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This research attempts to identify the adaptive values and conditions shared by user-involved design (UID) and direct citizen participation (DCP) in a policymaking context. As a conceptual embarkation point, this research will help bring design values to participatory policymaking. A deductive content analysis of the relevant literature was conducted to extract, group and compare the respective requirements of DCP and UID. These requirements were then classified by function, objective and domain and finally categorized into common ground, adaptive values and adaptive conditions. The common ground belongs to both DCP and UID and is concerned with sensitizing the participants to achieve basic understanding. The adaptive values, which are distinct requirements of UID, promote generative thinking. The adaptive conditions, which emerged from specific context of DCP, require a democratic process and promote citizen awareness. The research’s main contribution is in identifying the conceptual values and conditions for applying participatory design methods and approaches to the public policy context.

keywords: participatory design; public policy; citizen participation; user involvement

Introduction

Citizen participation is an important task in the making of a government’s public policy; it is used to get stakeholders’ approval and to legitimize a policy so that it can be implemented (Fearon, 1998; Santos, Antunes, Baptista, Mateus, & Madruga, 2006). Direct
citizen participation (DCP) is a participatory approach to making public policy; it refers to citizens’ personal involvement and active engagement in the participation process (Roberts, 2004). DCP is considered the primary way to achieve the democratic ideal, as it transforms representative and elite-driven politics into direct and citizen-driven politics (Abelson et al., 2003). Scholars in policy fields have suggested various benefits of DCP: It is useful for gaining legitimacy, generating a wide range of views and alternatives, helping governments and citizens learn from each other, building trust and relationships, providing skills for active citizenship, and strengthening communities’ problem-solving capabilities (Bryner, 2001; Fearon, 1998; Irvin & Stansbury, 2004; Santos et al., 2006). Active studies have proposed requirements for DCP base on an understanding of the policymaking context. In the fields of policy science, including public administration, politics, public management and democracy, many scholars have argued that effective participatory policymaking tools are needed. Researchers from various other disciplines have tried to augment DCP processes with their own expertise. For example, Mostashari et al. (2005) proposed a computer-assisted visualization technique to help stakeholders in the fields of engineering and information and communication technology more easily understand complex information about public traffic issues and thus participate in policymaking.

In this context, user-involved design (UID) has also been suggested as an effective policymaking tool for enhancing the participation process itself. There are fundamental commonalities between UID and DCP; they both use target-centred problem-solving approaches, and both aim to create synergetic collaboration effects by involving people. UID in particular has generated its own methods for helping people express their thoughts in the participatory process. Design has methods for eliciting and comprehending users’ in-depth, personal and experiential responses by involving them in design processes (Brown & Wyatt, 2015; Muller, 2003; Ozcelik, 2007; Sanders & Stappers, 2008).

Practical applications of design methods to participatory policymaking have emerged. Singapore, for instance, carried out a series of design projects involving civil officers, designers, technology experts and citizens. The design methods that focused on user involvement enabled the participants to directly communicate, understand and empathize with each other (Teng, 2014). In South Korea, Yoon (Yoon, 2015) proposed a public-service design model for citizen-centred public policy based on the case study of the Citizen Design Group, a government initiative consisting of policymakers, service designers and citizens. The participants of the Citizen Design Group learned about service design methods and used those methods to propose new service-policy concepts. First, they gathered to discuss citizens’ needs for certain public policies. Subsequently, they shared their insights and developed new service-policy concepts. Finally, they proposed a new service-policy concept. These case studies, which also report the impacts that these design methods have on participatory policymaking, imply that DCP has the potential to enhance UID expertise.

However, UID and DCP have different contexts. The existing methods for UID are more focused on product and service development than on public policies. It is necessary to understand the differences between UID and DCP, as they could help in adaptively developing design methods for UID that fit in the context of DCP. Therefore, this research focuses on understanding the difference between UID and DCP (so as to identify the
values and conditions needed for adapting UID to DCP) rather than just applying existing design methods to DCP. Three research aims were formulated: (1) to identify the goals shared by DCP and UID, (2) to identify what DCP and UID require to achieve the same goals, and (3) to identify the commonalities and differences of these requirements.

To accomplish these aims, a literature review was conducted to identify the goals shared by DCP and UID. Subsequently, a deductive content analysis was conducted. The requirements of DCP and UID were comprehensively extracted from the relevant literature. These requirements were then grouped and compared based on their functions and objectives. Finally, the requirements were classified by domain and categorized into three groups: common ground, adaptive values and adaptive conditions.

**DCP and UID: Shared Goals**

An extensive literature review revealed that DCP and UID had the same goals. Furthermore, DCP and UID are both important parts of problem-solving, especially for humans. Further, both of them seek to involve the targets in their problem-solving processes. The shared goals of DCP and UID were to have 1) target-centred approaches with partnerships and 2) synergetic effects of collaboration based on face-to-face group meetings.

**Target-centred approaches with partnerships**

First, both DCP and UID seek target-centred approaches with partnerships. DCP targets citizens, and UID targets users. Both DCP and UID seek to work with their targets to solve a problem and do not only regard the targets as passive objects related to the problem. One focus of DCP is on sharing power with the public so as to make substantive decisions and take actions related to the community by helping citizens participate directly in a policymaking process that is based on citizenship as a legal concept (Roberts, 2004). The term public refers to the members of a society who do not have official rights regarding policy decisions (Cooper & Gulick, 1984; Roberts, 2004). The most important characteristics of DCP are 1) individuals’ involvement (not as representatives of groups) and 2) active engagement (i.e., doing more than just listening to alternatives and choosing one) (Roberts, 2004). In this context, UID and DCP are very similar concepts. UID also directly involves users and encourages them to carry out a series of activities in the design process. UID seeks to engage users and get them to express their aspirations and expectations more actively (Ozcelik, 2007). Moreover, UID considers users as individuals with unique needs and values rather than focusing on average users, as represented by demographics and statistics (Teng, 2014). In summary, both DCP and UID consider their targets (citizens or users) to be active partners in the problem-solving process rather than as mere targets on the receiving end.

**Synergetic effects of collaboration based on face-to-face group meetings**

Second, both DCP and UID seek to create synergetic effects through collaboration. This collaboration is executed through face-to-face group meetings, which are the basic and ideal form through which public deliberation is best enacted (Cleveland, 1974). Because the mechanism of DCP was developed based on the context of small-group meetings (Dahl, 1989; Fishkin, 1991), one of its purposes is making people work together, face-to-face, in a shared search for effective solutions to community problems (Roberts, 2004;
Yankelovich, 1991). Many policy scholars have argued that the collective decisions in policymaking emerge from face-to-face dialogue and deliberation (Bohman, 1997, 1998; Dryzek & Torgerson, 1993; Elster, 1998). Burkhalter (2002) explained why: the “wicked and complex” nature of the policy problem itself is the fundamental rationale for collaboration, and this collaboration is more appropriate as a natural flow of face-to-face interaction, which is suited for dealing with the complex, morally conflicting, inescapable uncertainty regarding the wisdom of a final judgement.

In another revealing commonality, design has also been described in this way. The design problem is often characterized as a “wicked problem”, to use the expression famously coined by Buchanan (1992). Therefore, the problems handled in both policymaking and design commonly are wicked in that they address human problems that are not amenable to ultra-rational approaches such as engineering and computing (Durose & Richardson, 2016). Individual and in-depth interactions among stakeholders in face-to-face group meetings enable participants to understand and learn from each other and to formulate their problems. Therefore, the goal of UID in design, and of DCP in policymaking, could be more specifically described as follows: ‘to obtain insights from the user experience that can be used as powerful resources for solving the problem at hand’. This important commonality between DCP and UID has caused significant interest in applying design to policymaking (Allio, 2014; Bason, 2016; Boyer, Cook, & Steinberg, 2011; Burns, Cottam, Vanstone, & Winhall, 2006; Council, 2013). The rationale for applying UID to DCP is further substantiated by the fact that UID has developed unique methodologies for involving users in the problem-solving process; these include specific, highly developed methods for face-to-face group meetings, which are also important in DCP. There are several forms of UID activities, including focus group interviews, user workshops, and participatory group discussions (Bruseberg & McDonagh, 2005). These UID activities all involve participants from diverse target user groups working together in face-to-face group interactions. These interactions provide a forum through which the participants discuss common problems in depth, work through shared solutions and build consensus. This shared environment includes collaborative activities, shared information, and shared artefacts (Muller, 2003). UID practitioners enhance this shared environment by designing a series of activities, visualizing and organizing information, and developing tools and techniques for creating artefacts. Enhancing shared environments allows for rich communication—not only among users but between users and the designer—ultimately generating valuable resources for problem-solving in the design process (Muller, 2003; Ozcelik, 2007).

In contrast, DCP does not have such refined methodologies even though it shares UID’s goals. Therefore, there is a potent argument for applying UID methods to the DCP process, as UID has elaborate methodologies for creating synergetic collaborations through in-depth and rich communication among stakeholders. This provides solid ground for enhancing the DCP process, which seeks the same goals, albeit in a different context.

**Gaps between DCP and UID**

As established previously, DCP and UID have the same goals. Practitioners of both adopt target-centred problem-solving approaches and seek synergetic collaborations with their targets. However, DCP and UID have been developed within their own fields. UID has its own methodologies and processes for developing products and services, and DCP has its
own requirements for achieving the democratic ideal through citizens’ participation; these requirements are based on an understanding of policymaking contexts. Fundamentally, however, DCP and UID share their goals and have mutually complimentary characteristics (as discussed above), making it possible and even desirable to cross-fertilize. However, the cases in which UID methods are currently applied to the policymaking context tend to disregard the very different contexts in which they have been developed and deployed. Furthermore, most cases are one-off design projects that do not require the strategic-level involvement of design for policy generation—which is where design has the potential to bring the greatest benefits. In addition to such cases, there is abundant literature that discusses the mutual compatibility of policymaking and design (see Considine, 2012; Durose & Richardson, 2016). However, few academic or practical efforts have been made to build knowledge and develop UID methods that are more adaptive to a policy context.

Developing adaptive approaches for applying UID methods to the DCP context requires a comprehensive understanding of the commonalities and differences of DCP’s and UID’s requirements. How can UID fulfil DCP’s requirements, and what should be considered when UID is applied to DCP? To answer these questions, the requirements of DCP and UID were extracted from the literature and were compared and contrasted to identify the touchpoints through which UID methods can be adapted to DCP. Ultimately, this contributes to the design of participatory face-to-face policymaking activities, thus bringing the value of design to the realm of policymaking.
Deductive content analysis based on shared goals

A deductive content analysis was conducted to compare the requirements of DCP and UID. This method of analysis is often used when applying existing concepts or models in a new context (Elo & Kyngäs, 2008). As mentioned above, DCP and UID have shared goals: to provide a target-centred approach and synergies of collaboration. The requirements for DCP and UID to achieve these goals were extracted from the literature in both policy and design. Subsequently, the requirements were grouped, compared and classified. For the purpose of the research, the content analysis was carried out in four steps: 1) extraction, 2) grouping, 3) comparison and 4) classification (Figure 1).

**Step 1. Extraction**

First, the authoritative literature related to DCP and UID was selected. For DCP, this included 36 journals that had been indexed as SSCI (Social Science Citation Index) or cited more than 200 times (e.g., *Policy Sciences* and *The America Review of Public Administration*). For UID, this included 45 journals and books that had been indexed as SCIE or A&HCI (Arts & Humanities Citation Index) or cited more than 100 times (e.g., *Design Studies*, *The Design Journal* and *Codesign*).

Subsequently, the content related to requirements for either of the shared goals was extracted. For example, Hart and David (1984) said that “it should be considered citizens’
ability to comprehend the management of complex public affairs and institutions...” in their article “The virtuous citizen, the honorable bureaucrat, and ‘public’ administration,” which was published in *Public Administration Review*. The authors suggested that the citizens must have the ability to manage complex policy issues for DCP to occur. Similarly, (Van Rijn, Bahk, Stappers, & Lee, 2006) said that “… context includes user’s concerns, memories, feelings, and experiences. Users are put in the position of ‘expert of their experiences’…” in their article “Three factors for context mapping in East Asia: Trust, control and Nunchi,” which was published in *Codesign Journal*. They suggested that users’ self-expression regarding their thoughts (i.e., context mapping) was as one of the requirements of UID. All these requirements were extracted and tagged as DCP or UID. Raw quotations were used to minimize potential researcher bias from interpreting the quotations. At the end of the content extraction stage, 99 DCP requirements and 86 UID requirements had been extracted.

The results showed that the UID requirements were more specific than the DCP requirements. For example, one of the DCP requirements related to the need to motivate citizens sufficiently (Irvin & Stansbury, 2004; Roberts, 2004), but the corresponding UID requirement related to the need to make participants empathize with the topic so that they are motivated; the UID studies also suggested appropriate design methods, including probe studies and personas (Horst, Bunt, Wensveen, & Cherian, 2004; Olsson, 2004). UID requirements have both functional aims and corresponding methods, but DCP requirements only have functional aims on the macro level. This is because of UID’s methodological characteristics. Various UID methodologies have been developed in the design field, but DCP remains predominantly aim-oriented; this could be the rationale behind adapting UID for DCP.

**Step 2. Grouping**

The purpose of the second step (grouping) was to reconstruct the contents of the requirements to enable comparisons. However, in the first step (extraction), the requirements were found to be on different levels. Most of the DCP requirements are only functional, but the UID requirements contain both functional aims and specific methods. Therefore, the requirements were grouped by their functions. The DCP and UID requirements were separately grouped (Figure 2). This grouping was conducted using the affinity diagram method that Beyer and Holtzblatt (1999) and Cohen (1995) proposed. The redundant requirements were eliminated in the grouping process to provide for efficient comparisons.

Nine skilled design researchers, including two Ph.D. students and seven MS.C. students, participated in the grouping. The two Ph.D. students had five years and three years of research experience, respectively, in design management. Four of the MS.C. students had two years of research experience in user-centred design methodologies, and the others had one year of experience in design management. All participants had experience applying UID methods to policy contexts in practice. Six of the participants had experience in running design-thinking workshops with a local public agency, and the other three had experience conducting government-university cooperative design projects. The researchers reviewed all of the requirements, grouped them based on the similarity of
their functional aims, and labelled the groups. This resulted in 31 DCP and 19 UID requirements by function.

**Step 3. Comparison (Group-Sets)**

The third step was comparing the requirements. The requirements that were grouped by function in the second step were grouped again using the affinity diagram method. The difference from the previous step is that the grouping was conducted without regard for whether a requirement belonged to DCP or UID. This was because the purpose of the comparison step was to compare the requirements of DCP and UID, but the purpose of the previous step was to simply group the requirements by function. As shown in Figure 1, DCP requirements were compared with UID requirements by regrouping them their objectives. Every requirement that was grouped by function in the previous step, contained an objective, which enabled this comparison at the objective level. For example, one of the DCP requirements was to provide basic information about problems, and some of the UID requirements emphasized users understanding of the problems. These two requirements then could be grouped into the same objective: deep understanding of the problems. In other words, the DCP and UID requirements could be compared by checking whether the objective-based groups contained DPC or UID requirements (or both). The nine design researchers who participated in the content grouping also participated in the objective grouping. They reviewed the requirements from the second step and regrouped them by objective. As a result, 10 requirements by objective were generated.

**Step 4. Classification (Group-Set Categorization)**

In the last step, the requirements were classified by domain: 1) both domains, 2) the UID domain only, or 3) the DCP domain only (Table 1). If a requirement by objective contained both DCP and UID requirements by function, it was classified as being in both domains. If
it contained only UID requirements by function, it was classified in the UID domain, and if it contained only DCP requirements by function, it was classified in the DCP domain. These three classes were labelled as common ground, adaptive values and adaptive conditions, respectively, to describe the role of each class in adapting UID to DCP.

Table 1  Overview of content analysis

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
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<tbody>
<tr>
<td>Task</td>
<td>Extraction</td>
<td>Grouping</td>
<td>Comparison</td>
</tr>
<tr>
<td>Purpose</td>
<td>To comprehensively collect the requirements for DCP and UID</td>
<td>To group the requirements at the function level</td>
<td>To compare the requirements of DCP with UID at the objective level</td>
</tr>
<tr>
<td>Requirements</td>
<td>Requirements by function</td>
<td>Requirements by objective</td>
<td>Requirements by domain</td>
</tr>
<tr>
<td>99 DCP requirements</td>
<td>31 DCP requirements</td>
<td>10 requirements</td>
<td>Both Domains (4 requirements)</td>
</tr>
<tr>
<td>86 UID requirements</td>
<td>19 UID requirements</td>
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<td>UID Domain (3 requirements) DCP Domain (3 Requirements)</td>
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Common ground, adaptive values and adaptive conditions
In summary, the research began with a content analysis to identify the requirements of DCP and UID. These requirements were grouped and compared by function and by objective. Finally, they were classified into three classes: those in both domains, those in only the UID domain and those in only the DCP domain. Four requirements were in both domains, three were in the UID domain, and three were in the DCP domain. This implies that there are varied implications for adapting UID for DCP (Figure 3).

First, the requirements shared by the two domains are the common objectives that are required in both DCP and UID; these act as a common ground. Both DCP and UID required support for sensitization to problems and to other participants, although UID has developed unique and varied methods for this. UID could be adapted to enhance sensitization in a DCP participatory process.

Second, the requirements for the UID domain include distinct objectives for UID that have not been considered for DCP. These UID values will be new in the DCP context. For instance, generative thinking was considered only in UID, for which various generative-thinking tools and techniques have been developed. Generative thinking could introduce adaptive values from UID to the DCP context.
Finally, the requirements for the DCP domain include distinct objectives from the DCP context. For instance, only DCP required the promotion of the democratic process and of citizen awareness. These ideas have not been considered in conventional UID, and they could provide adaptive conditions that bring UID values more in line with DCP contexts. The details of the content analysis results are presented in the following section.

Figure 3  Intersections and Differences between DCP and UID Requirements

Sensitization: Common ground shared by both domains
The research identified four requirements that both domains shared: 1) deep understanding of problems, 2) motivation for participation, 3) deep understanding of others, and 4) support for communication with others. These four were related to the requirements of engaging people in sensitization and for ensuring participation at both the personal and group levels. The personal level includes motivation for participation and a deep understanding of problems. The group level includes support for communication and a deep understanding of others.

Deep understanding of problems
The first requirement belonging to both domains is a deep understanding of problems. The DCP requirements focus on providing basic information so that participants can understand the issues and problems that they have to deal with and on making the information digestible for the citizens (Abelson et al., 2003). Likewise, UID requires participants to empathize with people to help them understand problems. This gives participants awareness and access to their own hidden needs regarding the problems (Bruseberg & McDonagh, 2005; McDonagh, 2003; Reich et al., 1996; Siu, 2003). However, UID requirements have more methodological details than do DCP requirements. UID
suggests self-documentation techniques (e.g., context mapping and probe studies) as methods for sensitization (Gaver et al., 1999; Hemmings et al., 2002; Horst et al., 2004; Mattelmäki, 2005) as well as storytelling techniques, such as the use of personas for empathy (“feel the problem’s world”) (Grudin & Pruitt, 2002; Olsson, 2004). In other words, UID could provide a deeper understanding of problems to engage people in DCP.

**Motivation for participation**
The second shared requirement is motivation for participation. DCP requires only sufficient motivation for participation (Roberts, 2004). Interestingly, the UID requirements in this are also included in the first shared requirement (deep understanding of problems). In other words, some UID functions required multiple objectives, such as sensitizing people and motivating them (e.g., probe studies enable people to be sensitized and to empathize, which in turn creates a willingness to solve the problem). This means that sensitization could cause people to participate in DCP. Empathy with others enables people to accept that huge and abstract social problems can be personal and individual problems. For example, people can view the social problem of youth unemployment on a personal level by engaging with personas that are struggling with employment. Hence, UID could provide motivations for participation by mapping social problems onto individual needs, thus engaging people in DCP.

**Deep understanding of others**
The third shared requirement is a deep understanding of others. DCP only requires mutual respect between participants (Roberts, 2004). Similarly, UID requires mutual empathy based on an in-depth understanding of people’s individual needs, including their behaviours, expectations, values and motivations (Mootee, 2013; Muller, 2003; Sanders & Stappers, 2008). UID practitioners view people as individuals with unique needs rather than as average users represented by demographics and statistics (Teng, 2014). Therefore, UID could help participants to understand others who have different (or even opposite) opinions as individuals—without the prejudices of the group to which the participants belong.

**Support for communication**
The fourth shared requirement is supporting communication with others. DCP requires moderators and facilitators to support appropriate discussions among participants (Box, 1997; Irvin & Stansbury, 2004; Roberts, 2004). Likewise, UID requires support for participants to express their thoughts, experiences and ideas in various ways. UID also suggests more complex methods of communication for use among participants and between participants and designers. These methods are based on visualization techniques (e.g., collages) and on creative activities (e.g., generative tools) (Bødker, 2000; Hummels, 2000; Keller, Pasman, & Stappers, 2006; McClelland & Suri, 2005; Mootee, 2013; Ozcelik, 2007; Sanders, 2000). Hence, UID could act as an effective moderating and facilitating tool to support communication among participants by engaging them in DCP.

**Generative thinking: Adaptive values in the UID domain**
Three requirements were placed in the UID domain: 1) active engagement in the process, 2) stretching the possibilities, and 3) facilitating to vividly envision solutions. These three
adaptive values are related to generative thinking, which has been extensively developed in the design field. This means that UID has unique values for promoting generative thinking that have not yet been considered in DCP.

**Active engagement in the process**
The first UID-only requirement is active engagement in the process. UID requires more active levels of engagement than DCP does. For instance, UID requires participants to perform sets of activities, especially creative ones, to ensure active engagement (Sanders, 2008). In contrast, DCP is more focused on basic forms of discussion, including thoughtful examinations of the issues, arguing, listening to others, counter-arguing, and making collective decisions (Abelson et al., 2003; Roberts, 2004; Yankelovich, 1991). UID suggests that participants make artefacts (e.g., freehand drawings, affinity diagrams, timelines or clay models) using generative tools (Bødker, 2000; Muller, 2003; Sanders, 2000). This could actively encourage participants to engage in DCP by asking them to make something by themselves in addition to participating in oral discussions.

**Stretching the possibilities**
The second UID-only requirement is stretching the possibilities. UID requires exploring a diverse dimension of design through methods that include using extreme characters and asking what if (Djadadiningrat, Gaver, & Fres, 2000; Ogilvie & Liedtka, 2011). Although DCP requires the inclusion of comprehensive opinions that represent the communities involved (Hart, 1984; Roberts, 2004), which seems similar to this UID requirement, UID focus is not only about covering comprehensive opinions but also about focusing on exploring a wide range of perspectives regarding an unknown future. One study supports the idea that this unique design characteristic could help DCP; Considine (2012) suggested that the design expertise from open-ended and disruptive thinking could expand the consideration of future states and thus reduce policymaking risks. The author argued that these ways of thinking can supplement the conventional means of making policy decisions, which rely upon policy experts’ heuristics (Considine, 2012).

**Facilitating to vividly envision solutions**
The third UID-only requirement is facilitating to vividly envision solutions. Both DCP and UID seek to reach consensus and shared solutions through participation. However, UID is more focused on the creation of new things—from novel insights to specific concept ideas—while DCP is more focused on deliberation about the given alternatives. UID requires that designers help participants vividly express abstract and ambiguous ideas through visualization and storytelling-based techniques, including scenarios and storyboards (Bødker, 2000; Buur & Matthews, 2008; Grudin & Pruitt, 2002; Suri & Marsh, 2000). UID suggests using improvisation techniques to facilitate sparks, such as ad hoc or serendipitous moments of ideation (Mootee, 2013; Svanaes & Seland, 2004). These requirements can better engage people in imagination, expression and envisioning.

**Democracy and awareness: Adaptive conditions in the DCP domain**
Three requirements were placed in the DCP domain: 1) democratic procedural rules, 2) ease of participation, and 3) lessons for participants (rather than hosts). These were related to the achievement of democratic ideals and the promotion of citizen awareness.
to ensure sustainable participation. These characteristics are unique to the policy context, and they can provide rich information about the conditions that designers should consider when adapting UID methodologies and processes to DCP.

Democratic procedural rules
The first DCP-only requirement is having democratic procedural rules. In the content analysis, organizing democratic procedures was one of the dominant requirements of DCP. Most of the UID requirements were more focused on generating new ideas and encouraging collective creativity in the participatory process. In contrast, DCP focuses on how to create equal and fair participation. DCP requires participants to have equal speaking rights as part of democratic communication procedures. The procedural rules in DCP require a structured sequence of activities: examining the issues, arguing, listening to others, counter arguing and collectively deciding. More than just conceiving novel and creative solutions, DCP seeks deliberative decision-making processes through participation. Therefore, when adapting UID for a policy context, the issue of democratic procedures should be considered. DCP also requires participant representation because one of DCP’s main purposes is to secure legitimacy when implementing polices by getting stakeholders’ approval (Fearon, 1998; Bryner, 2001). Hence, all participants’ groups should be represented. Furthermore, DCP requires community opinions to be comprehensively covered and to not exclude any target group. Statistical approaches such as sampling are required to secure an appropriate level of representation in DCP. Random or purposeful sampling techniques have been suggested to ensure a geographically and demographically representative sample (Abelson, 2003). Hence, the representation issue should be considered when configuring participants in the adaptation of UID to DCP.

Ease of participation
The second DCP-only requirement is ease of participation. This means that participation should be physically easy for community members. DCP requires that participants be geographically concentrated so that they can easily attend meetings and have the appropriate level of participation without disrupting their livelihoods (Irvin & Stansbury, 2004). This requirement is also crucial for DCP because easy participation enables every community member to participate, which can help leaders comprehend the community’s opinions and thus secure representation of the participants. Therefore, when adapting UID for DCP, ease of participation needs to be considered to increase accessibility and reduce the loads placed on participants.

Lessons for participants rather than hosts
The last DCP-only requirement is to provide lessons for participants (rather than hosts). In this distinctive characteristic of DCP, participants need to learn their own lessons from their participation; UID is more focused on enhancing understanding among designers themselves. In UID, users are invited to the participatory process and are asked to express their thoughts, inspirations and ideas. Generally, designers work with diverse clients in their projects, and the topics and target users vary by project. Thus, in UID, the participants change from project to project. The focus in UID is on immersing participants in the problems and on engaging them to generate outcomes that act as resources in the design process. UID does not have to focus on providing lessons for participants. However, DCP is not like this; it aims to utilize synergies between local knowledge and citizens’
experiential expertise to tackle complex community problems through sustainable citizen participation (Collins & Evans, 2002; Durose & Richardson, 2016; Yanow, 2004). DCP requires that people be provided with efficacious participatory policymaking and engaged in responsibilities regarding implementation. In other words, DCP requires participants to learn their own lessons through participation; this cannot be achieved at once, as it requires sustainable participation throughout a project (Irvin & Stansbury, 2004; Roberts, 2004; Santos et al., 2006). The lessons participants learn from their participation could provide motivation for their future participation, thus enabling sustainable participation. Hence, when adapting UID for DCP, the lessons that should be provided for sustainability and means of providing them are important considerations.

Conclusion
This research has identified the requirements of DCP and UID for policymaking. The common ground between DCP and UID, the adaptive values of UID, and the adaptive conditions of DCP were identified. First, both DCP and UID were found to require that people be sensitized to problems and to each other as part of a participatory process. Second, it was found that adapting UID to DCP would sensitize people to policy issues based on this common ground. Generative thinking is only required in UID, which implies that UID could empower existing DCP methods by adding value from generative thinking. On the other hand, it was found that only DCP requires a democratic process or the promotion of citizen awareness. This could help in adapting UID to better fit into the DCP context.

The main contribution of the research lies in providing a basic understanding of the commonalities and differences when comparing the methodological values of UID and the policymaking context of DCP. This could encourage the creation of a more adaptive approach for adapting UID to fit into DCP. To adapt UID for the DCP context, this research grouped the current requirements of DCP and UID into specific levels, finding requirements that formed common ground as well as values unique to UID and conditions unique to DCP. The results of this research could be used as a conceptual basis for further studies. Based on the results of this research, practical cases in which design is applied to participatory policymaking could be analysed more systematically to improve understanding of current trends and patterns. An analytical framework consisting of common ground, adaptive values and adaptive conditions could be established to identify the gaps in participatory policymaking and to provide opportunities for adaptive designs (e.g., coding schemes for case analysis). Furthermore, substantive tools and methods for DCP, such as a generative thinking tool for participatory policymaking, could be designed. In addition, the democratic process and citizen awareness could be also considered in the tool’s design. In other words, the results of the research could provide a framework to guide and develop design methods and tools more adaptively to the participatory policymaking context.

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