Rekindling Values in Participatory Design

ABSTRACT
Drawing from our PD projects, this paper shows how designers enact their appreciative judgment of values by engaging in a dynamic and dialogical process of cultivating the emergence of values, developing them, and supporting their grounding. The widespread of Participatory Design (PD), have meant that different approaches and conceptualization exist in this field today. We argue that one fruitful approach is to rekindle a concern for values in PD—to return to one of the original tenets of PD. This requires focusing upon values as the engine that drives our activities in PD.

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INTRODUCTION
The field of Participatory Design (PD) has evolved greatly since its beginnings in an explicitly political context in Scandinavia nearly four decades ago. This transformation is fuelled partly by its embrace by many far beyond Scandinavia but also by the diverse traditions and disciplines that PD draws from (Kensing, 2003; Muller, 2009). As a result, the field is now associated with a rich diversity of theories, practices, analyses and actions (Muller et al., 1997). Unsurprisingly, this diversity has led to lively discussions and debates. One facet of this debate is concerned with how much PD has deviated far from its original tenets. As a result, we believe that this has led to skewed focus of what truly constitutes PD practice. This often results in reifying methods and participation, for example being overly concerned about the type of methods that can be used to involve users or way to increase user involvement when carrying out PD.

As stated by Bødker & Iversen (2002), some think that they are practicing PD simply by adopting particular participatory methods. After all, there is a rich set of methods, techniques and procedures that have been developed and used productively in PD (Muller et al., 1997). But it is not the use of participatory methods that makes particular work as being PD but rather, as we will show later, when, how and why these methods are used.

Another confusion concerns the approach towards participation. To be sure, participation is important in PD. After all, it empowers stakeholders and allows them to feel connected to the design process. But having stakeholders participate during the design process does not necessarily qualify it as PD. More importantly, in PD, participation is about values, seen as a “moral proposition” (Carroll & Rosson, 2007), an ethos that respects people’s democratic rights (Ehn, 1993) in that the people whose activity and experiences will ultimately be affected most directly by a design outcome ought to have a substantive say in what that outcome is.

Given the above discussion, we offer in this paper a different way to approach PD. Based on our work, this involves cultivating values and bringing it to the fore of the PD process. This means that values represent the engine that drives our approach of PD and values are inherently embedded in every aspect of our work. But to be sure, such attention to values is not new; after all PD “makes explicit the critical, and inevitable, presence of values in the system development process” (Suchman, 1993). Furthermore, values have also been proposed as focal concern in Human-Computer Interaction (Harper et al., 2008). However, in this paper, we present a way to conceptualize this process and share how we put this process to work. In doing so, we not are only suggesting a way to address some of the misconceptions about PD but also a fruitful path to pursue PD.

Elevating values to the fore of PD requires an important shift in how we behold methods and participation. While there is a need to wrestle with methods and participation in PD (Kensing, 2003), reifying methods and participation can short-change what they can truly offer PD. For example, instead of worrying about which method to adopt in order to best capture stakeholders’ needs for design, or what methods can strengthen stakeholders’ ownership and commitment, the focus should be on how methods can be best used to work with values during the design process. Instead of vexing over the nature of participation, for example, how many stakeholders should be involved, at what stage, and to what extent they should be involved, we should be more concerned with how participation can be used as a means to engage with values during the design process. In short, this shift implores us to view methods and participation as means to achieving what we hold to be the ultimate ends of PD: a core engagement with values. This rekindling of values responds to the importance of values in cooperative design (Bjerknes et al., 1987).
Aim and contribution
By discussing three case studies, we will reveal how we work with values and show how methods and stakeholder participation are co-opted with values in mind. We see this as a dialogical process that guides how we cultivate the emergence of values, and how values are then developed and grounded during the design process. Examples from these case studies reveal how our concern for values influences our choice of methods and in turn how we utilized the method to address values in design choices. This pervading concern for values also influence ways we work with stakeholders, such as how we facilitate the negotiation of design dilemmas that arises from conflicting values. Further, we demonstrate how our concern for values transforms our design ideas throughout the design process as it is refined and eventually materialized in the final product.

Describing and explicating this dialogical process of emergence, development and transformation will contribute to furthering current PD practice. We also highlight the crucial role that the designer’s appreciative judgment system of values plays in this process. Adding to our contributions, are some insights for those wishing to engage with values in their PD practice.

Following this, we examine the role of values from the early PD movement to its current conceptualization within the field. Then, three PD projects we have been involved with and completed will be briefly outlined. We expand upon these projects by presenting examples from them to illustrate the process we work with values. The conclusion will sum up and offer further thoughts about rekindling values in PD. Next we will examine the literature related to values and begin by presenting our definition of values and differentiating our work from other value-driven approaches.

VALUES
Defining values
Just like others, e.g., Friedman et al., (2002) we define values as something beyond that of economic worth but refers to what a person or group of people consider important in life. It also reflects desired modes of conduct and desired end-states (Rokeach, 1973). But to be clear, as Joas (2000) notes, (following Dewey (1934)), values differ from norms whereby norms are obligatory and constraining, proving moral criteria for assessing what ought to be done. Thus values are what one considers as being good and the right, whilst norms are what the majority of reasonable people would consider to be the right thing to do. It is people’s experience of values that provides them with an uplifting meaning to life and open up opportunities for action to which people then feel strongly committed.

In our work, values are emergent and (as we will show later), can vary from one project to another. These values are not necessarily universal nor adherie to the “twelve values of ethical import” (Friedman & Kahn Jr, 2008) nor do we refer to pre-existing categories such as ‘worthwhileness’ (Cockton, 2008). Instead, we have an a priori commitment to cultivate the emergence and discovery of local expressions of values whilst being mindful of further expression of values during the course of the design process. This approach transcends the common mistake that associates PD with values such as participation, democracy and human welfare (Friedman & Kahn Jr, 2008). Our conception of values resonates with Halloran et al’s (2009) approach values in their co-design work.

Unlike other value driven approaches, (e.g., Cockton, 2004; Friedman et al., 2006), the way we work with values meant that they emerge in collaboration with stakeholders with the values interacting recursively with the design process and permeating the entire process. The designer also brings values to the design process through “seeing as”, and through making design judgment, established through her design repertoire. This judgment is during and after the process of the design intervention, i.e., reflection in and on action (Schön, 1983). However in our cases, it is also prior to action, in our preparation of the design process.

Nelson and Stolterman frames judgment as the key element in the process of design (2003). By design judgment, they point to design competence as decision-making that is not dependent on rules of logic found within formal systems of inquiry. Rather, judgment is dependent on the accumulation of the experienced consequences of choices made in complex situations (Nelson & Stolterman, 2003, p. 181). In this sense, design judgment resembles what Vickers (1995) denotes as appreciative judgment: the capacity to understand, or appreciate a situation through the discernment of what is to be considered as background and what is to be considered as foreground, in the formation of a project. In this paper, we paraphrase Nelson & Stolterman (2003) and Vickers (1995), and address our concern for values in PD as a specific kind of design judgment, which we term as appreciative judgment of values. We stress that this appreciative judgment of values is not a kind of black art, but rather that this judgment usually occurs in a dialogical process of emergence, development and grounding of values.

Values in PD
There are very different viewpoints interpreting PD today. Our focus derives from the Scandinavian tradition of PD rooted in the Scandinavian trade union projects and the critical research tradition (Bansler, 1989), which emerged as critique of the negative impact of new technologies on people’s working conditions as well as their health and safety at workplaces. As stated by Bjerkness, Ehn, and Kyng (1987) the underlying values of previous design processes (up until then) have reflected a primary concern for technical and economic factors. The most prominent value underlying the Scandinavian tradition of PD is the ideal of work place democracy (Bjerknes et al., 1987, p. 2; Bansler, 1989, p. 14) with active participation of employees in order for them to have a real influence on their own working conditions. Closely tied to the fundamental value of work place democracy were values of quality of working life and designing for skilled workers, (Bjerknes et al., 1987, p. 2), providing workers with control over the computer system instead of being replaced by automatic systems.
When discussing a work oriented design approach Ehn (1988) addressed the fundamental values of Scandinavian tradition of PD as part of cultivating an emancipatory practice. The early values of Scandinavian tradition of PD from 1980’s, in particular the value pertaining to designing for skilled practitioners, are echoed in the early PDC conference, for example, by Suchman (Schuler & Namioka, 1993).

Clearly, the value system of the Scandinavian tradition of PD is formed by a set of general, taken for granted, and stable values shared by a community of researchers and design practitioners. Research and design practice have been preoccupied with how those values could be implemented in design processes. For instance, the tool perspective which originated from the Utopia projects emphasize designing for skilled works and enabled them control in their works practice (Ehn, 1988). Co-operative prototyping has been suggested as design technique enabling users to actively participate in and contribute in design processes (Bødker & Grønbæk, 1991), and design collaboration has been proposed as a process model for enabling active user participation in design processes. Several frameworks have been suggested as platform for getting an overview of methods and techniques at the disposal for PD practitioners (Kensing & Munk-Madsen, 1993; Muller et al., 1993). Thus in general, there seems to be a concern for methods and techniques (Kensing, 2003) rather for the kindling values.

While we obviously still subscribe to a concern for values in our own PD practice, it is clear that the kinds of values described in this ‘historical’ account were very much framed by social and political forces of its time as well as its main concern with design for the work setting. In other words, the particular values espoused, reflect what was held to be important at that time.

Petersen et al (2004) argued for values that link back to the PD tradition while Halloran et al (2009) though not working with PD, addressed how they work with values as a resource in co-design. Halloran et al (2009) attests to the importance of values and in many ways their descriptions of how they work with values throughout the design process bear strong similarities to our approach. However, we are much more explicit about the role of the designer and especially her appreciative judgment of values which we find to pervade the entire process from emergence to grounding. Also, our approach fleshes out further how values are grounded in users’ practice and points to ways we can support this grounding as part of a meaningful practice.

**THREE DESIGN CASES**

The cases below represent three PD projects that illustrate the different ways whereby designers and stakeholders engaged with the values dialogically, and in turn how it shaped the realization of the final ‘product’. The set of values we deal with may differ from those presented earlier. However they reflect the times when the project took place, and reflect what is held to be right and important by both the specific stakeholders and designers, whilst at the same time being grounded in and responsive to the individual project’s settings and context.

Each project was successfully completed with the final products being research prototypes that are concerned with new technologies and new interaction styles that could support the use experience in various domains. One of them, the Wisdom Well, has grown from just a prototype to being a part of a school’s teaching practice. In all of them, users were able to engage with the final product in playful and imaginative ways, providing meaningful alternatives to existing technologies in their respective domains.

**Case one: Interactive School Environment (ISE)**

The project took place between 2004-2006 and was funded by a national grant together with some private funds. The stakeholders were wide ranging. They included the local municipality, an inter-disciplinary group of researchers (computer scientists, ethnographers, educational experts, etc). From the school: teachers, managements, and students. Three commercial partners were also involved. The brief was to develop new IT supported learning environment in primary schools. While we worked primarily with one school, teachers from other schools participated.

We developed the concept of the Wisdom Well. The Well is a 12m2 interactive floor on which the children practice their knowledge and skills in a playful and collaborative way. The computer application uses camera-tracking to locate children’s limb contact points making the application controlled by body movement. The Wisdom Well was a result of the continuously work with kinesthetic learning as a leading value. To date the product is still in use and lighter versions have been taken up by other primary schools. See (Grønbæk et al., 2007) for more details about the project (fig. 1).

**Figure 1. The Wisdom Well**

**Case two: Children Literature Museum (CLM)**

In 2005-2006, we collaborated with a small low hierarchy organization (two full-time principle partners and a number of free-lancers and subcontractors) called 7th Heaven who specializes in producing exhibitions related to children’s literature. The brief was to design and produce two installations relating to the story telling universe of Norse mythology. This was to be a part of a center for Scandinavian children’s literature that opened in the city of Køge, in Denmark early 2006.

The design we came up with was Balder’s Funeral Pyre (fig. 2)—an interactive corridor whereby children could traverse (Halskov & Dalsgaard, 2006). On one side of the dark and narrow corridor was an immersive rear
Figure 2. The installation of Balder’s Funeral Pyre

Sudden dramatic fire explosions occur when someone walks into this corridor. See (Dalsgaard & Halskov, 2006) for further details about the project.

Case three: Rune Stone Exhibition (RSE)

From 2008-2009, we work with Moesgaard Museum to explore how digital technology can support an installation regarding Rune stones that is engaging to young people. The museum initiated the project and invited us to be a part of the project. Beside us, the stakeholders were museum curators, archaeologists, and hardware vendors.

The design team developed an interactive installation—a RuneTable (fig. 3). The RuneTable installation allows visitors to create and decorate their own rune stone and place this in a landscape alongside rune stones that other visitors have created. Visitors create their own rune stone by picking up one of the small wooden model rune stones and placing it in the backlit holder besides the input station. When a model stone is placed in the holder, the input station guides the visitor through the process of choosing what to write on the stone and how to decorate it. When the stone is done, the visitor can pick up the stone from the holder and place it anywhere on the map. When the model stone is placed on the map, a counter indicates that the stone is about to be placed at this particular spot. The final installation was on display for six months at the museum. More details about the project can be found at (Dindler & Iversen, 2009).

Figure 3. The RuneTable at Moesgaard Museum

WORKING WITH VALUES: A DIALOGICAL PROCESS

Drawing from the above design cases, we will now discuss how we work with values during the design process: from cultivating the emergence of values, to supporting its development and grounding into current practice. These are not distinct phases with clearly defined beginnings and endings. Instead, the terms are descriptions of the predominant values-related activity that is facilitated by the designers at that time during the design process. Further, whilst the terms describe the focus of the activities, the actual workings of each phase are not formulaic. On the contrary, we hope to reveal in our discussion that the uniqueness of each project requires constant diligence from the designers who must respond with their appreciate judgment of values, such as the choice of particular methods and tools, framing and facilitating of the process. The crucial role of this judgment will be illustrated later.

The way we work with values is centered on dialogue. Jones et al., (2007) argue that dialogue is a crucial element in PD. Just like Jones et al., we adopt dialogue in the way David Bohm applies it; whereby a person in dialogue “may prefer a certain position but does not hold to it non-negotiably”. However, “in ordinary discussions, people usually hold relatively fixed positions and argue in favor of their views as they try to convince others to change. At best this may produce agreement or compromise, but it does not give rise to anything creative” (Nichol, 2003, p. 295). So, a core task for designers is to facilitate and orchestrate this dialogue. And finally, as we will illustrate later, values do not progress stepwise in one direction towards its grounding but rather the emergence, development and grounding of values occurs recursively over the course of the design process.

The emergence of values

In the Children Literature Museum (CLM) project, values emerge early in the process from several meetings with the two principal partners of 7th Heaven. They visited our lab and we demonstrated previous projects including ones outside the domain of museums. We also visited the stakeholders at their office where we were introduced to some of their previous projects and was shown illustrations from various children’s books. During the meetings, values were expressed and it became a basis for the design process. Thus values emerge both through explicit and tacit means: through dialogue, observations and our interpretations.

For example, the stakeholders felt that it is important for this exhibit that children are not bombarded with or forced-fed information but instead, are given the opportunity and time to engage in reflection and interpretation of the exhibit for themselves. Concurrently, at this early stage were also aware of our own values. Our values partly reflected our research interest in designing for social interaction as well as physical interaction. Thus our initial response to the design brief arose from the dialogue of these values; how these values could respond to the brief so that children visiting the center could experience the settings and moods from the Norse Mythology rather than being told the specific myths and stories, and, moreover, to ensure some aspect of ‘slowness’ so as to encourage time for reflection.

Unlike the CLM, the Interactive School Environment (ISE) project involved a large number of stakeholders.
After meeting with each group separately, we found that they came with disparate viewpoints, interests and values. So, we decided that the best way to cultivate the values was by hosting very large-scale workshops that brought everyone together. The workshops were highly facilitated and emphasized an inclusive atmosphere that promoted free participation. Various methods such as mockups, scenarios, and sketching were used in shared tasks so that stakeholders could articulate a set of values that then set a trajectory for the design process. However, stakeholders were not just passive participants during this process. They came to the process prepared and were actively engaged in shaping the design process. This can influence the emergence of values through the agenda they bring to the design process together with their assumptions of how their personal and professional world can be changed.

During an initial workshop, a representative from each group gave a short talk about their view of IT-supported education. Over 300 pupils of the school also put together a large dossier that addressed their vision of a Classroom of the Future. Each stakeholder was then given an opportunity to express their values about technology, education and school (both as an institution and the physical building) via a multi-faceted task that we facilitated. This was then presented to everyone within the workshop. What emerged was a shared articulation of values such as the importance of the human body in education and an open school environment based on shared resources. As a result, the design trajectory shifted from traditional classroom based fixed technologies such as monitors and mouse (with a limited use of the human body) towards pervasive technologies that provide means for full-body interactions. Whilst the trajectory is shaped by these emergent values, these values were continually (and iteratively) refined, re-conceptualized, and renegotiated throughout the entire process.

We found that designers, participation of stakeholders, and methods play an important role in cultivating the emergence of values. But the kind of values that emerge depends on how designers design the design process, for example, the designer’s response to the design brief. This means that the particular set of values that emerge is a result of how the designer looks at stakeholders’ practice and in turn, how stakeholders respond to the way the designer looks upon their practice. Thus, values that emerge are not already fully formed, or there a priori, ready for designers to collect. Values emerge from a dialogical process between stakeholders and designers. Further, we see that values are not always explicit and can emerge when users are challenged (cf. Halloran et al., 2009) and in this case, via dialogue.

In short, the designer’s appreciative judgment of values involves the designer being aware of her values, and knowing how to use particular tools to engage stakeholders in dialogue, so as to support the cultivation of emergent values.

Thus through the process of cultivating the emergence of values, we are able to establish the pre-requisites of the design project and in turn its trajectory within the design process. On the other hand, during the development of values, the process reveals how the emergent values can play out and materialize in a possible future.

Development of values

After emergent values are identified, we select appropriate methods, tools, and artifacts that address the domain with a view to develop the values. All emergent values are brought to the fore in the design process even if particular values conflict and present dilemmas to the process. Thus development of values can take two different directions. Either direction, designers have to decide how to facilitate and orchestrate this process with stakeholders.

First, if everyone (stakeholders and designers) is pretty much in agreement concerning the emergent values, then the development process focuses upon refining the values, clarifying, and honing the values. This would also allow a clearer translation of values from abstract formulations to more concrete design concepts.

This was the case with the Children Literature Museum project. The emergent values were agreed upon by all parties and not contested. To develop the emergent values, we set up an Inspiration Card workshop (Hallovsk & Dalsgaard, 2006), which uses inspiration cards that are embedded with values. For instance the domain card Blood represented a recurrent trope in the Norse Mythology, which in a very concrete way was setting the mood for the kind of installation we were designing. Another inspiration card was Body Movies, representing an urban art installation by Rafael Lozano-Hemmer (Bullivant, 2006), which, from a values perspective was introduced for two reasons. First of all it represents a very bodily and playful kind of interaction and secondly it is an instance of an installation that is appropriated by the spectator or rather spect-actor. During the workshop our partners spontaneously introduced a number of sources of inspiration, which were in accordance with the (emergent) basic values. Clearly in this case, the values shared by the stakeholders were developed via the process as the values became more specific and concrete as reflected by the sources of inspiration.

On the other hand, if dilemmas are encountered, the development process is initiated to overcome the dilemmas. In fact, we often find that such dilemmas can offer design opportunities that lead to creative leaps in the design process. Appropriate methods and processes can be used as a springboard to help stakeholders to re-imagine and re-engage with their values. The idea is to create opportunities for them to question and to renegotiate their values—potentially unfinalizing their original perceptions of their values. Sometimes, this could even lead to new conceptualizations of their values.

In the interactive school project (and in contrast to the children museum), the new trajectory guided by the emergent values led to a dilemma that questions the traditional role of the teacher as information providers. The trajectory pointed to a constructivist mode of education; one where the student is at the center of the teaching practice instead of the then practiced teacher-led model. So what will become of teachers if their core role is not to teach and to impart knowledge?
In response, we facilitated a series of workshops to deal with this (highly sensitive) dilemma. The aim was to discover ways that can allow all the stakeholders to reframe the situation, to transcend the dilemma. Bohm reminds us that such dilemmas arise not only because people bring different values but also their assumptions. Then what is called for is to “suspend those assumptions, so that you neither carry them out nor suppress them. You don’t believe them, nor do you disbelieve them; you don’t judge them as good or bad” (Nichol, 2003, p. 314).

A method that we chose to encourage this kind of suspension is Fictional Inquiry (Dindler & Iversen, 2007). By having all stakeholders act out their traditional role in a fictional space, they were able to suspend their viewpoints and reframe this dilemma without feeling threatened. They also suspended their assumptions and viewpoints, and through their imagination found a way to resolve the dilemma by seeing a new role of the teacher—a game master. This is a re-conceptualization of the value. In acting out as game masters during the workshop, teachers saw how they could still play an active and important role as teachers while at the same time put the pupil at the center of the learning process.

These examples show that the development of values relies heavily on the designer’s appreciative judgment of values, i.e., ways to facilitate the process, on knowing how different methods or tools can support stakeholders’ working through dilemmas as well as to refine and hone their values through dialogue and even their re-conceptualization. At the same, the success depends on the degree which stakeholders are willing to engage and participate in the process. So, in this project, the willingness of stakeholders to pursue the dilemma through our workshops was crucial in the development and re-conceptualization of values.

Thus development involves taking of emergent values into a particular design trajectory whereby those values are further explored in dialogical process with the stakeholders. This development can involve processes that refine emergent values, or even new values as seen in the case of the children museum. Development may also require working with dilemmas as seen in the case of ISE.

But the process of development does not only occur in the minds of stakeholders. Similar to Halloran et al (2009), the relationship of values to design is found to be dynamic. Designers find ways to introduce the values being developed into tools such as scenarios and prototypes so as to ground this process of refinement and negotiation. As values become more refined and concrete, so are the scenarios or prototypes produced. Hence there is a tight coupling between the process of refining values and the realization of the values through these tools. Using these methods to realize values within PD has been well documented (Bødker & Christiansen, 1997) but of course the use of scenarios and prototype in itself does not guarantee that values would be developed. With the realization of values, there is an opportunity to ground the values into users’ current practice.

Grounding of values
The process of development and grounding are like both sides of a coin. However, grounding is not a given even if the values have undergone significant development and have even been re-conceptualized. The importance of grounding during PD has been highlighted by Kensing (2003) and Clement & van den Besselaar (1993). Arriving at a stage whereby stakeholders question their values and even resulting in them re-conceptualizing their original values during the design process is fine, but values are only grounded when stakeholders can negotiate this newfound conceptualization successfully (and in equilibrium) within their everyday practice.

With the Children Museum, the smooth development process allowed us to refine the values. Simultaneously, this allowed us to hone the design over the course of the process, narrowing down our translation of how the values could be realized. In order to support the grounding of the values in the museum’s current practice, we turned to a variety of PD techniques. Future scenarios, early sketches and inspirational card workshops (to combine new interaction styles and everyday situations from the museum) were utilized as a way of providing stakeholders with “tools to think with”. These supported stakeholders in seeing how the prototype could work within the existing museum space. The final prototype was deployed in the Children’s Literature Museum and was adapted and seamlessly incorporated into the museum’s activities. Thus values were grounded as the stakeholders were able to see its use within their work practice.

In the case of the Interactive School Environment project, we progressed from the emergent values, and nourished and molded them during the development. Similar to the CLM case, a range of PD techniques were utilized to support the grounding of values in the existing school practice. Thus a more profound support of the grounding process was initiated in an effort to help the newfound values gain a foothold within the school’s practice. We included a large number of teachers because according to them, the departure from traditional classroom teaching with an emphasis on the role of the body in pupils’ learning constituted a significant change of values. Three initiatives were taken to support the grounding process.

First, we held a workshop in which stakeholders were able to try existing kinesthetic games, whereby they could explore the potentiality of their own body. Second, we initiated two public presentations at local schools in which the entire staff could learn more about kinesthetic learning. Finally, we invited the Minister of Education as well as the local and national TV to participate in the first ISE prototyping session. The purpose of going public at this very early state was to elicit public debate on this new set of values.

The public prototyping session was our attempt to reach a broader audience for our concern for kinesthetic learning. We have no evidence that these initiatives (as a supplement to existing PD tools) led to a successful grounding of the values. However, the final design—the
Wisdom Well—was well accepted and is now a part of the school’s education practice.

On the other hand, in the case of the RuneTable, the grounding of values did not occur even though the emergent values we rigorously developed. During the design workshops, museum curators developed interactive museum installations that reflected their values for learning through active engagement—a constructivist approach to learning that relied on the younger audiences’ ability to ‘learn by doing’ and an active engagement of both body and intellect during the museum visit. Whilst the curators were very engaged and appeared to be exploring new conceptualization of their values during the staged design process, they abandoned these newfound values for their original values. This occurred just before the final design was decided upon.

Although prototypes and scenarios that reflected these developed values were used to realize the values, stakeholders withdrew these values at the final stage. The final installations did contain elements of active engagement, but it was limited to a very fixed set up in which the museum guests was only able to enter words on a touch screen. The final setup differed significantly from the values pursued during the design sessions.

From the cases above, the designer’s appreciative judgment of values should also include the grounding of values into users’ existing practice. In the case of the Wisdom Well, this was carried out through various dissemination activities, and with the Children Literature Museum via finalization of the prototype on site.

On the other hand, in the case of the Rune Table, the grounding of values did not occur from our (designers’) perspective even though the emergent values were rigorously developed. During the development process, key values such as visitors’ active engagement through body and mind was agreed upon. Another one was the value of learning by doing, i.e., gaining knowledge by creating things. Whilst the stakeholders were very engaged and appeared to take up this new conceptualization, they veered from these newfound values to their original values just before the final design was decided upon. For example, whilst they agreed to an open system, i.e., that visitors could have free choice of text input into the Rune stones, the curators rescinded the idea and instead wanted a closed system whereby visitors could only choose from a very limited set. Another agreed value was the importance of engaging the visitors’ body and mind. In the final design, this was limited to the moving of a rune stone replica from a backlit holder to a table.

While we can’t point to the full extent of their reasons, it does suggest that we need to support stakeholders at the point when values are to be grounded. This may necessitate the extension of the PD process beyond the finalization of the design artifact to include the introduction of the artifact into the existing practice. In doing so, PD will be concerned with changed practices that reach beyond simply the design of the artifact.

**Realization of values**

Now that we have discussed the conceptual process of how we work with values, we will now show what happens during this process in terms of the design artifact. Realization is when we have a physical manifestation that arises from our process of working with values, such as the finalized design prototype. Realization and grounding are mutually dependent in the sense that realization may initiate the process of grounding, and successful realization requires the initiation of grounding. This physical artifact is in fact a distillation of all our previous refinement of values beginning from emergence, development and through to grounding.

For the Children Literature Museum, Balder’s Funeral Pyre (fig. 2) was designed to create an evocative mood. The dark (interactive corridor) with projection of fire at the floor level piqued children’s interests and fired their imagination before they enter it. Their engagement was further heightened when they entered the corridor with the sudden dramatic fire explosions erupting on the wall. We did think of having text snippets about Balder’s myth appear as part of the fire but we stuck to the basic value of communicating the mood rather than the specific story. So through this evocative design, and not via texts, we were able to realize the value that children should learn through opportunities to have time to reflect and to interpret instead of being bombarded with or forced-fed information.

We wish to emphasize that this realization was used to support the grounding of values. Prototyping with eight children, all around six years old at the museum helped us see how the installation could best fit in the museum’s practice. It was also an opportunity for the stakeholders to be present and discuss the installation in action.

For example, something emerged during the prototyping session. When returning to the beginning of the entrance after traversing the corridor, some kids found that their silhouettes (caused by the project onto the corridor) were visible to other kids who were still walking inside the corridor. This led to a lot of laughing and playing amongst the kids. This could potentially lead to a design that pursued a conventional theme-park style interaction. But we didn’t. This is because our partners felt that this did not fit in with the museum (and its practice). Also we felt that this would not uphold the values of slowness and time for reflection.

With the Interactive School Environment the values developed were concerned with kinesthetic learning (as a supplement to conventional classroom teaching) and learner-centered design (as opposed to teacher-centered learning). Throughout the design process different mock-ups and prototypes was utilized to pursue the changes that these values would cause within the existing school practice. One of these initial design ideas was the concept of an interactive floor in which children could use the full faculty of their body as cursors to engage in a playful learning environment controlled by a computer application (see fig. 1).
An application developed for the Wisdom Well was the Stepstone application (Iversen et al., 2007). Here learning through the body was enabled whereby children were able to test their school knowledge by stepping on the correct answers to a question. Initially, teachers using a traditional PC interface to develop the questions to be used in the StepStone application. However, with respect to the value of learner-centeredness, we redesigned the StepStone system to run in an Internet browser so that the children could develop StepStone applications themselves. The system is running today with children from different schools able to develop and compete in a game of StepStone consisting of different tasks such as spelling and grammar games on the Wisdom Wells. The questions are generated by teachers or by pupils themselves and are available online.

With the RuneTable (fig. 3), earlier discussion has highlighted how the values that were developed did not make it into the final prototype. Yet, a compromised version was built despite the fact that the process was detached from the final product. The product did bear some hints of the values developed. For example, visitors were still able to create inputs onto the rune stone and having visitors move the rune stone from the holder to the table engendered some token of physical movement.

APPRECIATIVE JUDGMENT OF VALUES
The way we engage and work with values can be described as a process that involves cultivating the emergence of values, developing values and the grounding of values. The process is always fueled by dialogue between designers and stakeholder, be it through formal meetings or more playful situations such as workshops. The designer’s appreciative judgment of values facilitates this process, determines when one phase ends, begins or repeats.

Our concern for values begins with us cultivating its emergence. Some of the ways we achieve this is through meetings, discussion, observations, workshops as well as our interpretation of the situation whether explicitly or tacitly. What stakeholders bring to the process, such as artifacts, ideas, previous inspiration or even previous work can further influence the type of values that emerge. Similarly, designers come to the process with their own values, and their previous portfolio or even their design traditions could influence this. The key is that all emergent values are tables.

Developing values basically involves the recursive process of refining the emergent values and translating them towards more concrete design ideas. Translation and refinement occurs in tandem. For us, the designer requires a nuanced understanding of her design repertoire to know what tools could be employed most effectively to approach the values. Again, what stakeholders bring, such as artifacts and ideas can also influence the direction of this process.

However, if the emergent values present a dilemma, then efforts will be channeled towards finding ways to transcend the dilemma. Methods whereby stakeholders can suspend their assumptions and judgment in a fun and imaginative way can energize creative re-conceptualizations of the values that led to the dilemma in the first place. As described above, the re-conceptualized values are also refined and in the process, translated.

Grounding only occurs if the ‘developed values’ can be perceived by the designer to being able to be comfortably integrated and exist in equilibrium with stakeholders’ current practice. It could be the acceptance and use of a prototype in an existing practice. But developed values may not have the opportunity to be grounded if for any reason, the stakeholders do not adopt these values in their practice.

As highlighted by the Rune Table case, in order to facilitate the grounding of values, PD practitioners should extend the design process beyond the finalization of the artifact. This idea was hinted by Carroll et al (2000), and also resonates with Christiansen’s (1996) notion of the gardening attitude.

To reiterate, appreciative judgment of values requires introspection. And by being introspective, the designer will become aware of her values, and how it colors, influence and guide her choice of the methods, resources and stakeholders. It also influences the ways she orchestrates the design process. This awareness will also help her be more explicit about her design intuition and design judgments. Thus her values will have a great impact on the design process.

This includes the considerations of how meetings are framed, facilitated and orchestrated. Furthermore, the choice of methods, including the props, artifacts used for this initial meeting and even the way the invitation is framed are carefully considered. What guides this consideration is the designers’ response to the design brief and designers’ understanding of users’ current practice. This is also colored by the values designers bring to brief.

Be familiar with various methods and the way they can work with values. After all, the emergence of values, its development and grounding is highly sensitive to the type of methods used. So, there should always be an alignment between the methods used and the designer’s grounding perspective. If we ask ourselves why we use this method and how this method can serve our work with values at each phase,

In our cases, we found that stakeholders were more likely to be engaged if we employ methods that are often playful and appeal to their imagination.

CONCLUSION
We began this paper describing some of the concerns prevailing PD today: debates about methods and participation and under what circumstances are their applications considered to be faithful to PD. In response, we argue that one fruitful approach is to rekindle values in PD. We point to rekindling because some PD practitioners are already engaged with values as their core concern.

However, whilst PD practitioners clearly agree that values are important, they are often something that is taken for granted in the design process; something is that is desirable but too hard to achieve in ‘real’ design.
activities. Furthermore, there appears to be a lack of understanding as to how we actually work with values. Thus, drawing from our projects, we demonstrate that this means that values should be the engine that drives the design process. This includes cultivating, nourishing and molding of values through the iterative and dialogical process of emergence, development and grounding of values. We see this process of emergence, development and grounding as a way to conceptualize how we can work with values in PD. For designers, the means whereby they can engage with this dialogical process is through their appreciative judgment of values. It is only through exercising this judgment that methods and tools take on particular significance.

This appreciative judgment of values is not a new idea. We created this term from ‘appreciative system’ that was originally coined by Vickers. By using the term appreciative judgment of values, we wish to emphasize the importance of values and how this appreciative system can provide designers with a sensibility to engage with values in PD.

In presenting a detailed discussion of how we work with values, we laid out an approach that is different from other value centered and value sensitive approaches to designing technologies such as those proposed by Cockton (2004) and Friedman (2006). Our work with values sees them as being emergent and dynamic which are also negotiated through a dialogical process. This approach is similar to the way that Halloran et al (2009) work with values in co-design. However as our paper illustrates, our approach not only presents a unified framework of seeing the process but it highlights the crucial role of the designer. In particular we showed how the designer’s appreciative judgment of values colors and pervades her entire stance in the design lifecycle. Furthermore, this paper takes an additional interest in explicating how we can support the grounding of values during this process.

Currently, PD practitioners are absent when stakeholders are trying to negotiate their newfound values, when they are trying to include the design artifact into their current practice. So, one future direction for PD as a field may be to pursue better understanding of how to support this.

Our effort to rekindle a concern for values in PD is to tap into the course that runs through the Scandinavian legacy of cooperative design and to reconnect to one of the core tenets of PD. However, this legacy focused upon particular, distinct and fixed values that were appropriate for their time. While we still share their concern for values, we do not hold on to the same fixed set of values but instead we work approach values as being emergent and dynamic.

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REFERENCES


