Learnings from a Guided Method for Experience Design: Psychological Needs in the Context of the Privacy Value

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Abstract: This position paper introduces a guided method for experience design that addresses the importance and challenge of considering the rather abstract psychological (user) needs and values as input for creative ideation processes of interactive systems. We present exemplary empirical results from the application of the method concerning the value of privacy, revealing how needs and values can become tangible for user experience designers. Also, interdependencies between the value of privacy and psychological needs, and between the concepts of psychological needs and values in general, were identified by applying the guided experience design method. Learning about the connections of needs and values provide valuable insights for experience design, which are discussed in the paper and should be further explored.

Keywords: Experience Design, Psychological Needs, Values, Needs Persona, Needs Empathy Map

1 Introduction

In the past, there has been considerable discussion and research on the notions of values and psychological needs in various fields. This discussion has led to a myriad of conceptualizations and ideas about what values and needs are. However, there is no universally accepted understanding of these concepts across different research communities. We respect the diversity of perspectives and do not claim to encompass them. The aim of this position paper is to introduce a method for Human-Computer Interaction (HCI) that considers both values and psychological needs. Moreover, we seek to investigate how to incorporate privacy into the realm of HCI, acknowledging the importance of values and psychological needs in this context.

1.1 The Concept of Values and Psychological Needs

Values encompass deeply rooted and meaningful beliefs, attitudes, ideals, and needs shared by members of a society. They play a substantial role in shaping an individual’s character, identity, and cultural context. Serving as a fundamental lens, values influence how individuals perceive and assess the world around them. Academic research on values has extended
for more than 25 years, yielding results such as Friedman’s [Fr13] compilation of values with ethical implications. These include next to privacy considerations for human welfare, ownership and property, freedom from bias, universal usability, trust, autonomy, informed consent, accountability, courtesy, identity, calmness, and environmental sustainability. Over time, the significance of ethical considerations in the human-centered development of digital products and services has been steadily rising. This mirrors an increasing acknowledgment of the role values play in shaping technology and its impact on individuals and society [KK18; Kr23]. In addition to values, it appears crucial in the field of HCI to consider the psychological needs of users to craft a positive user experience. If the psychological needs of the users are fulfilled in the context of an interactive product or service, a positive user experience might arise [Ha03; Ha13]. Desmet and Fokkinga [DF20a] propose a needs-typology, which embraces thirteen fundamental needs like autonomy, beauty, community, comfort, competence, impact, morality, purpose, and recognition. It can already be seen here - e.g., with autonomy - that there is some overlap between the two concepts. Thus, we operate in this paper under the assumption that values and psychological needs, while not entirely distinct, are nevertheless independent yet interdependent concepts.

1.2 Experience Design based on Values and Psychological Needs

The human-centered design process, as defined in [IS19], is a widely utilized framework for developing interactive products and services through iterative and user-centered practices (EN ISO 9241-210). Despite being commonly employed and prioritizing user experience, the human-centred design process still lacks substantial integration of values, psychological needs, and ethical considerations across its four stages. Nevertheless, these elements significantly influence the user’s experience with a product or service. As a result, certain studies have concentrated on specific values, such as privacy, to devise and assess methods that aid in understanding the role of people’s values in their interactions with digital products and services [HIB22]. However, there is still a lack of methods that effectively bring together people’s psychological needs and values, considering the apparent overlap between these two concepts. What psychological needs and values share is their abstract nature, situated in a psychological context. Consequently, they are often not readily accessible for designers. To achieve a successful design process, it seems crucial for technology managers and designers to possess a thorough understanding of the psychological needs and values of their users. Thus, there is a necessity to make these somewhat implicit concepts tangible and comprehensible for them (cf. [KFP15; Kr17]), allowing them to use these as a foundation for their creative process.

1.3 Objectives

The present paper has two objectives. First we want to introduce the guided experience design method that can help designers to understand their users psychological needs and
values, and the interdependencies between them. Therefore, we present exemplary empirical findings concerning the value of privacy, identifying the impact that individual psychological needs have on the design of positively perceived privacy experiences. Second, we want to learn about the interaction of psychological needs and values in designing interactive products and services. In this regard, our focus is on making psychological needs and values tangible, igniting creative inspiration for the ideation processes of designing interactive systems.

2 Related Research: Designing for Values and Psychological Needs

2.1 Value Sensitive Design

Value Sensitive Design is a methodologically sound approach to technology design, incorporating human values in a systematic and thorough manner across the entire design process. This approach proposes a tripartite methodology involving three interconnected investigations: conceptual, empirical, and technical [FKB02]. Conceptual investigations address issues such as what values are, whose values should be prioritized, and how technological designs impact values. These inquiries provide carefully crafted conceptualizations of specific values. Empirical investigations complement conceptual inquiries by observing, measuring, and documenting human activities related to the technical artifact. These investigations explore how stakeholders apprehend values, prioritize them in design trade-offs, and consider both espoused and actual practices, examining the impact of technology on groups and individuals. Finally, technical investigations recognize that technologies inherently support certain activities and values. The first form assesses how existing technological properties hinder or support human values. The second form involves proactively designing systems to support values identified in conceptual investigations. Technical investigations focus on the technology itself, differentiating from empirical investigations that concentrate on people or larger social systems affected by the technology. The method presented in this paper combines aspects of the empirical and technical investigation [FKB02]. Moreover, the guided experience design method helps to make abstract needs and values more tangible by providing specific definitions of values. Defining what values mean in the context of designing technological systems has been difficult in the past (cf. [Um20]), especially for designers that are not ethical experts (cf. [Br17]).

2.2 Experience Design based on Psychological Needs

In experience design, several approaches exist, and one of them already incorporates ethical considerations. In this context, the available resources introduce and sensitize designers to basic human needs and possible resulting requirements for the design. Notable examples include needs cards [Ha10; Ha13; HD12; Sh01] wellbeing determinant cards [RD15],
and recent materials on psychological needs by Desmet and Fokkinga [DF20b; DF21; DF22]. However, these materials are primarily designed to offer insights into specific needs and their implications for design. The designers are not explicitly aided in a systematic reflection process concerning the needs. Additionally, there are only a limited number of methods in experience design (e.g. [KLH18; PA20]) for systematically designing based on psychological needs (cf. [PAC20]).

In the context of this position paper, we refer to the "Needs Profiles" method [Kr17], which can be used to actively sensitize designers. It also allows them to systematically access and gather their (partly implicit) shared knowledge about psychological needs in the realm of experience design (cf. [KFP15]). Thus, it leverages the designer’s existing knowledge of psychological needs and expands it through personal, systematic shared reflection-in-action [Sc83] processes with other designers. Moreover, the resulting "Needs Personas"— a personification of psychological needs - can serve as a solid foundation and creative input for ideation processes [KFP15; Kr22].

3  Guided Experience Design Method

The guided experience design method incorporates psychological needs and ethical considerations. Within the scope of this paper, the emphasis will be on the conceptualization (see section 3.1) and materialization (see section 3.2) of psychological needs and the value of privacy. Overall, method sections 1 and 2 are intended to provide inspiration for the experience design of privacy-related aspects and interactive solutions.

3.1 Method Section 1: Conceptualization

One main objective of this method section is to explore the partially overlapping concepts - needs and values - and to establish a shared understanding of those. Furthermore, participants have the opportunity to specify which needs they associate with and how they link them to the value of privacy, and which of them they would like to address in the next Method Section.

Step 1: Understanding Values and Psychological Needs: To prepare the participants for the topic of values and psychological needs in the context of experience design, to understand their attitudes towards the concepts - whether, how and where they see a link, the modified Warm UP Object Presentation (cf. [KM22]) was used. Participants were asked to build their understanding of the terms psychological need and value individually using a small set of Lego® bricks. The results were then shared and discussed with all participants.

Step 2: Connecting Privacy with Psychological Needs: The focus is then placed on the value of privacy and a brief theoretical introduction was given. Then the needs typology according to Desmet and Fokkinga [DF20a] is presented with the help of the materials...
from [Bu23]. The participants are asked to listen actively - they were asked to reflect while listening and put on sticky notes which psychological needs they associate with the value of privacy and how. These findings are clustered and evaluated. The participants are asked to pick out the four most relevant psychological needs for them.

3.2 Method Section 2: Materialization

In the second method section, the initial focus is for the participants to generally bring together their various perspectives on the defined needs and, in doing so, become aware and visualize unconscious elements of knowledge or beliefs. Subsequently, the participants are tasked with putting themselves in the perspective of users who have the needs pronounced in an extreme sense in the context of the privacy value, and deriving concrete strategies for fulfilling those needs, i.e., requirements for the design of interactive systems.

*Step 1: Constructing Psychological Needs:* The Needs Profiles [Kr17] are applied to make the selected, rather abstract psychological needs and the value tangible and concrete - thereby, the first step is to metaphorically built the previously defined needs with Lego®-bricks.

*Step 2: Designing Needs Personas:* The Needs Profiles define that the insights gained during the former step are then transferred to the Needs Empathy Map [Kr22] and used for the development of the Needs Personas [KFP15] in the context of the value of privacy. Thereby, the participants creatively work out how individuals with the previously defined needs would act and behave and what their motivations, thoughts and feelings are – in the context of the value of privacy. This means that the participants have dealt during the method with how the Needs Personas would live out the value and what influence the needs might have on privacy behaviour.

4 Results

The findings presented are drawn from the first implementation of the guided experience design method with nine participants at a scientific HCI-conference (4 female, 5 male). The participants had a background in a wide variety of research fields, none of them had a focus on experience or value-sensitive design.

4.1 Conceptualization - Step 1: Values and Psychological Needs as Related Concepts

The detailed presentation of the individual Lego®-models (cf. Method Section 1 - *Understanding Values and Psychological Needs*) and the subsequent in-depth discussion showed that the participants were well supported in dealing intensively with the topic of psychological needs and values. All participants were able to build a Lego®-model that
included their perspective on the issue. In the subsequent presentation, discussion, and
debate of the buildings, it became clear that, for most of the participants, the two concepts
were fundamentally linked and mutually dependent. It also became apparent that the two
concepts were mutually dependent for the participants. For some of them, an internalized
understanding of values could trigger psychological needs, while for other participants,
a certain predominant set of needs was a prerequisite for living out a value. Overall, the
exercise proved to be well suited for activating the participants’ prior knowledge and opinions
as well as making these aspects openly communicable as part of the method implementation.
In this way, we were able to pick up the participants’ convictions and positions on the topic
and prepare them accordingly for the subsequent creative process and the implementation
of the following exercises.

4.2 Conceptualization - Step 2: Linking Psychological Needs to the Value of Privacy

For the participants, eleven out of the 13 psychological needs (cf. [DF20a]) were directly
linked to the value of privacy (cf. Connecting Privacy with Psychological Needs in Method
Section 1). Furthermore, they associated concrete strategies for fulfilling those needs and
the influence of different needs on how the value of privacy should be designed for (see
Figure 1). However, no linkages were made for the needs fitness and stimulation. Moreover,
it was discovered that certain overlaps within the typology of needs exist. For instance,
distinguishing between the needs for connectedness and community did not appear as
straightforward for the participants. Furthermore, two participants expressed that data
protection was for them mostly associated with the need for security, but that they had now
realized that it can also be linked to so many other needs. Therefore, the participants decided
not to go on with the obvious need for security in the context of privacy but to proceed with
the four needs of comfort, community, recognition, and autonomy to inspire the creative
process.

4.3 Materialization - Exploring Needs in the Context of the Value of Privacy

First, the participants were split into four groups (cf. Constructing Psychological Needs
in Method Section 2), with each group building two of the selected needs using Lego®
bricks. In doing so, they were encouraged to take a closer look at the psychological need
and its characteristics - i.e., not yet to address the value of privacy. In doing so, they were
supported to access the psychological need in general, first. Exemplary results can be found
in [Kr17; Kr23].

Then, two out of the four groups were formed with each of them developing a Needs Persona
(cf. Designing Needs Personas in Method Section 2). Due to space constraints, within the
scope of this paper, only the Needs Persona “Alex” (see Figure 1) is presented. Alex is a
progressive activist who lives in a commune and has several children. He likes to lie outside
<table>
<thead>
<tr>
<th>Psychological Need in the context of the Value of Privacy</th>
</tr>
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<tbody>
<tr>
<td><strong>Autonomy</strong></td>
</tr>
<tr>
<td>Autonomy was connected to self-determination, control over the disclosure of information and individualism; the freedom to live out personal preferences, making decisions about the disclosure of information, preserving the right to privacy as a personal choice.</td>
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<tr>
<td><strong>Beauty</strong></td>
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<tr>
<td>Aesthetics was seen as important factor for the efficient communication of privacy matters. To be perceived as beautiful (currently it is not), one should feel safe, calm, not have to worry.</td>
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<tr>
<td><strong>Comfort</strong></td>
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<tr>
<td>Deemed to prevent tension and difficulty, privacy seems essential for creating a comfortable environment. Ease in adapting settings, e.g. non-compulsory defaults, security measures seem crucial.</td>
</tr>
<tr>
<td><strong>Community</strong></td>
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<tr>
<td>Community requires general openness; necessitates the support of intentional engagement with consent, simultaneously. Reliable, standardized privacy settings to balance the exposure to the community as chose were claimed.</td>
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<tr>
<td><strong>Competence</strong></td>
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<tr>
<td>The freedom of choice seemed crucial; it was found necessary to provide information and (privacy) settings that can be changed. The ability to enact private protection was also emphasized.</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
</tr>
<tr>
<td>Proof that a stated preference (e.g. regarding data-handling) has been complied with. To see if the abandonment of data protection.</td>
</tr>
<tr>
<td><strong>Morality</strong></td>
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<tr>
<td>The violation of privacy was generally estimated as ethically wrong. The willingness to pay for a service which uses sensitive data was associated with moral considerations.</td>
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<tr>
<td><strong>Purpose</strong></td>
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<tr>
<td>It seems important that it is clearly and comprehensibly explained what the requested information is used for.</td>
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<tr>
<td><strong>Recognition</strong></td>
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<tr>
<td>Recognition involves sharing data for appreciation. Protecting privacy is a delicate balance between openness and personal space, especially in the realm of social media where recognition and stimulation abound but pose a challenge to privacy.</td>
</tr>
<tr>
<td><strong>Relatedness</strong></td>
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<tr>
<td>Sharing information and protecting privacy seem crucial for building relationships - involving contribution, knowledge sharing, and achievements within a trusted connection; a secure and meaningful relation requires rather gradual trust-building.</td>
</tr>
<tr>
<td><strong>Security</strong></td>
</tr>
<tr>
<td>If privacy is neglected, people lack general security. Systematic enforcement of data protection seemed essential to protect both data and the people behind it. Thus, it seemed crucial to them that information and data be stored securely.</td>
</tr>
</tbody>
</table>
on a blanket, is generally rather cozy and has little cozy dog as a pet. He has a university education and is active in both offline and online communities. He needs easy, convenient access to his online and offline community. He wants to feel secure that his data is protected - but doesn’t want to go to a lot of trouble to do so. Therefore, he prefers private servers and likes secure passwords, but finds them rather inconvenient because they are easy to forget. Moreover, additional insights were elaborated regarding Alex’s behaviour and emotional life, derived from his two defined psychological needs. This information illustrates how he navigates the value of privacy in his daily and personal life, both online and offline.

5 Discussion and Future Work

The first objective of this paper was to introduce the guided experience design method that may help to understand and design for the psychological needs and values of the users. Second, we wanted to learn about the interdependencies of needs and values in general by applying the method to the value of privacy. The results revealed that the conceptualization step of the method, which involved a systematical introduction to needs and values, an initial engagement with the concepts through a playful exercise [KM22], and an exploration of chosen needs, facilitated a profound understanding of the concepts and allowed participants to make preliminary assessments of the needs in the context of the value of privacy. Thereby, it was revealed that various psychological needs have diverse relationships to the value of privacy, influencing how privacy is experienced and how this experience can be modified by addressing user needs. It is noteworthy that the psychological needs for fitness and stimulation were not linked to privacy. While fitness may play a role in safeguarding privacy in the analogue domain, its relevance in the digital realm was not as apparent to the
participants. The missing relationship of stimulation and privacy may be attributed to the
peoples’ perception that privacy applications are mostly considered unappealing.

When it came to finding ideas for interactive solutions, the Needs Profiles [Kr17] were
particularly relevant in addition to the designers’ own decision in favour of certain needs
(Method Section 2: Materialization). Here, the designers could gain a detailed view and
more concrete insights into their personal and potential user perspectives regarding the
psychological needs in the context of the value of privacy. After building the needs with the
Lego®-Bricks to access possible latent knowledge about and visualize the needs first, the
Needs Persona - a personification of the psychological needs – provided the participants
with even more detailed and tangible insights into possible design requirements a user might
have for privacy-related matters. Simultaneously, creating a Needs Persona using a Needs
Empathy Map served to efficiently establish a common ground for the subsequent ideation
process and integrate (the participants) various perspectives on the resulting requirements of
the needs for an interactive solution.

Furthermore, through the application of the method, we explored the relationship between
the two concepts – values and psychological needs – in the context of the value of privacy.
We found that the value of privacy and psychological needs have some distinct but also some
interconnected characteristics. Therefore, designing for the needs that are related to privacy
may help to address the value of privacy and, therefore, a positive (user) experience in the
context of interactive products and services. Thereby, value appear to be more universal
and offering a broader perspective on the individual’s attitude towards life in general and
the perceptions of interactive systems in particular than individual psychological needs. In
general, assessing peoples’ values helps to understand more universal personal motivations
and life goals. When designing interactive systems, they can be regarded as a rather indirect
influence on specific interaction situations. However, an individual value set may determine
the importance of individual psychological needs. In contrast, psychological needs appear
as a rather direct influence an interaction situation, with users trying to accomplish needs
fulfilment when interacting with interactive products or services. Different psychological
needs seem to have the capacity to generate different demands regarding the value of privacy.
Throughout interactions, the value of privacy consistently remains in the background, acting
as a canvas or target variable that can influence the ongoing need situation. Although,
values seem to remain rather stable over time, they might still be subject to change. Thus,
specific psychological needs, such as community and comfort, may potentially shift the
importance of the value somewhat into the background, necessitating a different, less rigid
privacy-oriented design requirement.

It can be concluded that the unique features of values and psychological needs suggest
that values act as a foundation that must be considered before addressing needs effectively.
Simultaneously, needs can influence how a value is expressed, defining how individuals
experience that value in diverse situations or the needs that emerge from it.

Based on the insights gained from this study, we seek to aid designers by applying the
guided method for experience design in understanding the wide range of design possibilities for privacy based on different needs. We encourage integrating the awareness concerning the relevance of needs and values as well as the corresponding methods into the design of interactive systems, always with the goal of ensuring a positive user experience next to usability issues. These insights lead us to envision the potential development of a framework integrating values and needs for the experience-oriented design of interactive products and services - and thus, the design of privacy. However, to create a thorough ethical experience design, it seems essential to evaluate various values, acknowledge potential conflicts between them, and consider alternative design approaches. Due to limitations in space and the paper’s focus, this aspect is not discussed here - see [Ho23; KHB23] for more details.

Based on these presented results, further empirical investigations are planned to deepen our understanding of the interplay of needs and values and how both concepts can be addressed with a sound methodology. Furthermore, we want to gather more empirical data. Here, a comparison of the awareness and knowledge of designers prior the application of the experience design method and after its application would help to determine, how much they have learned through the application. A more comprehensive exploration of the theoretical foundations will also be necessary in the future.

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