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Idea Browsing on Digital Participation Platforms: A Mixed-methods Requirements Study

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Abstract. Digital participation platforms (DPP) are websites initiated by local governments through which citizens can post and react to ideas for their city. In practice, the majority of DPP users browse the posted ideas without contributing any. This activity, referred to as lurking, has widely recognized positive outcomes, especially in a citizen participation context. However, it has been devoted little attention. In practice, the idea browsing features available on current DPP are limited, and the literature has not evaluated the available approaches nor studied the requirements for idea browsing. In this paper, we report on an evaluation of the filterable list, which is the most common idea browsing approach on DPP. Our findings show that it lacks stimulation hedonic quality and call for a more stimulating approach. Thus, we conducted 11 semi-structured interviews to collect requirements and found that idea browsing on DPP should be supported by the combination of (1) a stimulating interactive representation such as circle packing or thematic trees displayed as entry point and (2) a filterable list for deeper exploration. This article is the first to study requirements for idea browsing features on DPP.

Keywords: Digital participation platform · Content browsing · Lurking · Requirements · AttrakDiff · Mixed-methods.

1 Introduction

As part of their daily work, local representatives make decisions on how to allocate the available human and financial resources and design policies that should fit the expectations of the population. However, they often lack knowledge of citizens' needs, and increasingly resort to involving citizens in decision-making processes to capture these missing insights. Such involvement of citizens is not new [3] but it has been further accelerated by the new opportunities offered by information and communication technologies [10, 22]. Citizen participation involving these technologies is referred to as digital participation. The United Nations E-Government Survey[3] shows that its adoption has increased rapidly in the last 20 years. One of the most commonly implemented digital participation method is the digital participation platform (DPP), which is an idea generation

[3] https://publicadministration.un.org/en/Research/UN-e-Government-Surveys

platform initiated by local governments (e.g., [4, 39, 25, 23]). All citizens can access the platform to browse the posted ideas, contribute ideas of their own, and react to others' ideas.

As usually observed in online communities [35], the large majority of DPP users browses ideas without posting content [14, 24]. These users are referred to as "lurkers" [36, 11]. While lurking has previously been negatively perceived [46], it is now widely recognized that it has positive outcomes such as the vicarious learning of the community dynamics and the propagation of information in other communities [48, 17, 11]. The civic nature of DPP gives a special importance to idea browsing, as it is essential for citizens to stay informed [19, 38]. The large proportion of DPP users who browse ideas compared to contributors and the importance of this activity in a citizen participation context show that idea browsing is an essential part of DPP. Still, little attention has been devoted to this activity. In practice, the idea browsing features of current DPP are limited to filterable lists and less frequently dot maps. To the best of the authors' knowledge, previous literature has not investigated whether these features satisfactorily support idea browsing on DPP, and the requirements for browsing ideas on these platforms remain unknown.

The goal of this article is to answer these two gaps with a focus on the filterable list, which currently is the most commonly implemented approach on DPP. To achieve this, an evaluation of the filterable list from a selected representative DPP was conducted with 38 respondents who completed the AttrakDiff questionnaire [18]. The results show that while it offers satisfactory pragmatic quality, it lacks stimulation hedonic quality. Based on these results, 11 semi-structured interviews were conducted to (1) explain the results observed in the questionnaire for stimulation hedonic quality and (2) collect requirements for idea browsing on DPP.

2 Background

2.1 Citizen Participation through Digital Platforms

Citizen participation refers to the involvement of citizens in the decisions taken by their government, excluding participation in the elections and in public life [7]. This process can have several objectives that can be achieved using a wide range of methods [45]. These objectives include informing citizens of the decisions for transparency purposes, collecting their opinion on already defined resource allocation plans, or delegating them the decision power in part or in full [3]. Methods include traditional (i.e., non digital) approaches such as town hall meetings [29] and innovative ones made possible thanks to the new opportunities offered by information and communication technologies [10, 22]. Digital participation methods can potentially attract more participants since they make it possible to participate remotely at any time instead of having to physically attend a scheduled event [21]. Citizen participation organized through digital methods is referred to as digital participation, online participation, or e-participation in

the literature. It is defined as the use of "information and communication technologies to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives" [30].

Digital platforms [4] are among the most common digital participation methods. This paper focuses specifically on digital platforms initiated by local governments allowing citizens to propose ideas of actions, with the possibility to browse and react to others' proposals. They are referred to as digital participation platforms (DPP) in this article. Examples of DPP include "Decide Madrid" (Spain) [39], "Réinventons Liège" (Belgium) [25], and "Better Reykjavik" (Iceland) [23].

2.2 Idea Browsing on Digital Participation Platforms

In group discussions involving many participants such as public hearings [15], it is often observed that only few participants drive the exchanges by sharing their views while the vast majority, although concerned and interested, remains silent and listens. The same phenomenon occurs in online communities. A minority of members, referred to as "actives" or "contributors" [6], feeds the community with content, while the majority, referred to as "lurkers" [35], only consumes the content (i.e., in the context of DPP, consuming content consists in browsing ideas). According to the "90-9-1" participation inequality rule stated by Nielsen [34], it is common for the proportion of lurkers to reach 90% of users, while 9% are occasional contributors and the remaining 1% frequently feeds the community with content. The number of lurkers is argued to be higher in the context of digital citizen participation [12]. After monitoring the use of Regulation Room, which is a participatory rule-making digital platform, it was observed that only approximately 5% of visitors registered as users, and that only a part of them posted comments [14]. In an analysis of the "Réinventons Liège" platform, Lago [24] observed that 17.5% of visitors registered, and that 7% of registered users proposed at least one idea. This represents less than 2% of visitors. The Laugardalur consultation on the Betri Reykjavik platform[4] reports 1,997 users, 125 (6.3%) of which have contributed at least one idea. These numbers show the importance of idea browsing features on DPP, as these features are used by a large majority of users unlike the posting of ideas. In addition, idea browsing also concerns contributors [33, 1], as contributing content usually implies browsing the posted content beforehand.

Lurking in online communities has been plagued with negative connotations [37, 47, 11], lurkers being sometimes considered as selfish free-riders [46] who take advantage of active members' contributions without giving anything in return. However, lurking has now widely recognized positive outcomes and scholars recommended to encourage this behavior [11]. Inside the community, lurking allows newer members to get more familiar with the community and learn its dynamics vicariously [2, 26]. This behavior also allows community members to increase their knowledge base [17], and this can have a positive effect beyond the community via information propagation [48]. Lurking has a special importance in the

[4] https://www.betrireykjavik.is/group/3740

context of DPP. Indeed, ideas potentially impacting the users' environment and daily life are discussed on these platforms, and it is therefore essential that concerned citizens are aware of them. Literature on citizen participation recognizes the importance of accessing information by considering this activity as a form of participation in itself [3] or as a necessary condition for participation [38].

For the reasons explained in the previous paragraphs, idea browsing is of great importance on DPP. However, as generally observed in other types of online communities [31], little attention has been devoted to this activity. In practice, the idea browsing features of current DPP most commonly consist of filterable lists. Although being the most common browsing interface on opinion content platforms, such lists are limited in terms of scalability and engagement [13, 42]. Less frequently, dot maps can be found on DPP as well. In the literature, the attention is devoted to the production of content instead of its consumption. Indeed, the information that should be provided when posting ideas [50, 49] and the range of opinions that should be provided for idea voting [43] have been studied, among others. However, no previous work has investigated whether the implemented idea browsing approaches perform satisfactorily (**Research Gap 1**), nor what the requirements for idea browsing on DPP are (**Research Gap 2**). These are the two gaps this article aims to answer, with a focus on the filterable list, as it currently stands as the most commonly implemented approach.

3 Methodology

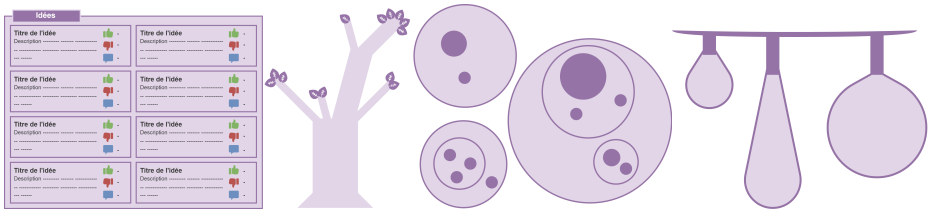
Data was collected following a mixed-methods strategy [20] involving both quantitative and qualitative data. The explanatory mixed-methods design [9] was chosen because it consists in exploring a phenomenon with a larger number of participants using quantitative methods and explaining the findings with richer qualitative data collected from a smaller sample. Research Gaps 1 and 2 were investigated simultaneously, first by means of a questionnaire, and then through semi-structured interviews. The interview guide was designed based on the questionnaire results and aimed to give more depth to the quantitative findings.

3.1 Quantitative Data Collection – Questionnaire

The questionnaire introduces respondents to the goal of the research and to the DPP concept. They are informed that the collected data will be processed anonymously and consent that it can be used for research purposes. The body of the questionnaire is structured into three parts. The first part asks sociodemographic information (i.e., gender, age range, education level, and occupation), previous experience with DPP, and motivators for browsing ideas on a DPP. The second part asks respondents to browse ideas on the DPP of the city of Mons (Belgium) (named "Demain Mons"[5]) and to complete a shortened version of the AttrakDiff questionnaire [27]. The AttrakDiff questionnaire has been

[5] https://mons.citizenlab.co/fr-BE/projects/participez-ici/3

used in a wide range of application domains and has the advantage of covering both pragmatic and hedonic aspects of interaction [28]. Following [27], the items of the questionnaire were translated into French and half were reverse-coded. The motivation behind the choice of the "Demain Mons" platform is that it relies on CitizenLab, which is a well-established turnkey citizen participation platform implemented in more than 400 local governments worldwide. Therefore, we considered this platform as representative of existing DPP. The ideas on "Demain Mons" are displayed as a filterable list.The third part of the questionnaire aims at gathering respondents' opinion on alternative representations that could be used to browse ideas on a DPP. Respondents are presented with four images illustrating visual idioms and are asked to select the one that relates the most to a set of citizens' ideas or to describe a better fitting representation. The four images were designed by the authors after taking inspiration from existing research and platforms. The list represents the standard approach implemented on DPP. The tree was inspired by previous research on DPP which proposes a representation destined to local representatives [25]. The circle packing (named "bubbles" to avoid technical terms in the questionnaire) is used in the dashboard of Citizenlab[6] destined to local representatives. The light bulbs view is inspired from the way ideas are represented in popular cartoons. The four images are shown in Fig. 1, along with their explanation as included in the questionnaire. The questionnaire was distributed using social media and mailing lists.



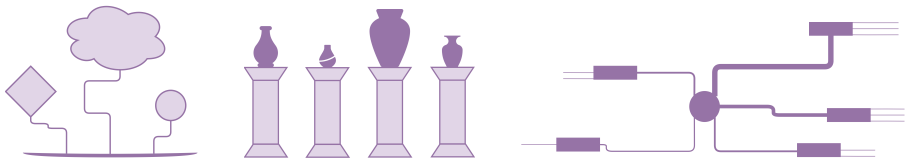
(a) List (b) Tree (c) Bubbles (d) Light bulbs

Fig. 1: Representations of ideas shown in the questionnaire. (a) The *list* includes the title, description, number of likes, dislikes, and comments for each idea. (b) The *tree* groups ideas from the same theme and is divided into branches that correspond to sub-themes. The size of a branch corresponds to the number of ideas and reactions. Each leaf corresponds to a single idea. (c) Each large *bubble* groups the ideas pertaining to a single theme. The inner bubbles correspond to sub-themes. The size of the bubbles varies according to the number of ideas. The ideas are represented by dots which size corresponds to the number of reactions for this idea. (d) On the garland, each *light bulb* groups the ideas of a single theme. The size of the light bulb corresponds to the number of ideas and reactions for that theme.

[6] https://www.citizenlab.co/blog/civic-tech/4-reasons-why-digital-participation-is-easier-than-you-think-2/

3.2 Qualitative Data Collection – Semi-Structured Interviews

In order to delve deeper into the findings of the questionnaire, semi-structured interviews were conducted. Interviewees were recruited through an open call on a voluntary basis. No incentive was given for participating. The interviews cover three parts in 40-60 minutes. Each part deepens one section of the questionnaire. The first is a discussion on interviewees' motivations for accepting to be interviewed, their general opinion and previous experience with DPP, and their motivators and deterrents for browsing ideas on these platforms, after asking the same socio-demographic information as in the questionnaire. The second part delves deeper into the results of the AttrakDiff evaluation, which revealed that the weakness of the idea browsing list lies in its lack of stimulation hedonic quality (see Section 4.2). Interviewees are presented with seven cards showing different representations of a set of ideas. These include the four presented in the questionnaire (i.e., the list, the tree, the bubbles, and the light bulbs) as well as three additional ones suggested by the questionnaire respondents. The vases and the balloons (Fig. 2 (a) and (b)) are direct variations of the light bulbs suggesting to add shape variations. The mindmap (Fig. 2 (c)) has a branch structure representing the hierarchy of themes and subthemes. Apart from the list, six representations of ideas are thus proposed to interviewees. The tree, the bubbles, and the mindmap allow exploring the theme and subtheme hierarchy and constitute the hierarchical representations group. The light bulbs, the balloons, and the vases give information at the level of themes without supporting drill-down exploration, and are labeled as categorical representations. The representations are illustrated in the form of low-fidelity prototypes. Such prototypes have the advantage of being inexpensive to build [40], which makes it possible to evaluate many different alternatives. They are also well-suited for a requirements study, since they are not a final product and can therefore serve as a "communication medium [between users and developers] by which requirements can be articulated" [40].



(a) Balloons (b) Vases (c) Mindmap

Fig. 2: Representations of ideas added for the interviews. (a, b) Variations of the light bulb representation. Each theme is represented by a *balloon* or a *vase* of different shape which size varies according to the number of ideas. (c) On the *mindmap*, each node represents a theme which is further divided into subthemes. The thickness of the branches represents the number of ideas in the theme or subtheme they lead to. The leaves of the mindmap represent individual ideas.

After an explanation of the seven representations, interviewees are presented with three pairs of cards on which adjectives are written. Two of the pairs are those used in the shortened AttrakDiff questionnaire to measure stimulation hedonic quality (i.e., Unimaginative – Creative and Dull – Creative). The third one is "Least preferred – Most preferred" and measures general preference. Opposing adjectives are placed on opposed ends of a table and interviewees are asked to rank the seven representations by placing them on the table between the two adjective cards. In order to avoid biasing the ranks by forcing interviewees to choose, ex aequo rankings are permitted. In the third part, interviewees are asked to focus on their few most preferred representations and to imagine what would be their ideal idea browsing approach.

4 Results

4.1 Sample Description

In total, 38 valid completed questionnaires were collected. Regarding socio-demographics, 16 (42%) of the respondents are females. All age groups are represented and the mean age is 40 (approximated from the age intervals). 92% of the respondents hold a higher education degree and 82% are employed or self-employed, the others being unemployed (5%), retired (5%), or studying (8%). In the second phase of the research, 11 participants (3 females) were interviewed. Their average age is approximately 35. 10 are employed and 1 is retired. 10 hold a higher education degree. Their motivation for agreeing to take part in the interviews is that they find that DPP are a "good" and "healthy" initiative from local governments. They believe that it has potential to foster democratic processes, inform citizens, discuss ideas constructively, and help public servants to better understand citizens' needs.

Overall, the respondents and interviewees stated that they would be motivated to browse ideas on such platforms to (1) discover public opinion trends, (2) compare their opinion to others', and (3) consult others' ideas by location, topic of interest or simply out of curiosity. Their main reasons for not browsing ideas on a DPP are (1) the fear that the posted ideas would not effectively be taken into account, making it useless to browse them, (2) the local government being unable to process a high number of ideas, (3) the lack of transparency on the idea selection process, (4) the high number of ideas to browse, and (5) the low usability of the browsing interface.

4.2 Evaluation of the Current Idea Browsing Approach

The results of the evaluation of the idea browsing list show an average of 0.47 for hedonic quality, 1.05 for pragmatic quality, and 0.91 for attractiveness (Fig. 3). Following the official AttrakDiff interpretation guidelines, this indicates that the idea browsing list is "task-oriented." It performs satisfactorily on the attractiveness and pragmatic aspects, although scores around 1 suggest that there are

areas of improvement. On the other hand, it is not the case for hedonic quality. Although the Tacky – Stylish score is satisfactory, the Cheap – Premium aspect receives a score of 0.4. The scores are even lower for the stimulation-related aspects. Indeed, the Unimaginative – Creative and Dull – Captivating aspects received an average of 0.3 and 0.1, respectively. This shows that the main issue with the idea browsing approach currently implemented on DPP is its lack of stimulation quality.

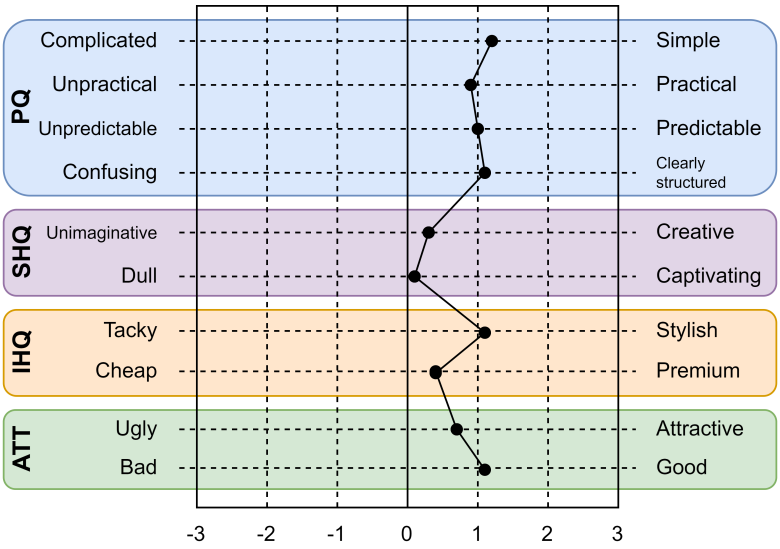


Fig. 3: Average score for each pair of the shortened AttrakDiff questionnaire (**PQ** = Pragmatic Quality, **SHQ** = Stimulation Hedonic Quality, **IHQ** = Identity Hedonic Quality, and **ATT** = ATTractiveness).

In the ranking activity, interviewees were asked to assign a rank from 1 (corresponding to the worst) to 7 to each representation, which in turn received a score equivalent to the rank. When several representations were assigned the same rank, they were each given the same score, corresponding to the average of the positions they would be assigned if there was no equality in the ranks. For example, if the lowest rank is given to three representations, they are each given a score of $(1+2+3)/3 = 2$. Fig. 4 shows the scores derived from the ranks assigned by the eleven interviewees (I1–I11) for the Unimaginative – Creative pair. Nine interviewees ranked the list as the least creative. They explained that lists are very commonplace and that the list is as such the least original representation. The scores given to the list for the Dull – Captivating pair (Fig. 5) are by far the lowest among other representations. Only one interviewee ranked the list higher than second to last. Interviewees explained that a list is "boring" and "painful to browse."

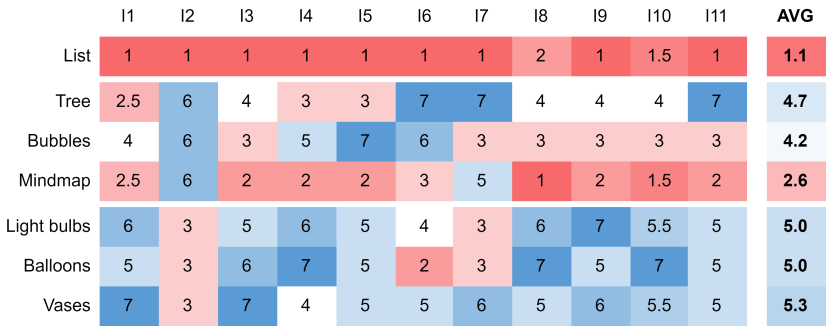


Fig. 4: Scores derived from the ranks assigned by each interviewee for the **Unimaginative – Creative** pair.

The low ranks given to the list representation were nonetheless nuanced by several interviewees. They noted that although the list was overall the least creative and captivating representation, it was still an efficient approach to browse ideas in details and that it should be provided on a DPP. This is in line with the satisfactory scores observed in the questionnaire for the pragmatic quality.

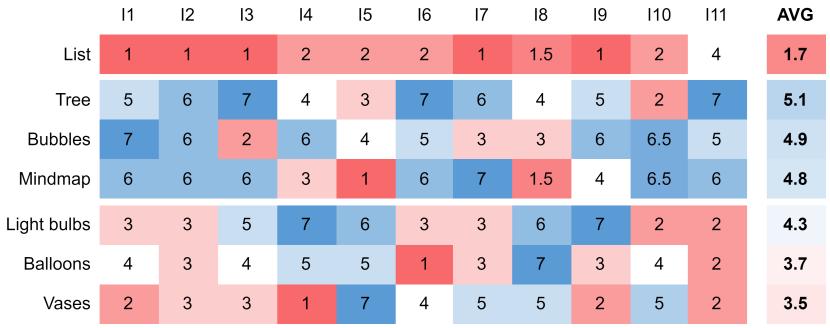


Fig. 5: Scores derived from the ranks assigned by each interviewee for the **Dull – Captivating** pair.

4.3 Toward a More Stimulating Idea Browsing Approach

The six alternative representations outperform the list on the Unimaginative – Creative, Dull – Captivating, and general preference (Fig. 6) rankings. However, the question of which representation performs the best among these is more divisive. The image association part of the questionnaire revealed that the bubbles view was preferred by 14 respondents, the list by 11, the tree by 8, and the light

bulbs by 2. The 3 remaining respondents suggested the three other representations that were added for the interviews. This illustrates the diversity of possible representations, among which no clear preference stands out. The analysis of the interview rankings also shows a large variance in the ratings.

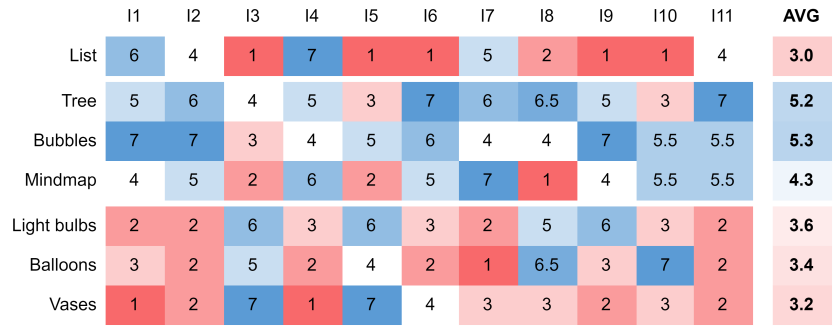


Fig. 6: Scores derived from the ranks assigned by each interviewee for the **general preference**.

Overall, the hierarchical representations were found less creative but more captivating than the categorical representations. The general preference ranking favors hierarchical representations as well. Although the interviewees reported that they based their preference on several criteria (e.g., practicality, originality), the data suggests that the captivating character is a more important factor than the creativity. Indeed, the scores of the Dull – Captivating ranking are twice more strongly correlated ($r = 0.63$) with general preference scores than those of the Unimaginative – Creative ranking ($r = 0.31$). However, sample size does not allow for a significance analysis of the correlation.

Two representations stand out from the general preference ranking, namely the tree and the bubbles. Interviewees explained that the hierarchical nature of these representations makes them want to explore the deeper levels. Some interviewees explained their preference for the tree metaphor by stating that it is "cool" (2 interviewees) and allows progressing from general themes to specific ideas intuitively (3). The bubbles representation was found eye-catching (3) and has the advantage of changing more dynamically while the shape of the tree would change more slowly (1).

When describing their ideal browsing approach, 4 interviewees centered their idea around the bubbles and 4 others chose the tree, showing divided opinions in line with the image association part of the questionnaire. 2 others expressed a particular attraction toward the vases and 1 toward the balloon. The interviewees who preferred the bubbles or the tree nonetheless explained that another representation should provide more detailed information on a subset of ideas selected after exploring the tree or the bubbles. They all found that the list was well-suited for this purpose, although three interviewees also mentioned the

mindmap as an alternative. Thus, although the interviewees did not converge toward a specific idea browsing solution, the majority of them recommend an idea browsing approach that supports the Information Seeking Mantra [44]. The solution they envision shows a stimulating representation – the tree and the bubbles were suggested the most frequently – giving the global picture (**overview**) as entry point. Then, users should be able to identify a subset of ideas by interacting with this representation (**zoom and filter**). Finally, the selected ideas should be displayed as a list to give detailed information (**details-on-demand**).

5 Discussion

5.1 Implications for Research and Practice

The findings presented in this article have direct implications for researchers and practitioners, and in particular for designers of DPP. Regarding Research Gap 1, the results from the AttrakDiff evaluation show that the most commonly implemented approach is not satisfactory in terms of stimulation quality. As for Research Gap 2, all the interviewees suggested an idea browsing approach that differs from the one provided on DPP. Their suggestions did not converge toward a specific solution but highlight a general architecture involving a stimulating representation such as a tree or bubbles as entry point with a list allowing in-depth exploration of a selected subset of ideas. This architecture can serve as basis for designers willing to improve idea browsing on their DPP.

In addition to answering the two research gaps, the interviews hinted motivators and deterrents for browsing ideas on DPP, such as the lack of confidence in the truthfulness of the local government and the perception that the posted ideas could not be processed due to a lack of resources on the local government's end. This extends previous literature [37] with insights specific to DPP, although further research is needed to produce a more complete picture. Furthermore, the findings reported in this article can serve as inspiration for researchers studying similar platforms implemented in different contexts. One example is the digital suggestion box [41]. Lastly, the ranking activity from the interviews was met with a lot of enthusiasm. The mix of a quantitative question and think-aloud for qualitative explanation worked especially well. Interviewees reported that it was playful, encouraged them to be more diligent in the ranking, made the question more "tangible," and made the interview feel less lengthy since it added diversity in its conduct. Based on this positive feedback, we recommend researchers to incorporate similar activities when possible in their data collection instruments.

5.2 Limitations

The research presented in this article has several limitations. The first is the sample size of 38 respondents of the questionnaire. While it gives interesting general tendencies, it is too low to provide any statistically generalizable results. The second relates to the representativeness of the sample. More than 90% of

the questionnaire respondents and of the interviewees hold a higher education degree. This indicates that the most educated part of the population is much overrepresented. This is most probably due to the distribution strategy of the questionnaire, which relied exclusively on digital channels including professional social media. The third limitation stems from the illustration of the visual representations used in the questionnaire and the interviews. The representations could have been illustrated in other manners and with different levels of details, which could have impacted the findings. The fourth limitation is that the results could not successfully converge toward a specific idea browsing solution, but rather hinted a general architecture, which reduces the impact of the findings for practitioners. Nonetheless, this general architecture can serve as starting point for a design generation process, such as a design studio [27], able to deliver a solution stemming from a shared vision. The fifth limitation is the focus on stimulation hedonic quality. It is motivated by the results from the questionnaire that show that stimulation is the lowest rated quality, and therefore the most in need for improvement. However, while more stimulating representations were identified, their other qualities (e.g., pragmatic quality) will also have to be assessed when refining the general architecture into specific designs.

5.3 Future Work

Many respondents reported that they had never heard of DPP before, although the largest cities of their region have implemented them recently. This is a very common issue with citizen participation initiatives: they usually attract few new participants and struggle to engage citizens beyond the "usual suspects," which causes representativeness issues. Previous literature on information seeking provides an interesting explanation to this phenomenon. It highlights that individuals can seek information in different ways [32]. The large majority of citizen participation methods, including DPP, only support active encounters with information, meaning that individuals have to make a step forward to encounter the information (i.e., browse ideas on a DPP). Another mode of information seeking consists in serendipitous encounters with information, and has therefore a much greater potential to attract new participating citizens. One way of implementing this mode of information seeking in the context of DPP would be to show a visual representation of the ideas on a public display, which would be deployed in the public space and accessible for browsing to any passerby [51]. Public displays have already showed success in implementing citizen participation initiatives [8] and proved their potential to attract much more citizens than traditional approaches [16]. It would be valuable to research whether showing a representation of the ideas from a DPP in the public space would help to increase the awareness of the platform and in turn attract more lurking and contributing participants, and what would be the impact on the representativeness.

Contributors on DPP should be representative of the population since their input is expected to influence decisions that will affect the whole population. The numbers discussed in Section 2 show a very low proportion of contributors among DPP users, let alone among the citizenry, which poses representativity

issues. It is therefore essential to research how lurkers can be encouraged to become contributors. Several leads have been proposed to encourage lurkers to contribute in their online community [37, 5, 26, 47]. Overall, three directions emerge when aggregating these recommendations, along with the cross-cutting concern of ensuring good usability. First, mentoring from elder active participants. Second, implementing mechanisms that echo gamification such as rewards, ranks, and cooperation. Third, offering content browsing mechanisms prompting new contributions. Regarding the latter, it would be valuable to investigate whether implementing an idea browsing approach following the general architecture suggested in this article would actually result in a higher number of contributions. The integration of nudges into representations of ideas would also be interesting to study, as previous research showed that nudges can increase contributions on user-generated content platforms [52].

6 Conclusion

Digital participation platforms (DPP) are online websites put in place by local governments. They are a call for citizens to post and react to ideas of improvement for their city. An important part of the interaction with DPP is to browse the posted ideas. This is necessary for citizens willing to contribute reactions or ideas of their own, but also for those willing to get acquainted with the posted content without contributing. This latter group represents the large majority of users and is referred to as lurkers. However, the idea browsing approaches implemented in current DPP are limited, the most common one being a list filterable by theme. To the best of the authors' knowledge, previous literature has not investigated whether this approach satisfactorily supports idea browsing, and has not studied the requirements for idea browsing on DPP.

In this article, the idea browsing list of a representative DPP was evaluated using the AttrakDiff questionnaire. Results showed improvable but satisfactory pragmatic quality and attractiveness, and insufficient stimulation hedonic quality. Then, interviews were conducted to gain qualitative insights into the questionnaire results and collect requirements for the design of a more stimulating idea browsing approach. While the interviews did not converge toward a specific design, they confirmed that the current idea browsing approach is not satisfactory, and that idea browsing should instead be implemented using a stimulating interactive representation such as circle packing or thematic trees as entry point combined with a list for further exploration. This article makes a step forward in the understanding of the requirements for idea browsing on DPP. It also proposes to investigate in future research how visual representations of ideas could make the content posted on DPP more representative of the population.

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