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# **It is only for your own good, or is it? Ethical Considerations for Designing Ethically Conscious Persuasive Information Systems**

*Completed Research*

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## **Abstract**

Persuasive designs, including gamification and digital nudging, have become well renowned during the last years and have been implemented successfully across different sectors including education, e-health, e-governance, e-finance and general information systems. In this regard, persuasive design can support desirable changes in attitude and behavior of users in order to achieve their own goals. However, such persuasive influence on individuals raises ethical questions as persuasive designs can impair the autonomy of users or persuade the user towards goals of a third party and hence lead to unethical decision-making processes. In human-computer interaction this is especially significant with the advent of advanced artificial intelligence that can emulate human behavior and thus bring new dynamics into play. Therefore, we conduct a systematic literature analysis with the goal to compile an overview of ethical considerations for persuasive system design, derive potential guidelines for ethical persuasive designs and shed light on potential research gaps.

## **Keywords**

Persuasive System Design, Gamification, Gambification, Digital Nudging, Ethics.

## **Introduction**

The ever increasing digitalization of our every life and the continuous influx of new information technology and systems has changed the way machines and people interact as the influence of technology on human decision-making is steadily growing (Skjuve et al. 2019). This rise of new technology together with the advent of artificial intelligence and “smart” technical artifacts (e.g., recommendation systems) have transformed the human decision-making process in a way that these technologies gained more influence in the overall process, for example by giving advice or incentivizing certain outcomes (Maedche et al. 2019). With this digital transformation of human-computer relations and the associated decision-making processes, new designs for information systems (IS) have emerged during the last years. These new designs with the power to influence the behavior and attitude of users are called persuasive designs (Fogg 2003).

With gamification, gambification and digital nudging, three design concepts with persuasive characteristics have made their way into the design of information systems and have been established since. These concepts can be united under the umbrella term of persuasive system design (PSD). Persuasive system design offers the means for IS designers to exert influence on the IS users by design and in doing so influence their behavior and attitude (Fogg 1998). Drawing on the concepts of gamification, gambification and digital nudging, IS designers have gained new means to design engaging and motivating IS by providing joyful or gameful experiences with the use of gamification, improve information and feedback flow for better transparency, trust and acceptance by including digital nudging elements, or use gambification for a more exotic spin on their IS design by introducing excitement and uncertainty as underlying mechanics.

With the rise of new persuasive information systems ethical issues have emerged. Baldwin (2014) highlights a lack of conceptual precision for persuasive design, especially with regards to nudging and policies. This lack in the design department can lead to unethical designs and from the user's point of view ineffective use. The negative effects and outcomes associated with bad designs are, for example, undesirable financial outcomes (Sunstein 2016), political manipulation (Winkel et al. 2015) or unplanned purchase decisions (Ho and Lim 2018). While policy-makers and government institutions have awakened to the existing challenges and opportunities at hand (e.g., behavioral designs for public policy) during the last few years, the described issues persist until today (Nacke and Deterding 2017; Kuehnhanss 2019).

With regard to these issues, persuasive designs based on gamification and gambification also have a set of very similar issues. Some of these issues have caused considerable outrage and damage to players of computer games with the introduction of gamble design elements and microtransactions into videos games that incentivize harmful behavior like overspending (Brown and Osman 2020). Popular game publishers like Electronic Arts (EA), Blizzard Entertainment or 2K Games have introduced so called "lootboxes", which are treasure chests with uncertain rewards that oftentimes can be bought with real money, into their economy system and faced severe backlash since as these gamble design elements are perceived as highly unfair by users, with some users suffering financial and psychological damage (e.g., addiction) from this introduction (Brown and Osman 2020). This development is not restricted to gaming as some scholars have voiced their concerns about lacking ethical boundaries in gamification and gambification (Lopez-Gonzalez and Griffiths 2018a, 2018b; Weiss 2019). Humlung and Haddara (2019) for example laid out the issues of introducing gamification to enterprise context as persuasive design as employees may feel exploited and forced to participate and compete. Additionally, Hassan et al. (2019) highlight the parallels of issues between digital nudging and gamification, which is not surprising as these concepts are related and share the same problems in persuasive design. This highlights that current design for persuasive IS does not suffice and should be improved by setting an ethical framework and if necessary, introducing policies and laws accordingly. This need for better ethical design is reinforced by the fact that many national laws do not cover persuasive design, which China has realized as first country and introduced laws to limit the abuse of persuasive design elements (Brown and Osman 2020). To address these issues from an academic point of view, we therefore formulate the following research question that we will answer in this article:

*RQ: What ethical considerations for persuasive system design exist in current literature?*

Our article is structured as follows: Firstly, we briefly introduce the necessary theoretical background for our research. Secondly, we present our research approach and applied methods. To answer our research questions, we conduct a systematic literature analysis according to rigorous methods for literature reviews in accordance with Cooper (1988), Webster and Watson (2002), as well as Vom Brocke et al. (2009) to answer the RQ. Following, we consolidate current literature to provide an overview on research concerning ethical design for persuasive information systems. Our research will contribute to theory on the current understanding of ethics in regard to persuasive designs including gamification, gambification and digital nudging. Additionally, we suggest implications and derived considerations from literature for ethical persuasive designs from our literature findings which can be used by researchers and practitioners to develop and design ethically conscious information systems. We then conclude our paper highlighting directions for future research towards ethically conscious persuasive designs.

## **Theoretical Background**

### ***Persuasive System Design and Related Concepts***

Persuasion itself can be defined as a specific way of interaction or communication with the outcome-oriented intention to influence the decision-making, behavior and attitude of users (of information systems) in order to achieve or promote a desired outcome (Briñol and Petty 2009; Simons et al. 2001). The aim of persuasive system design in the context of information systems is to persuade users to achieve a desirable outcome using persuasive design elements (Fogg 1998, 2003). These persuasive design elements may draw on related concepts such as gamification, gambification or digital nudging, as these prominent concepts for designing IS have persuasive characteristics on their own (Benner et al. 2021).

As mentioned, one concept that can be classified as persuasive system solution is gamification. Gamification aims to influence human behavior with motivational incentives which address intrinsic motivation (Ryan

and Deci 2000) that can be more powerful than monetary incentives (Blohm and Leimeister 2013). A well-established and popular definition of gamification is with a wider scope is the use of game design elements in any non-game context (Deterring et al. 2011). Gamification persuades users by providing motivational affordances that address the users' psychological needs and additionally provide a joyful experience which relates to the inherent playfulness of humans (*homo ludens*) and hedonic aspects of the usage of information technology (Huizinga 2009; Sharp et al. 2019). These aspects of gamification can persuade users to pursue a certain outcome to gain rewards or simply experience the gamified application itself.

A similar concept to gamification that has similar roots is gamblification. While gamification is primarily skill-based, or at least merit- or effort-based, gamblification is based on uncertainty and chance (Macey and Hamari 2020). However, with the liberalization of gambling in the recent years in western society (Markham and Young 2015), as well as the convergence of gaming and gambling (Lopez-Gonzalez and Griffiths 2018a, 2018b; Macey and Hamari 2018), borders between these concepts have diminished. A prominent example of gamblification is the addition of lootboxes which can be regarded to as small treasure chests with random content that may or may not be valuable to the user (Brown and Osman 2020). Unlike the skill-based gamification, gamblification provides persuasive character in a slightly different way. The contents of a lootbox, or in other words the rewards for gambling, can come with uncertainty that itself can motivate users by drawing on a basic human instinct – curiosity. This element of uncertainty is missing from gamification as in gamification is more transparent with its effect mechanism. Today, some academic scholars define gamblification as an extension of gamification as similarities arguably grow increasingly slim or use game design elements in gamification which have gambling characteristics (i.e., lootboxes) as demonstrated by Lichtenberg and Brendel (2020). Thus, gamification and gamblification can be considered closely related concepts with persuasive characteristics.

Another prominent concept of PSD is digital nudging. While gamification and gamblification provide motivational and joyful experiences to users, digital nudging does not. Instead, digital nudging focuses on persuading users towards desired outcomes by the use of small or subtle design modifications (Acquisti 2009). These small or subtle design modifications influence the users' decision-making, behavior and attitude in a predictable way, some by addressing the subconsciousness of the user (Thaler and Sunstein 2008). In this way, digital nudging can complement other PSD concepts (Benner et al. 2021). However, nudging places some restrictions on the design as nudges shall not forbid any options or significantly alter the (economic) incentives of the users (Thaler and Sunstein 2008), unlike gamification and gamblification that allow the restriction of options, change in incentives and even the application of strict punishment.

Nonetheless, the concepts of gamification, gamblification and digital nudging all have certain persuasive characteristics that can complement each other when designing persuasive information systems. For example, gamification can motivate the user and provide joyfulness (Schöbel et al. 2020a), while nudging ensures a subtle but steady level of information and feedback adding to transparency (Schöbel et al. 2020b). Gamblification can provide an exotic relief in persuasive systems as it is still a rather uncommon sight in current information systems. However, it seems that current PSD and IS design are not using these design elements effectively and may even use them in unethical ways deliberately.

### ***Potential Ethical Pitfalls of Persuasive System Design***

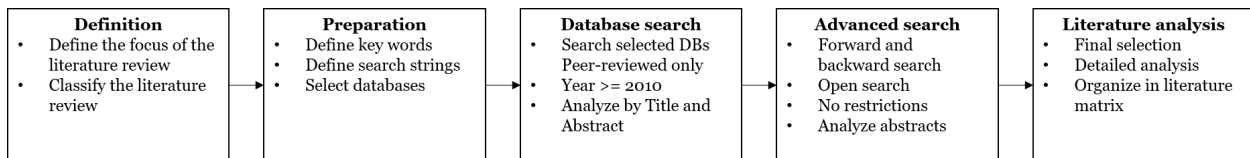
Since PSD influences the users' behavior, attitude and decision-making, ethical issues and questions are guaranteed to arise, and scholars have already argued for an in-depth discussion of these topics (Weinmann et al. 2016). The abovementioned concepts that can be defined as PSD have their own characteristics and potential ethical pitfalls.

While the intention behind nudging it to help achieve users their own goals, in reality many nudges are designed to achieve some outcome in the interest of a third party like the general populace (i.e. "the greater good") which contradicts its original definition (van den Hoven 2021). This circumstance can lead to potentially highly ethically questionable designs. The most prominent example of this which everyone knows from personal experience is the design of so called dark pattern. These dark pattern can be observed in the design of cookies and consent options on websites where many default options are set in favor of the operator of the website. Such ethically questionable designs can lead to compromised information security and privacy of the user (Acquisti et al. 2017). The existence of such issues is no surprise as ethical assessments of digital nudge design has been neglected in the past, especially with regard to fairness and autonomy (Schubert 2017).

As gamification has its origins in gaming and video games the dynamics and pitfalls of these environments partially translate to gamification. Some game design elements rely on competition and rivalry. While this is not an issue in gaming it may very well become an issue in professional context such as enterprise and business. Humlung and Haddara (2019) have researched the ethical implications of applying gamification to enterprise context. According to their results, employees that do not have a competitive personality or are very competent at their job, may feel undesired or even exploited. Additionally, employees may feel obliged to participate in the gamification efforts and lose focus on work itself which may have negative implications for both employees and enterprise. Moreover, Hassan and Hamari (2020) note that the introduction of gamification in professional context has paternalistic characteristics that share the same issues and pitfalls of paternalism in digital nudging resulting in the same problems and thus limiting the users autonomy and freedom of choice. The potential ethical pitfalls of gamblification however are not as well researched as gamification or digital nudging ethical pitfalls. Nevertheless, Lopez-Gonzalez and Griffiths (2018a) note the potential moral, ethical and legal issues of gamblification and highlight the need for further research. Considering the recent situation of gamblification of video games and the raised concerns of other scholars (e.g., Brown and Osman 2020; Macey and Hamari 2018). In general, the ethical pitfalls of gamblification share some of its characteristics with gamification and true gambling.

## Methodology

In order to answer our research question, we conduct a systematic literature analysis (SLA) as this approach is an effective and efficient way to compile a knowledge base to present an overview of current understandings and derive novel contributions (e.g., important ethical considerations for persuasive IS design) from (vom Brocke et al. 2015; Webster and Watson 2002). We conduct the SLA according to rigorous and well-established methodology as introduced by Cooper (1988), Webster and Watson (2002), as well as Vom Brocke et al. (2009). First, we present the process of our SLA as shown in Figure 1 below.



**Figure 1: Systematic Literature Analysis Process**

We start our SLA by classifying the review and setting the focus (see Table 1). As our goal is to provide an overview of relevant literature and derive possible solutions of ethical PSD, our goal is to integrate the results, shed light on potential shortcomings and formulate constructive criticism. The scope of our SLA is selective and explorative. While this may seem contradictory, we desire to follow an explorative approach on selected topics and research areas, hence the dual scope. In accordance with our goals, we focus mostly on the design and outcomes (e.g., proposed guidelines or frameworks) of the analyzed literature.

Characteristic	Category		
<b>Goal</b>	Integration	Criticism	Central topics
<b>Scope</b>	Representative	Selective	Explorative
<b>Focus</b>	Outcomes	Designs	Theories
<b>Structure</b>	Historical	Thematical	Methodical

**Table 1: Systematic Literature Analysis Classification**

Next, we prepare our literature review by selecting databases, defining important keywords and formulating a search string from these. Because of our dual scope decide to search multiple databases including ones that are not common in information systems research although they commonly cover interdisciplinary IS topics like e-health, which are potentially important articles on PSD. Therefore, we use AISeL, ACM, IEEEExplore, Emerald, JSTOR, PubMed (NCBI), ScienceDirect and SpringerLink for our search process. As restraints on our search process we only consider peer-reviewed articles and articles that are not from before 2010 as we want to provide as timelier overview of literature. Followingly and as we described earlier, gamification, gamblification and digital nudging are also important topic for PSD, so consequently we

include these terms and formulate the following search string that we adapt to the unique characteristics of each database (e.g., no support of wildcards [\*]):

(persuas\* OR gamif\* OR gamb\* OR nudg\*) AND ethic\*

After our initial search by title and abstract where we found a total of 464 potentially relevant articles, we then screen potential literature in detail for relevance and conduct a forward and backward search for relevant literature (Webster and Watson 2002). We kept only those articles that directly acknowledge and address ethical issues in any way form or shape (i.e., pointing out issues or proposing solutions). Finally, we organize all relevant literature in a literature matrix (Webster and Watson 2002) and derive our finding.

## Status Quo from Literature

As result of our SLA we identified 17 relevant articles, of which four are the result of the forward and backward search process. The literature findings are displayed in Table 2. We organize the literature results along their PSD topics, domain of application and type of solution the article provides (if any).

Author (year)	PSD Topic				Domain of Application							Solution
	ND	GF	GB	LP	BE	AC	EG	HS	GG	TS	SP	
<b>Brown and Osman (2020)</b>		X	X	X					X			NA
<b>Hassan and Hamari (2020)</b>		X		X		X	X					NA
<b>Ho and Lim (2018)</b>	X				X							NA
<b>Humlung and Haddara (2019)</b>		X			X	X						NA
<b>Kim and Werbach (2016)</b>		X				X						FW
<b>Lades (2014)</b>	X							X				NA
<b>Lembeke et al. (2019)</b>	X					X						GL
<b>Lopez-Gonzalez and Griffiths (2018a)</b>			X	X	X							NA
<b>Macey and Hamari (2020)</b>		X	X			X						NA
<b>Meske and Amojó (2020)</b>	X					X						GL
<b>Pilaj (2017)</b>	X				X							FW
<b>Renaud and Zimmermann (2018)</b>	X			X						X	X	GL
<b>Schubert (2017)</b>	X				X			X				NA
<b>Selinger and Whyte (2011)</b>	X					X						NA
<b>Sunstein (2016)</b>	X					X						NA
<b>Weiss (2019)</b>		X				X						NA
<b>Winkel et al. (2015)</b>	X			X		X	X					FW
<b>Total (n = 17)</b>	<b>10</b>	<b>6</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	

ND = nudging; GF = gamification; GB = gambification; LP = law or policy concerning ethics of PSD (incl. ND, GF, GB)  
 BE = business, economy, trading, enterprise; AC = strong academic focus; EG = e-government; HS = e-health, sustainability;  
 GG = gaming, games; TS = information technology and systems; SP = security and privacy  
 NA = none or not intended; FW = framework; GL = guidelines, guiding questions, guiding checklist

**Table 2: Literature matrix**

We organized the literature along three major categories. First, the PSD topic that encompasses the several concepts behind PSD. Additionally, we included the LP category to account for literature that discusses policies and potential law to ensure ethical integrity of PSD. Second, we included the domain of application of literature to provide an overview on the background and where ethics of PSD are being discussed most.

Here we also included the AC label to reflect literature that specifically focuses on theory strongly as we want to highlight a possible gap between academic research and actual application of ethical PSD. Third, we included the solution category to provide an overview on what potential solutions for ethical PSD are being developed.

Concerning the PSD topic most literature is about the ethics of digital nudging (10) and literature on gamification is lacking behind with (6) while literature on the ethics of gamblification (3) barely even exists. However, literature discussing policy and law of ethical PSD (5) includes only two articles on digital nudging, while the other three articles discuss policy and law on gamification and gamblification. This highlights a potential gap of the awareness on ethical PSD between academia and real world. This impression is reinforced when looking at the distribution of literature regarding the domain of application as most (10) articles have strong academic focus with seven being of purely academic context. Among the application domains BE is the most prominent by a slim margin. Regarding potential solutions for ethical PSD, three articles each propose a framework or guidelines while the majority of articles offers no solution or precise direction towards ethical PSD.

### Ethical Considerations for Persuasive System Design

Following the status quo overview on literature about ethical considerations on PSD we present consideration for ethical persuasion (CEP) in information systems derived from literature and discuss their implications for IS researchers and designers. We derive these CEP with focus on applicable ideas or recommendations for theorists and practitioners alike. The CEP are shown in table 3.

CEP	Description	Source
Consciousness of intent	PSD should be designed with ethical intent in mind. As long as no malicious intent is present, PSD may be applied	Pilaj (2017)
Extent of ethics and PSD implementation	Designers should consider the extent ethical and persuasive components to find a balance that ensures autonomy, transparency and outcome	Pilaj (2017) Sunstein (2016)
Opt-in design, anonymization	As PSD may include competitive elements (i.e., gamification) this may demotivate non-competitive users, therefore and opt-in design is recommended to not force the user in an ethically undesirable situation	Humlung and Haddara (2019), Renaud and Zimmermann (2018)
Ethical outcomes	PSD must keep the users desired outcomes in mind when persuading the user towards a specific (third party) outcome (e.g., sustainability, politics)	Hassan and Hamari (2020), Renaud and Zimmermann (2018), Sunstein (2016)
Fairness and Exploitation	PSD must not abuse its persuasive effects to exploit users (e.g., financially or emotionally), fairness should be ensured	Kim and Werbach (2016), Winkel et al. (2015)
Negative morals	Because of the characteristics of PSD a badly designed implementation can induce moral decay (e.g., fostering a gambling culture in forex trading)	Kim and Werbach (2016), Lopez-Gonzalez and Griffiths (2018a), Macey and Hamari (2020)
Asymmetrical power dynamics	Designers of persuasive IS must be conscious of their power of influencing the users decision-making process and the implicit paternalism	Hassan and Hamari (2020); Winkel et al. (2015)

**Table 3: Ethical Considerations for PSD derived from Literature**

In the following, we will first briefly discuss the general results and CEP which we derived from literature and then continue discussing each major category of ethical considerations that track back to the presented CEP for PSD in detail. These major categories include the outcome-orientation of PSD, freedom of choice and user autonomy, and the transparency of persuasion and PSD.

The most common ethical concerns in current literature cover the topics of what degree of transparency should be implemented, what effect on morals does PSD have (i.e., moral decay) or how to design persuasive IS in a way that no users feels pressured, unfairly treated or even exploited. With these considerations in mind, one potential approach could be an opt-in implementation of PSD. This approach could bypass the entire debate on what degree of autonomy is required as with an opt-in approach the user decides to actively participate in the persuasive application. Thus, preserving freedom of choice and obtaining explicit consent from the user. In the following subsections we address these ethical considerations and implications for PSD in further detail.

### ***Outcome-orientation of persuasive system design***

Both literature analyzed in our review as well as unrelated literature attribute a certain outcome-orientation to persuasive system design. For example, components rooted in digital nudging use small design elements to influence users towards desired outcomes (e.g., ethical investment decisions, see Pilaj 2017). Gamification and gamblification also influence the user's behavior but follow a far less subtle approach than nudging to achieve a desired outcome. Gamification primarily targets the users' motivation by providing affordances that address the users' psychological needs (e.g., setting goals for self-fulfillment and providing rewards accordingly). Gamblification, which can be seen as extension of gamification follows an approach that is based on chance and uncertainty in contradiction to skill-based gamification (Macey and Hamari 2020).

These characteristics may lead to undesired effects such as rivalry among employees (Humlung and Haddara 2019) or even worse outcomes like financial, emotional and psychological ramifications (Brown and Osman 2020). Therefore, PSD should inform the user about potentially negative consequences as minimum design requirement for persuasive IS. Preferably, these issues should be circumvented by design taking the users' needs (e.g., level of competition) into account and implementing PSD as opt-in solution so that users' outcomes are not endangered.

### ***Freedom of choice and user autonomy***

In accordance with the original definition of nudging the users' freedom of choice and autonomy must be preserved (Thaler and Sunstein 2008). This sentiment is supported by many researchers (e.g., Kim and Werbach 2016; Winkel et al. 2015). In order to implement PSD that respects the users' needs for freedom of choice and autonomy, literature on digital nudging seems to be the most promising approach. Lembcke et al. (2019) for example argue that nudges, or in this context persuasive design, should be disclosed. Additionally, literature provides first ethical frameworks in this regard (e.g., Winkel et al. 2015) that may be used for PSD. Nevertheless, as researchers noted, too much disclosure may lead to undesirable and negative outcomes and users react differently when they realize they are being persuaded towards a specific outcome, even if that outcome may be in their own interest (van Reijmersdal et al. 2010).

### ***The needs and issues of transparent persuasion***

While many academics emphasize the need for transparency when designing persuasive systems, many also ignore the drawbacks. Transparency is a very important part of any IS design and even more so of persuasive IS design that influences the users' attitude and behavior. However, transparency can also harm the outcome-oriented component of PSD as theories on persuasion knowledge and cognition predict that if users are aware of persuasion the likelihood and effect of persuasion can decrease immensely (Friestad and Wright 1994). Carried to the extreme, awareness of persuasion can even lead to negative effects and reverse outcomes like negative attitudes towards products or services (van Reijmersdal et al. 2010).

Therefore, PSD should be designed in a way that ensures transparency but does not reveal all details to users as complete disclosure can have the exact opposite effect. Thus, a balance between transparency and outcome-orientation should be maintained when designing persuasive IS (Pilaj 2017; Sunstein 2016). The significance of achieving a balance between transparency and outcome-orientation becomes even more important with the current development of artificial intelligence artefacts like conversational technology in mind, as for example conversational agents can include PSD components (Benner et al. 2021).



## **Conclusion and Directions for Future Research**

The contribution of our research article is twofold. Firstly, as the goal of our research was to provide an overview of the ethical considerations on PSD in current literature, we conducted an SLA, organized literature finding in a concept matrix and additionally provided derived considerations. We hope these findings will prove useful for theorists and practitioners alike to design ethical persuasive information systems and continue the research towards a generally acceptable gold standard for ethical PSD.

Our findings show that current research is strongly driven by and focused on academic concerns that may not be fully aligned with the real world as real world application domains make up for the minority of literature in our review. Moreover, the topics or concepts of PSD that we investigated are unevenly distributed with digital nudging being the most prominent. Gamification and especially gamblification are underrepresented in current research on ethical PSD. Considering the potential negative effects of gamification and more so gamblification this research gap should be addressed in future research.

Secondly, we highlight potential research gaps and future directions towards ethical PSD. In this regard future research on ethical PSD should take both negative and positive effects of PSD into account that we have discussed (e.g., transparency and autonomy are required but unbalanced design can lead to negative and undesired outcomes).

Additionally, while research on ethical PSD continues and contributions including frameworks and design guidelines emerge, empirical validation of existing frameworks and guidelines as well as contributions to be made is necessary as it is currently virtually nonexistent (Meske and Amojó 2020). Therefore, future research should not only focus on theoretical contributions but translate those contributions into practice and evaluate them accordingly.

However, our own research is not without limitations too. With the rise of artificial intelligence digital artifacts such as conversational agents have emerged. These conversational agents have a persuasive character on their own. Although this may be the case, we did not specifically include conversational agents in our research as conversational technology and the ethical issues associated with it present a whole research field on their own. Nevertheless, future research should take conversational agents into account and determine connections and ethical implications of conversational agents and PSD as this may prove as emerging future research topic.

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