings and explanations, transparency by itself only raises awareness of privacy risks and privacy concerns (Marreiros et al., 2017). Positive effects could not be observed, even when privacy assuring information is made transparent (Marreiros et al., 2017). Furthermore, if transparency is desired by consumers, they are less willing to disclose personal data (Awad and Krishnan, 2006).

The third group of studies finds mixed or non-existent effects, which are explained in three different ways. One explanation given by Martin et al. (2017) states that transparency is especially effective in combination with control. By itself, transparency might not be enough to foster trust and achieve a meaningful impact on consumer behavior. According to this view, closely related concepts to transparency, like perceived control, should be considered to fully understand the effects of transparency. A second explanation for the equivocal effects of transparency are differences in the framing and the perception of the communicated information flow (Zeng et al., 2020; Kim et al., 2019). This explanation suggests that the perception of the content, which is made transparent, plays a bigger role in the decision-making of individuals than the isolated effect of transparency by itself, which might only increase trust in the online service to a certain degree. Therefore, a mere consideration of transparency might not be sufficient to explain user behavior, but instead the content which is made transparent needs to be regarded simultaneously to understand and predict the impact of transparency features on user decisions. A third explanation is given by Karwatzki et al. (2017) who suggest that opposing effects of transparency might be able to fully negate each other since transparency can lead to an increase of trust but it can also increase risk perceptions. Whether the effects of different mediators that are affected by transparency, negate each other, or whether one effect can shift the privacy calculus towards a certain direction, might depend on contextual factors. Therefore, the situational weight of opposing factors needs to be considered to understand the effects of transparency.

These equivocal results impede a clear prediction about the effectiveness of transparency features and whether the implementation of transparency features will lead to an increase or a decrease in a user's willingness to disclose. This can be underlined by findings from the third group of studies, in which the observed behavioral reactions contradict the theoretically hypothesized relations (Karwatzki et al., 2017; Betzing et al., 2020). Different contextual factors, like the initial trust in a service (Esmailzadeh, 2019) and varying data sensitivity (Andrade et al., 2002), additionally impact the effects of transparency on disclosure decisions. Hence, to further analyze the effects of transparency on disclosure behavior, it seems necessary to understand the different aspects of transparency and differences in transparent privacy information in more detail.

4.2 Different conceptualizations of transparency

Our analysis further revealed that three different conceptualizations of transparency can be distinguished. The first conceptualization within the literature to study the effects of transparency describes revealed information about an online service's data practices to users. We call this conceptualization of transparency *objective transparency*.

Objective transparency focuses on the information that is presented to users about the collection and handling of user data. Objective transparency can be provided by an online service or by third-party institutions. Objective transparency solely focuses on the information that is provided and can potentially be used by consumers to inform themselves about data handling practices. In the literature, several studies investigate changes in objective transparency, by manipulating the amount, content, or type of information that is disclosed to users (e.g., Betzing et al., 2020; Dogruel, 2019; Andrade et al., 2002; Tsai et al., 2011; Cavusoglu et al., 2016).

The second conceptualization of transparency can be referred to as *perceived transparency*. Perceived transparency describes a sense of users for how clear and accessible an online service's data collection and data handling practices are communicated (Martin et al., 2017). Compared to objective transparency, this conceptualization does not necessarily require high amounts of information being presented by the online service to create high perceptions of transparency. Instead, users might perceive an online service to be transparent depending on multiple factors, including personal preferences of consumers for the right amount of information, the sensitivity of the data that needs to be disclosed, or the design and timing of the information that is presented (Köhler et al., 2011; Betzing et al., 2020).

The third conceptualization is the importance of transparent information perceived by users, or the *need for transparency*. Need for transparency is a consumer's desire for information about personal data collection and data handling practices of an online service. This need for transparency has most prominently been studied to investigate the "personalization privacy paradox" (Awad and Krishnan, 2006; Dinev et al., 2013). The literature argues that an individual's need for transparency influences the disclosure decision since users who value transparency are likely to be more concerned about privacy and are less likely to disclose personal data for the purpose of personalization (Awad and Krishnan, 2006; Karwatzki et al., 2017). In the literature, need for transparency is usually regarded as an individual trait and is not regarded as a situation-specific construct even though individuals might have different needs for transparency according to the specific disclosure decisions they are facing. For example, Leimeister et al. (2005) argue that in situations where people must disclose extremely sensitive personal data, like personal health data, they will in general have higher demands for information compared to disclosure situations of less sensitive data. Also, a privacy calculus conducted by individuals can be heavily influenced by situational factors, as it has been shown by previous privacy research (Dinev et al., 2015; Kehr et al., 2015). Therefore, we conceptualize an individual's need for transparency as the composite of a general need for transparency, as well as a situational need for transparency. While the need for transparency can vary, depending on different levels of privacy concerns and data sensitivity, it is scarcely regarded by previous studies and only three studies in our sample measure a consumer's need for transparency directly (Awad and Krishnan, 2006; Dinev et al., 2013; Venkatesh et al., 2016).

As the third column of Table 2 shows, the interrelations of the three conceptualizations have rarely been investigated by the literature. Previous research on transparency has mainly focused on one or two of these conceptualizations simultaneously. No study has investigated the interactions between all three conceptualizations at once, i.e., the relationship of objective and perceived transparency in the context of a situation-specific need for transparency.

4.3 The impact of direction and amount of privacy information on the effects of transparency

A deeper analysis of the effects of transparency on disclosure decisions by individuals revealed two subdimensions of transparent privacy information that can influence users' disclosure behavior.

The first subdimension is the *amount of information* that is provided to users. Several transparency studies investigate different amounts of information being made transparent to users about an online service's data collection and data handling practices (Karwatzki et al., 2017; Martin et al., 2017; Cavusoglu et al., 2016; Andrade et al., 2002; Betzing et al., 2020; Dogruel, 2019; Esmaeilzadeh, 2019; Portes et al., 2020; Wiencierz and Lünich, 2020; Zeng et al., 2020; Marreiros et al., 2017). Most of these studies find a positive impact of increasing amounts of information on, according to privacy calculus theory, disclosure enhancing mechanisms (e.g., Zeng et al., 2020; Andrade et al., 2002; Esmaeilzadeh, 2019; Wiencierz and Lünich, 2020). One study from Marreiros et al. (2017) finds opposing effects, that higher amounts of information compared to no provision of privacy information at all, can have a negative impact on disclosure behavior. Additionally, three of the identified studies that investigated changes in the amount of information found either no significant or mixed effects of transparency on decision-relevant variables (Martin et al., 2017; Karwatzki et al., 2017; Betzing et al., 2020). A study by Martin et al. (2017) found transparency to be only effective in combination with control, while high amounts of information without any control lead to higher feelings of violation and less trust. Karwatzki et al. (2017) and Betzing et al. (2020) could not find a significant effect of the provided amount of information on disclosure behavior. Analyzing these findings, it can be argued that while most studies find an impact of the amount of information, the effects remain equivocal and seem to be at least partially dependent on concrete circumstances.

The second subdimension of privacy information is the *direction of information*, which describes whether the content of the information is negative or positive information about user privacy. The perception of the content of transparent information can steer user decisions towards one way or the other. The direction of information varies based on the content, presentation, and framing of transparency features (Kim et al., 2019; Gerlach et al., 2015; Tsai et al., 2011; Zeng et al., 2020; Martin et al., 2017). A study by Gerlach et al. (2015) investigates how the permissiveness of an online service's privacy policy interacts with privacy risk perceptions of users. Permissiveness is defined as the extent of privacy intrusion which is enabled by a firm's privacy policy (Gerlach et al., 2015). Permissiveness of privacy information increases risk perceptions and can therefore be seen as a factor that influences disclosure behavior negatively in the privacy calculus. In line with this finding, Kim et al. (2019) find that transparency only had positive effects on ad effectiveness, when revealed information flows were positively perceived and trust in a platform was already given. Negatively perceived information flows, like information that reveals cross-website tracking, can be seen as a form of higher permissiveness, which leads to a higher risk perception by users. Interestingly, in the study of Kim et al. (2019) even more positively perceived information flows did not seem to change the direction of the information when there was no initial trust in the platform. Apparently, users did not believe that a platform would act according to its own declaration when the initial trust was too low, but in combination with trust, more positively perceived information flows were able to change the direction of information and led to higher ad effectiveness (Kim et al., 2019). Similarly, Bansal et al. (2015) find a significant effect of a privacy policy's perceived adequacy on trust in the website. In sum, the direction of information influences consumers in their disclosure behavior, because they are more willing to disclose personal data to privacy-friendly online services.

Zeng et al. (2020) find the direction of information also to be sensitive to the type of privacy policy and the framing of information. The authors find that providing users with privacy assurances increases privacy concerns compared to no transparent information at all. Drawing attention to the benefits of data disclosure, by framing a privacy policy as a personalization declaration, can instead decrease privacy concerns compared to the control group with no transparent privacy information (Zeng et al., 2020). Hence, when information is framed to underline the benefits instead of the risks, the positive impact of higher benefit perceptions might shift the privacy calculus towards a higher willingness to disclose personal data. Therefore, the direction of information also depends on framing and can influence the disclosure decision of consumers towards either more or less data disclosure.

Our analysis of the literature further revealed that changes in the direction of information might have a more reliable impact on disclosure behavior than changes in the amount of information. In contrast to the three aforementioned studies, in which a manipulation of the amount of information did not lead to

a significant impact on the disclosure behavior (Karwatzki et al., 2017; Betzing et al., 2020; Martin et al., 2017), the direction of information had a significant impact on decision-relevant variables within all of the investigated studies. Column four of Table 2 shows the consideration of the two subdimensions by the investigated studies.

4.4 Identified gaps in the literature

Our analysis also revealed three gaps that have received little attention in the literature on transparency in the privacy context. First, the missing understanding of interactions between the three identified conceptualizations and the two subdimensions. Most studies focus on specific aspects of transparency to analyze its effect. Figure 1 shows how an exemplary subsample of the investigated studies has considered the two subdimensions, *amount* and *direction*. Most studies only investigate one subdimension, which leaves the question open, how manipulations of the other subdimension might influence the results.

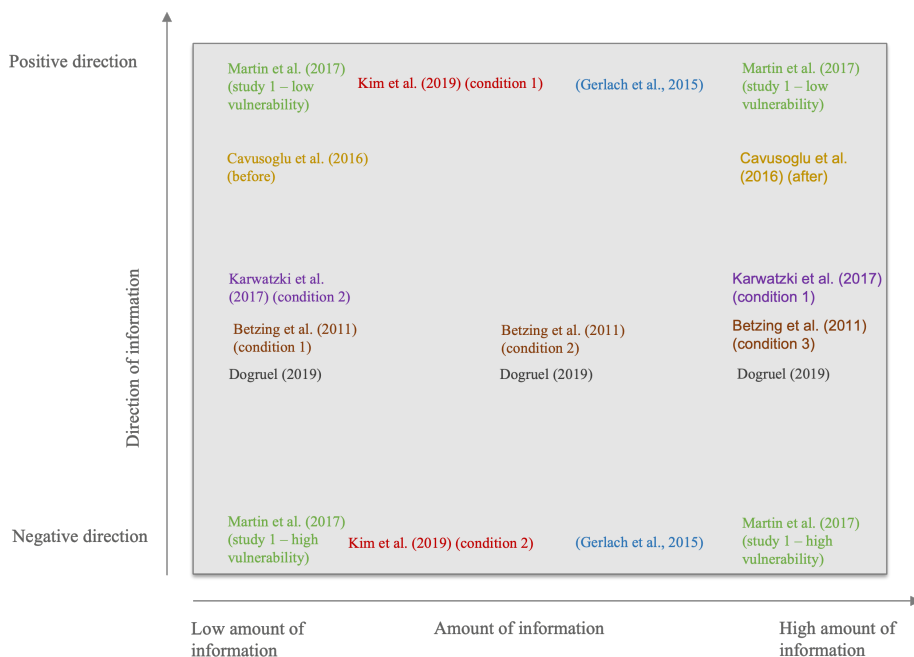


Figure 1. *Subsample of studies illustrating differences in the consideration of the two subdimensions of privacy information (amount of information and direction of information).*

Further, the relation between objective transparency and perceived transparency and their impact on disclosure behavior under conditions of varying amounts and directions of transparent information is not considered sufficiently in the literature thus far. The additional impact of a situational need for transparency is also scarcely investigated. Without a clear distinction, this mix of different conceptualizations of transparency also impedes operationalizations and can lead to differences in measurements, which makes findings harder to compare. For example, when the items by Awad and Krishnan (2006) that measure the importance of transparency are also used to measure perceived transparency (e.g., Nam, 2019). While the different conceptualizations of transparency and subdimensions of privacy information are all important aspects of transparency, more conceptual clarity and a holistic view on the different interactions and different effects that can arise may help to develop a more generalized understanding of transparency in the privacy context. Figure 2 depicts what such a more holistic view could look like, considering different interaction effects of the conceptualizations and the subdimensions with each other and their impact on disclosure behavior via positive mediators (e.g., trust, control) and negative mediators (e.g., privacy concerns, privacy risks) that influence a user’s privacy calculus.

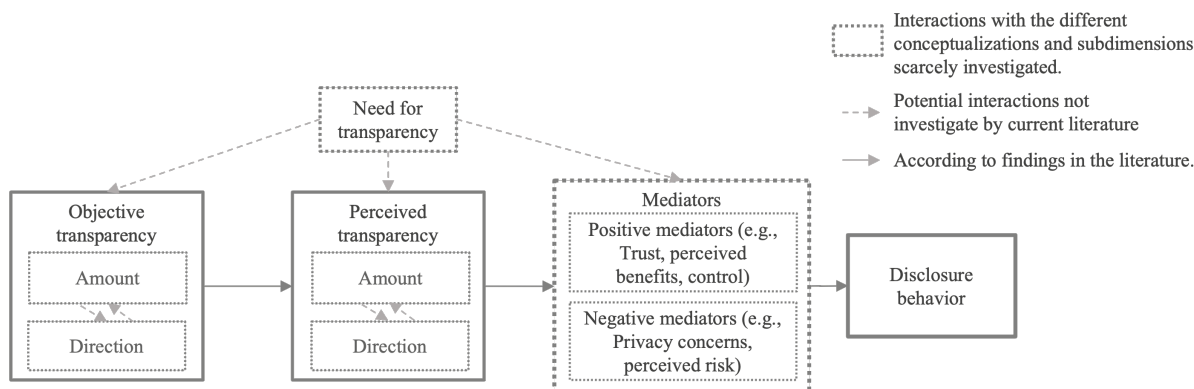


Figure 2. Possible interactions of the three conceptualizations and the two subdimensions and their effect on disclosure behavior via different mediators.

The second gap is the scarce consideration of low-effort decision-making in transparency studies. The decision-making process of individuals is typically analyzed through high-effort decision-making frameworks, which are based on the privacy calculus logic of weighing benefits against risks (e.g., Awad and Krishnan, 2006; Hui et al., 2007; Dinev et al., 2013; Gerlach et al., 2015; Cavusoglu et al., 2016; Li et al., 2016; Esmailzadeh, 2019; Betzing et al., 2020; Wiencierz and Lünich, 2020). For example, besides privacy calculus theory another theory commonly applied in transparency research is communication privacy management theory, which differs from privacy calculus theory in the dynamic interaction between risks and benefits and an individual’s dynamic adaptation of privacy boundaries, but it is still mostly used to explain high-effort mechanisms similar to the privacy calculus, in which users mostly weigh benefits against risks and adapt their privacy boundaries accordingly (Cavusoglu et al., 2016; Karwatzki et al., 2017; Chang et al., 2018). Only very few studies consider low-effort decision mechanisms, which are not based on rationality. One example that considers low-effort mechanisms is the study of Bansal et al. (2015) which investigates the impact of privacy policies on trust in a website under the lens of the Elaboration Likelihood Model. In this study, the direction of information is considered by the construct adequacy, which contains the collection, secondary use, and improper access as well as errors in a privacy policy. The authors find that the direction has a stronger influence on trust in the group with high privacy concerns, compared to the group with low privacy concerns. The authors infer that individuals seem to rely stronger on the direction of information when they have higher privacy concerns which can be explained by a heightened willingness to elaborate in the decision-making process (Bansal et al., 2015). Hence, the stronger impact of the direction of information might be explained by the stronger focus of transparency research on high-effort decision-making compared to low-effort mechanisms of transparency, but future studies need to go beyond the sole consideration of privacy concerns and investigate low-effort mechanisms, like heuristics and biases, to advance research in that area.

The third gap is the effect of transparency on different mediators under varying circumstances. As column five of Table 2 shows, many different mediators and effects of transparency are found in the literature. But their weight in the decision-making process under different influencing factors and in different situations is largely unexplored. A situational need for transparency might for example shift the importance of different mediators in the decision-making process of individuals. Investigating such interrelations could be a third attempt by future studies to increase the understanding of the different effects of transparency.

5 Discussion

By conducting a structured review of the literature on transparency in the privacy context, we identified three distinct conceptualizations: *objective transparency*, *perceived transparency*, and *need for transparency*. We analyzed the effects of transparency on disclosure decisions under a privacy calculus lens and found two subdimensions of privacy information: *amount of information* and *direction of*

information. These different aspects of transparency are investigated by previous research to find effects on a variety of decision mechanisms. We further highlighted gaps that can be addressed by future research to enhance understanding of transparency and its effects on data disclosure decisions.

With our distinction of different conceptualizations of transparency, we offer as our main contribution conceptual clarity. We contribute to ongoing transparency research (e.g., Karwatzki et al., 2017; Betzing et al., 2020; Wiencierz and Lünich, 2020), by distinguishing between three conceptualizations: *objective transparency*, *perceived transparency*, and *need for transparency*, which are used to explain the effects of transparent privacy information on disclosure decisions by individuals. The clear distinction between the three conceptualizations can help future research, to focus on mechanisms caused by different conceptualizations and hence, their role in the decision-making process. Further, distinguishing between the different conceptualizations of transparency can help future research to apply measurement items in a more nuanced way. This more elaborated view on transparency can also help future research to investigate interactions between these conceptualizations and their impact on disclosure behavior. We showed that especially a situational need for transparency is scarcely regarded in the literature. Mostly, it is only considered indirectly, for example, by considering data sensitivity, even though situational aspects have shown to play an important role in users' privacy decisions (Chang et al., 2018; Kehr et al., 2015). Further, we contribute by distinguishing between the *direction* and the *amount* of transparent privacy information. We showed that the literature finds that both subdimensions influence decision-making by users. Additionally, interactions of the subdimensions could be considered, since changes in the amount of information could affect the perceived direction, which is often neglected in existing studies. Investigating such interactions between the two subdimensions, and how they might change the impact of each of the three conceptualizations of transparency, remains an interesting question to be studied by future research. Understanding these interactions might help research that investigates the design of transparency features and their impact on decision-making (Zeng et al., 2020; Gerlach et al., 2015; Tsai et al., 2011), by explaining decision mechanisms caused by different aspects of transparency.

The equivocal findings in the literature show that further investigations of transparency and its effects on user decisions need to be conducted by researchers. Therefore, we deduce a research agenda based on our findings, which contains three main avenues for future research. First, interactions of the three conceptualizations in combination with the two subdimensions need to be investigated, since existing studies do not grasp all possible aspects of transparency and its effects on decision-making. The impact of the different conceptualizations and subdimensions can be investigated in more detail to better explain mixed results regarding the effects of transparency on disclosure behavior. Especially a situational need for transparency and its interactions with the other conceptualizations as well as its impact on various mediators has received little attention thus far. Future studies need to go beyond the usage of data sensitivity and privacy concerns as proxies to study the situational need for transparency since the relationship of these different constructs might not be linear. For example, very low and very high privacy concerns might both lead to the effect of negligence of privacy information by users since users might either not care (in the case of low concerns) or might be resistant to changes in their evaluation (in the case of high concerns). Therefore, the highest need for transparency could lie somewhere in between very low and very high privacy concerns and might be shifted by situational aspects, like data sensitivity. Future studies could investigate these different situational influences on a user's situational need for transparency by experimentally manipulating different contextual factors and measuring potential shifts in subjects' situational need for transparency.

The second avenue is the investigation of low-effort mechanisms, like the influence of heuristics and biases and their dependence on situational aspects. So far, mainly high-effort decision-making is considered by the literature, but low-effort mechanisms might play a big role for perceptions of transparent information and decision results in practice. For example, decisions on accepting or rejecting cookie requests could be an example of low-effort decision-making. The interactions of objective transparency and perceived transparency in such a context, as well as underlying decision mechanisms, are scarcely regarded by the literature. Only a few studies, such as Adjerid et al. (2013), investigate low-effort mechanisms like the role of shifting salience of privacy information due to differences in the timing of transparency. Future studies could make use of varying cognitive loads in experimental

settings to further explore how users evaluate transparency features and communicated information in states of low-effort decision-making.

The third avenue is to investigate the weight of different mediators for the effects of transparency on disclosure behavior under different situational aspects. Thus far, numerous mediating mechanisms have been found and investigated by the literature in the privacy context that can explain the effects of transparency. How differences in situational aspects and varying needs for transparency can shift the impact of different mechanisms remains an interesting topic to study for future research. Understanding the weight of different mediating mechanisms for consumer decisions could help to interpret equivocal results on the effects of transparency in the privacy context. Further, future studies could also distinguish between mediators which are directly influenced by transparency itself (e.g., trust), and mediators which might require the awareness and understanding of privacy information delivered through transparency features (e.g., permissiveness). Additionally, future research could investigate whether decision mechanisms of transparency from other disciplines and contexts (e.g., AI) could be transferred to the privacy context. Vice versa, the question of whether transparency decision mechanisms from the privacy context could be transferred to such other contexts, or whether they are exclusively valid for privacy decisions, is an interesting topic to study for future research on transparency, as well.

Conceptual clarity can also be advantageous for practitioners, like regulators and managers of online services and consumers. When implementing transparency features within an online service or implementing a transparency strategy, managers can use the knowledge about different mechanisms as a list of aspects that need to be considered. Regulators could make use of a clear distinction between the interactions of objective transparency, perceived transparency, and situational needs for transparency, to include knowledge on shifting perceptions under varying situational conditions when considering transparency regulations. Especially the consideration of different needs for transparency depending on situational aspects could help to enhance regulations in a fine granular way. Understanding the link between objective transparency and perceived transparency, could ultimately help, to assess the impact of existing regulations. The understanding of transparency as an instrument to assist and guide user decisions about the disclosure of personal information seems especially important, considering that transparency has become one of the core principles of the GDPR (GDPR.eu, 2021). Ultimately, consumers could benefit from a deeper understanding of transparency effects by better-adjusted transparency features which could assist them in their decision-making.

Our findings should be regarded in light of the limitations of our study. First, Our conceptualizations of transparency in the privacy context mainly focus on answering a “what” question (Whetten, 1989). Future research could expand knowledge on these conceptualizations and mechanisms in the decision process, by answering “how” and “why” questions and by investigating boundary conditions – for example by explaining mechanisms underlying the effects of the identified conceptualizations and subdimensions on disclosure behavior. Second, the focus of our research lies on the privacy context, which limits generalizability. To overcome this limitation, future studies could draw knowledge about transparency from different contexts (e.g., AI). Also, the transfer of our proposed conceptualizations of transparency to other disciplines and research areas, in which transparency plays a crucial role, could be investigated by future research.

We hope that our conceptualizations of transparency will help future research to explore transparency and its effects on disclosure decision-making in greater detail and that they will help to increase the understanding of the different effects of transparency in the privacy context.

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