Values-led Participatory Design
- Mediating the Emergence of Values

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ABSTRACT
There is a growing interest in values-led inquiries within participatory design (PD). One approach argues that working with values is a recursive 3-phase process that supports the emergence, development and grounding of values. This paper focuses solely upon this emergence phase, illustrating how we can support the emergence of values during the initial phase of a values-led inquiry. We do this by drawing upon a PD case where digital technology was designed to support the experiences of young adults with severe intellectual disabilities, in an art museum. This case allows us to describe how we establish, negotiate and the debrief values during this initial phase of a values-led inquiry (not to explicate how we can work with such young adults in PD). By foregrounding both explicit and implicit mediation in the PD process, we show how a theoretical understanding of mediation can potentially enrich and further the values-led PD tradition.

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Values, emergence, participatory design, implicit mediation, explicit mediation

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
There is a strong agreement that we need to engage with human values when designing technology e.g., [5, 9, 14]. However, despite these efforts, Iversen et al., [11, 12] argue that there is still considerable divergence and a lack of agreement in how to conceptualize and approach values during technology design. Drawing from the Scandinavian Participatory Design tradition, Iversen et al., [11, 12] argued that one fruitful way to work with values during design is to elevate values to the fore of Participatory Design (PD) inquiries, and to engage with values as the engine that drives the design activities.

In practice, this means rethinking how we behold methods and participation during the design process. For example, instead of worrying about which method to adopt in order to best capture stakeholders’ needs, or what methods can strengthen stakeholders’ ownership and commitment to the design process, the main concern should be on how methods can be best used to work with values. In short, this requires us to view methods and participation as means to achieving what should be the ultimate ends of PD: a core engagement with values [12].

This paper takes the Iversen et al papers [11, 12] of values-led PD as the point of departure. In [11, 12], value-led PD is described to involve a recursive 3-phase process: the emergence, the development, and grounding of values. This represents the full cycle of a values-led PD inquiry: from the process of early analysis to the development of final product (Fig. 1). When we refer to phases, we do not mean a process that is clearly divisible into separate activities. Rather, we use the term ‘phase’ to indicate the primary objective of a particular part of the inquiry process. The phases are seen as highly interconnected and in itself iterative throughout the process.

In this paper, we focus solely only upon the first phase - the emergence phase. We want to further explicate this phase in order to explicate the process of how we mediate the emergence of values more explicitly. This is because some designers still associate attempts to work productively with values during design inquiries as a ‘black art’ [22]. By using real-life examples from a PD project, we provide one approach of how we could support the emergence of values with participants. We will illustrate the ways, the processes, the methods, the tools, and so on that were used to help cultivate the emergence of values during the design process. In fact, we discovered that the emergence phase is quite complex. In itself, this phase is found to be a miniature cycle not only of values discovery, but also displaying some initial development and initial grounding of values.
VALUES AND VALUE-SYSTEM

Values refer to enduring beliefs that we hold concerning desirable modes of conduct or end-state of existence in different situations, societies and cultural contexts [1, 18]. Desirable modes of conduct could be taking care of loved ones, or being active and healthy; while desirable end-states could be a preference for peaceful existence or democracy. Values have a transcendental quality, guiding actions, attitudes, judgments and comparisons across specific objects and situations and beyond immediate goals to more long-term goals [1].

Our values or value system comprise a structure or generalized plan, within whose frame or horizon we collectively try to determine, from case to case, what is good or valuable, what is preferable and not, what we endorse or oppose, what we believe in or not. Not all judgments we make about our conduct are values. For example, a preference for coffee over tea does not indicate an expression of a value but choosing to be a vegetarian out of a concern for animal welfare is, signifying a desirable mode of conduct [18].

Besides acting as goals that give actions and decisions direction, values imbue actions with emotional intensity [19]. Thus, values become criteria or standards that guide our actions, judgments and decisions, and are fundamental to what makes us human [10, 18]. And values - be they implicit or explicit - emerge and evolve through use and abuse of technology (Harper et al., 2008). This is because computer technologies are not neutral – they are laden with human, cultural and social values. This recognition has led to the establishment of value-sensitive agendas and efforts from different design traditions to engage with values to anticipate and design information and computational systems that support human values [4, 6, 15].

This conception of values is consistent with the that of Iversen et al [11, 12] and in addition, our discussion in this paper not only considers how designers can work with people’s values but also consider the values that designers/PD practitioners themselves bring to the design process.

Review of relevant literature

The importance of values in design has attracted interests from many, such as Friedman et al’s Value-sensitive design [6], Cockton’s Value-centered HCI, [2] and working with values in co-design activities [9].

Recently, Iversen et al [11, 12] proposed a values-led PD approach that sought to differentiate itself from others. Unlike [6], their approach does not see values as something universal, ready to be ticked off a checklist. They also differ from [2] who conceptualizes value as ‘worth’. Using different PD design cases, Iversen et al. [11, 12] illustrate how values are found to emerge from a dialogical process between participants in the design process and designers. They described this approach as consisting of three phases, referred to as being emergence, development and grounding. Furthermore, designers’ awareness of their own appreciative judgment of values influence their choice of tools used in the design process and in turn shape how they went about cultivating the emergence of values from their participants. They then went on to illustrate how these values are developed and grounded.

What Iversen et al. [11, 12] gave us is a generalized approach of working with values. Its core contribution were (i) a call to a particular approach to working with values and (ii) a description of the overall process. However, they do not provide more explicit details of how we can actually work with values.

Halloran et al [9] also work with values in co-design activities. Their approach resonates with Iversen et al [11, 12]. While they describe how people’s values are expressed (and elicited by designers) through talk, they didn’t provide details about how designers carried out (or supported) this process of elicitation. On the other hand, Haines et al [8] did provide an account of how they adapted Gaver’s Cultural Probes [7] to elicit values for design. However, their detached approach (of not
interacting directly with their participants) and static conception of values seems alien to our conception of values – something we conceive as being dynamic: emergent and able to be negotiated and challenged through dialogue. The same can be said of the approach by Voids and Mynatt [20] who elicited values using the Rokeach survey in conjunction with modified cultural probes.

In an approach similar to Iversen et al., [11, 12], Le Dantec and Do [13] also drew upon Nelson & Stolterman’s taxonomy of design judgments [16] to ensure that their work takes designers’ values into account besides that of the participants’. Looking at data recorded from a design meeting, they found how verbal exchanges can explicitly and implicitly reveal values in design discourse. However, they do not provide any hints of how we might be able to, on a practical level, support for the emergence of values.

Finally, Petersen et al [17] described how they embrace values when designing domestic technologies. They too talk about eliciting values through interviewing people especially via particular domestic artifacts in order to provide physical instantiations of values. In a way we can say that they see talk, and in conjunction with the artifacts as means that can mediate the elicitation of values. However, their engagement with people stopped after this stage, retreating to design activities away from their participants. In other words, they did not continue to work with people to continuously refine/negotiate values throughout the design process. We can infer that Petersen et al’s [17] use of talk and how people talk about their artifacts to elicit values are examples of Vygotsky’s mediation [21]. This use of mediation, as we indicated earlier, is a useful way to access values. Thus, we will now present the theoretical idea that underscores this concept of mediation.

**EXPLICIT AND IMPLICIT MEDIATION**

Working with peoples’ values as the engine of PD is challenging [11, 12] as values are not something that people articulate explicitly in their everyday lives. However, values are implicit in all (social) activities and thus, enmeshed in peoples’ variously motivated and diffused practices [1]. To help us understand how we might get at values, we turn to the work of the cultural-historical psychology. It offers a theoretical framework for seeing and working with values through *mediating artifacts*.

Vygotsky, one of the founding fathers of Cultural-historical psychology, worked on human practices to understand how institutional knowledge and values are mediated by the conceptual resources that are available in our cultures (e.g., in [3]). For Vygotsky, unmediated action is an “impossibility for humans as cultural beings” [3]. In the operating room, the scalpel, the ECG monitor and the lighting as well as the discourse used to communicate procedures between the surgeon and nurses, all play a role in mediating the practice of surgery. However, less formal human activities such as family meals, attending a live sporting event, or hanging out with friends on a Saturday night (in Vygotskian thinking) are also mediated by things people bring to the activity and by the language (or how) we speak in these different situations.. While Vygotsky’s interest in mediation was to study how knowledge and values embedded in cultural practices are passed on, we use his theoretical framework to work with peoples’ values through mediating artifacts. For us, various mediating artifacts become a steppingstone for getting people to talk about and reflect upon their underlying values pertaining to a certain activity or a particular situation.

Wertsch’s [21] elaboration of Vygotsky’s theory of mediation - distinguishing between ‘explicit’ and ‘implicit’ mediation - is particularly useful. Mediation is explicit when (i) an individual or someone of authority directing the individual, overtly and intentionally introduce something into the course of an activity, or (ii) when the materiality of what is introduced tends to be obvious and non-transitory [21]. In an educational setting, ‘what is to be learnt’ is explicitly introduced by the teacher (or educational authorities) and is explicitly mediated by particular chosen textbooks, instructional activities, types of tests, and so on. Besides the content of learning, we can see how values related to education are instruments that are imbued with cultural understandings. Thus, they are cultural tools that explicitly mediate the (legitimate) action and behavior of teachers. In the PD process, the tools and the activities chosen are examples of explicit mediation introduced by the researchers. Following this, the tools and activities are examples of mediating artifacts.

In contrast, implicit mediation tends to be less obvious and, therefore, more difficult to discern. It “involves knowledge being carried in the natural, historically constructed, language of the situation” [3]. As such, implicit mediation alerts us to how meaning is shared in talk, in activities, in practices, and typically does not need to be artificially/intentionally introduced into ongoing action [21].

Implicit mediation describes the ‘talk’ between the surgeon and nurses in the operating room such as when referring to “the usual procedure”, or when youngsters interact in “their own language” to socialize and refer to an extraordinary episode. Implicit mediation is not something that is easily found in the PD toolbox, nor in PD research papers. This is because PD researchers tend to focus on explicit mediation such as techniques and tools. Furthermore, implicit mediation is something that is tightly connected to action. Examples of implicit mediation include how we schedule workshops, how to pose questions to participants, and the professional jargons we bring to and use when working with others during the design process.

When working with values in PD we find the distinction between explicit and implicit mediation useful as it helps us understand how to facilitate the emergence of values that are implicitly and explicitly mediated. It provides us with an opportunity to investigate values through the implicit and explicit mediated values that emerge during the design work. Although we use the terms ‘explicit’ and ‘implicit’, we are aware that at times it may be difficult to
gauge whether a particular value is explicitly or implicitly mediated. We treat explicit and implicit mediation as part of a continuum of mediation, not as separate categories. Despite this, the terms can be useful to think about how values can be mediated during the design process.

To exemplify how we undertook the emergence of values, we provide rich descriptions drawn from our field notes and video recordings of PD workshops at the Ribe Art Museum (RAM).

CASE STUDY: THE RAM MUSEUM

RAM houses one of Denmark’s most distinguished collection of Danish art, ranging from the art of the Golden Age to modern art. Two years ago, RAM received $8 million through private donations. This was to be used to carry out extensive renovations of the building, which has housed the collection since 1891, and to update the security system. The renovation also included improving access such as new ramps, lifts, and restrooms for physically disabled visitors. Despite the substantial funding, nothing was initially earmarked towards improving the accessibility of the art collection for visitors with intellectual disabilities. For museum staff, this may be due to the perception that the general public feels that such visitors are not compatible to the institution of art, “the conflict between the traditional aesthetic dimension in the art world and the intellectually disabled guests, whose behavior and appearance sometimes can seem inappropriate, offensive and even unaesthetic.” (Inge, RAM curator)

To challenge this perception, RAM decided to initiate an outreach program to provide art experiences for the intellectually disabled in their new exhibition space. The target group was young adults (15-25 years old) with severe intellectual disabilities. To help them with the overall program, they included researchers from the Center for Psychiatry and Intellectual Disability at Aarhus University, and delegates from the national organization for people with intellectual disabilities (LEV). Two local residences where these young adults live, RABU and Ribelund, were also engaged in the project.

The young adults recruited for this workshop suffered from a range of intellectual and social disabilities such as Down syndrome and Infantile autism. Some of the participants could not speak and none possess literacy skills.

A focus of the outreach program was to explore how digital technologies could support young adults with intellectual disability to explore art exhibits in the museum. Early in 2011, RAM recruited ‘Digitales’ (a software company specialized in developing IT-supported museum exhibitions) to develop an iPad-based application to mediate engaging experiences for young adults with intellectual disabilities to explore art exhibitions. Given that ‘Digitales’ had no prior experiences of working with this particular user group, the company (together with RAM), decided to engage the participants in a participatory design process. This consisted of selected young adults and their carers from RABU and Ribelund. At the same time, RAM engaged the lead author of this paper as the key PD researcher of the project to facilitate the initial workshop that involved these young adults, their individual carers, as well as members of the management team from RABU and Ribelund.

The entire workshop was held at RAM. The museum remained open to the public while the workshop was conducted. Two sessions were held on the same day. A final (and third) session was conducted four weeks later in the form of a debriefing interview. Table 1 lists the workshop participants (all names has been anonymized). It also indicates that not everyone participated in every session.

The aim of the sessions was to understand the experiences of these young adults in the art museum. For the PD researcher, this workshop would provide the opportunity to cultivate the emergence of values from all those involved in the process in an attempt to establish a ‘shared narrative’ from which the development of the iPad application could begin.

CULTIVATING THE EMERGENCE OF VALUES

When reviewing the case, and how values were cultivated in this emergence phase, we saw that the process could be best described as a 3-phase cycle (Fig 1). This cycle was initiated and driven by the PD researcher.

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Session #</th>
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</thead>
<tbody>
<tr>
<td>Mona</td>
<td>Young adult</td>
<td>2</td>
</tr>
<tr>
<td>Helen</td>
<td>Young adult</td>
<td>2</td>
</tr>
<tr>
<td>Mike</td>
<td>Young adult</td>
<td>2</td>
</tr>
<tr>
<td>John</td>
<td>Young adult</td>
<td>2</td>
</tr>
<tr>
<td>Emma</td>
<td>Young adult</td>
<td>2</td>
</tr>
<tr>
<td>Susan</td>
<td>Carer, Ribelund</td>
<td>1+2+3</td>
</tr>
<tr>
<td>Jane</td>
<td>Carer, RABU</td>
<td>1+2+3</td>
</tr>
<tr>
<td>Tine</td>
<td>Carer, RABU</td>
<td>1+2+3</td>
</tr>
<tr>
<td>Margot</td>
<td>RABU supervisor</td>
<td>1+3</td>
</tr>
<tr>
<td>Inge</td>
<td>Project manager and museum curator, RAM</td>
<td>1+2+3</td>
</tr>
<tr>
<td>Peter</td>
<td>PD researcher</td>
<td>1+2</td>
</tr>
<tr>
<td>Thomas</td>
<td>Software designer</td>
<td>1+2+3</td>
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Table 1. Details of stakeholders and their participation

The first phase sought to establish existing values in amongst all the stakeholders (including the PD researcher’s values). The second phase involved the negotiation of these values through dialogue and activities, which led to new insights, and collective rethinking of values. This culminates with the third phase, a time of debrief and further dialogue whereby individual stakeholders reflected upon the collective negotiation of values and how those values might fit into their existing practice. Next we will describe these phases in more detail using the case study so as to further elucidate the process.
Phase 1: Establishing existing values
The overall aim of this phase was to elicit values from each stakeholder through dialogue between all involved, ensuring that everyone is aware of what values are brought to the process. Besides finding a common ground to begin, Peter, the PD researcher was keen to initiate and to ensure that this dialogue remained open (for as long as possible) with regards to any values that are elicited as well as any value-conflicts that might arise.

The first workshop session of the day was held in a meeting room just next to the exhibition hall. Having everyone seated around a big table (and supplied with food and coffee), helped provide a congenial atmosphere for discussion (Fig 2). Present were Inge the museum curator, Peter the PD researcher, Thomas the IT designer, and the carers of the young adults (as well as Margot, the carers’ supervisor). The young adults were not involved in this phase because the carers (in discussion with the museum’s curator) decided that the young adults would not be able to express themselves clearly during this meeting.

Inge began the meeting by introducing the aims and motivations of the project to everyone. What she said, especially in the way she expressed views revealed her professionally held values regarding the role of the museum within society.

“The museum as an institution open to everyone - not just formally but also in reality. Museums should be prepared to adjust to different forms of delivery so that it can provide to as many different audiences as possible.” (Inge, museum curator)

Figure 2. Meeting room for session 1
After this, Inge took everyone on a guided tour of the museum’s exhibition. Given that the initial brief was to develop something on the iPad, Thomas had brought with him a mock-up of an IT-solution he had prepared. During the tour, Thomas showed the mock-up on the device to everyone (Fig 3). Back in the meeting room, Margot, the supervisor from RABU gave a presentation to the group, describing their professional practices and gave everyone present an idea of the diagnosed medical conditions of the young adults they work with.

Figure 3. Thomas showing the mock-up on iPad
Throughout this session, Peter listened to everyone and asked questions about their work practices and their views. For example, carers were asked how they saw and referred to the young adults they work with. They saw themselves as counselors rather than helpers. Their role is a social one rather than one of rehabilitation and treatment. They also saw the young adults as having independent choice and their role was mainly to advice and counsel. However, ultimately the decision rested with the young adult.

“I am interested in them and accept/ respect them as they are. Although they live in an "institution", it is important that they feel that they are an individual with their own opinions, treated individually based on what each wants and aspires to. They are given self-determination wherever possible, so they feel that they are participating in their own lives and that we do not "over manage" their lives.” (Jane, carer)

However, the carers were also always keen to articulate what each individual’s limitations are, based upon the various experiences they’ve had with the different young adults. Given that each carer was the primary carer for one of the young adult, and that each carer had a close one-to-one relationship with an individual young adult, the carers said that they were confident that they knew what the values of the individual young adults were.

The carers expressed that they could not envision how technology could actually help these young adults, especially within the museum context. Thomas told them that he is not sure either but at least he could leverage his past experiences of designing technology for children in museum to explore possibilities in this project. He expressed his professional values regarding the potential for IT as a technical infrastructure - technology as a medium for accessibility - capable of mediating the art experiences.

“I perceive IT’s role in the museum as having a positive role to include new user-groups. Technology could also potentially mediate the experiences of an art museum for a group that is usually excluded from such institutions.” (Thomas, software designer)

Peter expressed the importance of these kinds of collaborations whereby museum, IT designers and carers (who have a deep understanding of these young adults)
could come together in a cross-professional way to explore potential solutions for this group of young adults. Peter’s values as a PD researcher include the importance of multi-voicedness, and the co-exploration of values with all involved in the design process. He saw that this spirit needed to be embraced even when the stakeholders were initially skeptical or reluctant. Thus, in his opinion, multi-voicedness is an important pre-requisite when initiating a values-led design process.

Ultimately the first phase was to facilitate people’s verbalization and awareness of their existing values in relation to the particular situation and setting. Peter purposely chose not to write down and share the values articulated by everyone with all present because this may close off any potential dialogue or finalize people’s understanding of these values. Dialogue (in the next phase) may lead to a collective re-interpretation, re-articulation, and rethinking which could result in a more nuanced understanding of the values.

**Phase 2: Negotiation of values through dialogue**

With a sense of the values presented by everyone and a commitment to the process, Peter began to prepare and to facilitate Phase 2. This phase was directed at developing the emergent values expressed and would involve some of the young adults. Besides those who participated in Phase 1, five young adults were included in Phase 2. This session took place in one of museum exhibition spaces in amongst the artwork (fig 4).

Since the carers acted as proxies for the young adults in the previous phase, designers decided to find ways to allow the young adults to express themselves and thereby potentially engage in the collective process of negotiating values. Due to their various disabilities (linguistic and higher-order thinking), the challenge was to find ways for them to express their values towards what they find valuable, interesting, meaningful, and so on.

The solution was to mediate the activity using a storyboard template. This was carried out through one-to-one dialogue between the young adults and their personal carer (Fig 5). The storyboard activity required rich images of particular situations that were seen as desirable by the young adults. All of them (except for one) drew images that expressed desirable experiences in general. What carers did was to go through the everyday life with the young adults, to help them recall situations that they would like to include. This resulted in storyboards containing images of fun activities, visits to zoos, to concerts and so on.

Wanting to further clarify the negotiation of values between the young adults and their carers, Peter decided to draw inspiration from a popular TV entertainment show that everyone was familiar with. Within this context, the young adults were contestants in the show whilst the PD researcher, the museum curator and the software developer acted as judges of the show. This created a legitimate space for them to ask the young adults questions. The idea was to use this role-playing as a way to support their imagination about what they like and found desirable in life. This was an attempt to engage the young adults into the negotiation process through dialogue.

The young adults presented their storyboards to everyone in the room imagining that they are contestants in the well-known TV show. For those who couldn’t speak, the presentation was supported by the carer. (See figure 6.) Their capacity to present their own work created an atmosphere of surprise and astonishment in the room.

Their ability to participate, engage and to stand in front of an audience to express what they found desirable surprised everyone and actually provoked the carers and the museum curator to reconsider their existing values of these young adults. Thus, despite carers’ initial view of these young adults having various limitations, they now realize that this cohort can actually engage with the
process and express themselves adequately and should have some legitimacy in this design process.

“I was very surprised with Mike. He got so much out of it. He was so involved and motivated to go into work.” (Susan, carer)

“Emma surprised me positively with her ability to draw. I know John is good at drawing but for John, I am surprised that he did not need much encouragement to start.” (Tine, carer)

In order to communicate how his professional practice could respond to the project, Thomas used paper mockups to give the young adults ideas of how IT could be used to support engaging experiences within art exhibitions. The paper mockups consisted of a superimposed iPad interface in which the user could grab various images from the exhibition and recombine them into a story within the iPad. The carers and the young adults strolled around the exhibition space collecting objects that were deemed to relate to one of their desired experiences. For example, Mona loves going to the zoo to look at animals. So, she collected images of various animals from the paintings of the exhibition and combined them with food from other paintings because she did not want the animals to be hungry. (See fig. 7)

Figure 7. Mona wants to feed the dog

The young adults then presented the completed collections on their mock-up and explained how it related to their desirable experience. Like their previous presentation, this also took place within the context of a TV game show. This allowed everyone to ask questions that aimed at confirming or challenging the young adult’s preferences of their museum experience. Besides providing an opportunity to dialogue about the young adults’ preferences, the mock-up activities provided Thomas with useful insights for further prototyping activities.

In short, the second phase is a collaborative negotiation of different value-systems of various stakeholders in a shared effort to understand the possibilities of a technology-mediated museum experience for the young adults. This included the values of Peter, the PD researcher. His value of multi-voicedness was exemplified through his choice of design tools and techniques – the use of storyboard, narratives, drama, and so on that were used during the session. The tools and techniques were carefully chosen according to encourage a collaborative and dialogical process of negotiating values with all involved. This highlights the importance of consistency between the PD researcher’s underlying values and the technique/tools chosen and used.

Phase 3: Debriefing emergent values

Phase 3 is a reflective stage. This session was carried out four weeks after the workshop at RAM. This session provided time for stakeholders to recount and reflect upon the values they have articulated so far. We carried an interview with all the participants (except for the young adults) as a way to debrief and reflect. The questions included reflections of what perceive to be important in their professional life, their views of intellectually disabled young adults and also to what extent the workshops have shaped their views.

We found that in this early stage of the design process, values were still in transition and remained tentative. The values that have emerged are certainly not fully embraced by everyone. Stakeholders were still negotiating their perception of their own values both personally and professionally in the context of the situation.

For some participants such as Inge, her current thoughts about how the museum could reach out to these young adults continued to confirm her initial values.

“After the process, it became clear to me that the museum - with expertise from the outside – can in fact carry out the task of creating a warm and safe environment for young adults with intellectual disabilities. In addition, we can provide opportunities for them to encounter the Golden age of art and the museum as an institution on their own terms.” (Inge, curator)

For others, such as a few carers, they were still skeptical about the validity of the museum’s objective to develop IT-supported means for engaging these young adults.

“I find it hard to imagine that the young adults themselves will suggest a visit to the museum a second time, but one should never say never.” (Tine, carer)

“I was very skeptical in terms of what Mona would get out of the visit to the museum, but I saw that Mona enjoyed the day and was much more active than I had expected. I now see that visits to the museum as a possible activity, which I had not previously had thought about. We have not visited the museum lately - Mona has not demanded it, and time has not allowed it. I'm not sure that Mona will search the museum for art's sake, but rather the opportunity to have some lone time with me at the museum.” (Jane, carer)

Despite Jane’s skepticism she realized that the museum could indeed be a place for Mona, even if it is to pursue her values for closeness and human intimacy.

As for the young adults, they seem (for most anyway) to have forgotten about the workshop despite having a great afternoon at the museum. This was revealed to us when we asked Tine, a carer, about this during this session.

“A little funny story: I had printed out the pictures from the museum workshop. John asked where it was from. I replied that he should know. To this, John replied,
"There’s where I got cake and cola!" However, Emma talked a bit about it later and had painted a picture of an angel at home, something she saw a lot in the paintings at the museum, which now hangs in the living room. So, it's hard to say just what they have learned.” (Tine, carer)

For Thomas, being a part of the workshop changed his mindset. Instead of seeing IT as a matter of accessibility, to provide the young adults access to art experiences, he now see how technology could support social experiences of these young adults. From being used as a guide to being a tool for users to construct their own stories by using the artwork in the museum. Thomas sent us a screenshot that has been refined from his initial prototype. (See fig. 8) This led to an insight that for these young adults, their engagement with art may not be of passive contemplation/appreciation but one of active and relational construction.

In short, we found that at this stage of the design process, these values may not be stable and may evolve further down along the design process. However, a shared realization of emergent values can provide a trajectory for the design process to further develop. In other words, the emergent values can help set a tentative course for the design direction. In this case, an interactive application for constructing collages with objects from an art exhibition.

So, in a values-led design process, the end of Phase 3 marks the beginning of the ‘Development of Values’ phase (Fig 1), as indicated by Iversen et al.[11, 12].

DISCUSSION

After presenting how we can work with the stakeholders to elicit their values during the very early phase of a values-led PD process, we will now discuss this process in terms of mediation.

Whilst we acknowledge that it is difficult to access people’s values, we have shown that PD practitioners can use the concept of mediation to elicit stakeholders’ values during the design process. Here, we argue that mediation provides people with a ‘tool’ through which they can express values more easily and hence allow PD practitioners to get at these values and work with them. And as we described earlier on, mediation can be implicit or explicit.

Mediation during a values-led PD design process

In the design process, PD researchers enact implicit mediation through the language (words, jargons, descriptions, etc.) they use with their participants, such as instructions for activities, interviews, and so on. In turn when dialoguing with participants, PD researchers can observe how people express their values through the implicit mediation of language.

Peter’s questions to various stakeholders were forms of implicit mediation that helped solicit values from these stakeholders. For example, when asking carers about how they perceive and refer to the young adults they work with, carers found it easy to talk about these young adults in their everyday language, and in doing so, explicitly mediate their values about the young adults. Viewing them as independent citizens, deserving self-determination and seeing themselves as counselors rather than helpers, these responses reveal the carers’ underlying professional values. We should point out that while Peter did not actively voice his professional values, he implicitly offered them through the types of questions he chose to ask.

Discussions and dialogues can also be used to implicitly mediate people’s values. For example, Inge’s presentation to the group about the aims and motivation of the project were implicitly expressing her values not only about the project but also about the young adults, the museum and the role of art in general. However, we do acknowledge that in some cases, it is not so easy to distinguish between implicit and explicit mediation. Yet we don’t think this is problematic for PD practitioners as long as they focus on how values can be mediated through various means.

Turning to the case, we counter that the museum as a place explicitly mediated a common understanding of the museum as a cultural-historical institution. This is also expressed by the space, its interior decoration, public signage and even the way that visitors behave. By using the museum as a design space, the PD researcher tapped into this explicit mediation, providing Inge with means to express her values.

In the workshop, the young adults’ values were mediated by their personal carers. This was performed explicitly through discussions, conversations and prompts about what the young adults typically found desirable in their everyday life. In this case, discussions and conversation can also serve explicit mediation of values.

Just like Le Dantec and Do (2009), we acknowledge the importance of values that PD practitioners bring to the design process. Besides implicitly as we described earlier, they also do this explicitly. One way this is accomplished is through their choice of particular tools and processes they use in the design process. For example, storyboards chosen by Peter in Phase Two are imbued with values such as holism, narrative structure, people’s point of view, and contextualizes people’s practice.
By foregrounding both explicit and implicit mediation in the PD process, we are merely scratching the surface of the rich understanding of mediation that has been built by other scholars. Given this, its utility in this case, and the fact that this concept has not been used widely within PD, we argue that a more thorough theoretical understanding of mediation can potentially enrich and further the PD tradition.

**Eliciting values in the emergence phase**

Although we have presented the process as a 3-phase process, it might look different in different projects. For example in this case study, not all stakeholders were present or required at the same time. The work to establish the young adults’ values came later. In other words, practitioners should be more concerned with how we provide people with opportunities to express their values as the core activity of the design process, instead of being constrained solely by the structure of the phases.

In addition, what we discovered through this case study is that in this very early phase of the design process, PD practitioners should not too quickly finalize values that they have elicited from stakeholders. Instead, PD practitioners should keep these values provisional and ensure that all stakeholders’ values are explicitly mediated and continually negotiated during the process. This is because if we finalize values too early, then the PD process becomes a quick-and-dirty requirement gathering tool that seeks to hastily refine people’s current practice and not a process whereby people’s taken-for-granted values can be explored, negotiated, reimagined and maybe even re-interpreted as new found values.

Finally, at this early stage of the design process, striving for a shared set of common values should not be the endgoal. Instead, it is important to keep the negotiation of values open and PD practitioners must accept that whilst people can share experience in a workshop and are open to new values, they may still hold on to their original value system and viewpoints. It is fine to accept value conflicts and a state of limbo in terms of values at this stage. In fact, it is the conflict and unfinalized values that can fuel the ‘development of values’ in the later design process. How this development process take place and how conflict can be dealt with as design opportunities are emphasized how we engage with values – to support their development and grounding.

Currently, our previous works [11, 12] are the only ones (to our knowledge) that tried to delve more deeply into the process of values-led design. We hope that other design researchers can use this base as a start towards further efforts to develop a more rigorous values-led approach in design.

As seen in this case study, working with values is a difficult process. It might appear clear how we can differentiate values from opinions, preferences and desires, it is much more difficult in practice. There are also difficulties in discerning between what are actual values articulated by people and the professed values they tell the designers.

The case we use highlights another difficulty when working with values with particular participants. We chose this case study because we want to illustrate the difficulties when working with an exceptional case – participants with mental disability. Here, some of the participants have difficulties talking, let alone the capacity express their own values. In addition, this case highlights new issues around power relations. For example, how does the fact that the carers acted as a "proxy" for the young adults differ from the manager acting as a proxy for the workers in the early days of PD. Despite this, this paper still provides a detailed account of how we work with values during the emergent phase of a values-led design inquiry.

Finally, one could argue that values-led PD is already a part of the PD tradition. While there are similarities, PD often focuses on how, when and why people are involved as participants in a design process. Our approach emphasizes how we engage with values – to support their emergence, developed and grounded.

**CONCLUSIONS**

By examining the early phase of a values-led PD workshop, this paper contributes to extending Iversen et al’s [11, 12] paper. We do this by focusing upon the emergence phase in more detail, a phase when values are elicited during the PD design process. In doing so, this paper provides a more detailed picture of the process. It consists of a 3-Phase process that involves establishing, negotiating and debriefing of emergent values. We also provide examples that illustrate how this process was carried out by a PD researcher. Hopefully this can offer practical inspirations for PD practitioners who are hoping to undertake values-led PD design. Furthermore, whilst Iversen et al [11, 12] focused more generally upon stakeholders’ values, this paper includes a consideration of the values that PD practitioners/researchers bring to the design process.

Besides elucidating the initial processes of a values-led PD inquiry, this paper enriches our understanding of PD
methods. This is through the introduction of the concepts of explicit and implicit mediation.

By seeing the tools and techniques a practitioner use in the PD process as explicit forms of mediation, we can now glimpse into the kinds of values the practitioner bring to the process through his/her choice of tools and techniques. More importantly, we present the concept of implicit mediation and its role within values-led PD inquiries. This concept is often overlooked in PD research papers. This is probably because implicit mediation is very closely tied with action. However, when we view the often taken for granted actions of practitioners in a PD process as means that can implicitly mediate values, we can begin see how implicit mediation plays an equally important in influencing and shaping the overall outcome of a PD process. By developing a stronger awareness of how PD practitioners’ particular actions serve as implicit mediation can certainly better our engagement with PD inquiries, especially when working with values.

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