A conjoint experiment of how design features affect evaluations of participatory platforms

Henrik Serup Christensen
Samforsk, Department of Political Science
Åbo Akademi University
Henrik.christensen@abo.fi

Date: 21.05.2019

Abstract:

Online participatory platforms are introduced to boost citizen involvement in political decision-making. However, the design features of these platforms vary considerably, and these are likely to affect how prospective users evaluate the usefulness of these platforms. Previous studies explored how prevalent different design features are and how they affect the success of platforms in terms of impact, but the attitudes of prospective users remain unclear. Since these evaluations affect the prospects for launching successful participatory platforms, it is imperative to assess what citizens want from such digital possibilities for participation. This study uses a conjoint experiment (n=1048) conducted in Finland that explore the impact of seven design features: Discussion possibilities; Interaction with politicians and experts; Information availability, Aim of participation; Identity verification; Anonymous participation and Accessibility. Furthermore, it is examined whether the effects differ across use of ICTs measured by generation, time online and prior use of participatory platforms. The results suggest that most design features have clear effects on evaluations, and that deliberative features have the strongest effects. Furthermore, the effects are relatively stable across prior use although the less experienced put a stronger emphasis on verification.

Key words: e-democracy; participatory platforms; online deliberation; design features; conjoint analysis

1 Introduction

Early proponents of "teledemocracy" envisioned that information and communication technologies (ICTs) could facilitate democratic participation (Dutton, 1992). Eminent political scientists such as Robert Dahl were also quick to imagine that the technological advances would transform the functioning of democracy by creating virtual agoras where citizens could take part in political decision-making (Dahl, 1989). Although early visions of e-democracy today appear to have exaggerated the transformative power of ICTs, there is little doubt that ICTs will play a prominent role in adapting democracy to confront current challenges (Coleman & Shane, 2012; Neblo et al., 2018).

Online participatory platforms is one innovative way to use ICTs to let citizens provide input into political decision-making (Esau et al., 2017). Such platforms exist at different levels of government in countries all over the world, but their aims and scope vary considerably (United Nations, 2018). A great deal of scholarship is devoted to exploring aims and consequences of participatory platforms (Åström & Grönlund, 2012; Esau et al., 2017; Kitsing, 2011; Manoharan & Holzer, 2012; Tambouris & Gorilas, 2003). Part of this research has explicitly examined failures (Anthopoulos et al., 2016; Choi & Chandler, 2020; Elkadi, 2013; Toots, 2019), clearly showing that the platforms frequently fail to meet the expectations.

One reason may be that the perspective of citizens is frequently neglected. It is difficult to ask prospective users directly since they often do not have clear ideas of what they want, which leads to unreliable answers (Zaller, 1992). Research on website design therefore frequently eschew user evaluations and instead rely on measures such as eye tracking of usage to evaluate design features (Nielsen & Pernice, 2010). Nevertheless, this inattention may contribute to the failure of participatory platforms because the attitudes of citizens towards them have important implications for whether they are able to mobilize citizens, which is important from a democratic perspective (Christensen, 2020).

This study therefore investigates how different design features of participatory platforms affect citizens' evaluations of these platforms. This is done with a conjoint experiment that makes it possible to avoid asking people directly about their preferences.

2 Participatory platforms and democratic ideals

This section first defines some central concepts before moving on to outlining potential differences in what democratic ideals participatory platforms may adhere to and explain how this affects what possibilities they offer prospective users.

Participatory platform here refers to online websites or apps provided by authorities to give users the chance to provide input into political decision-making. That they are launched by government authorities entails that they have an official status and form part of the formal political system. This distinguishes them from grassroot websites that also aim to mobilize citizens, but without the authoritative clout that the participatory platforms under scrutiny here.

That these platforms are directly linked to formal political system makes it possible for users to obtain information of and provide input into the political decision-making. This separates them from governmental websites that only provide official information. More importantly, it also separates participatory platforms from service platforms where users obtain information on services online and/or interact directly with the authorities online in a capacity of service receiver rather than citizen

(Anttiroiko et al., 2014). A distinction can be drawn between e-government and e-democracy, where the former concern the use of online public services (Choi & Chandler, 2020; Holden et al., 2003; Lim, 2010), while the latter refers to online efforts that aim to increase the involvement of citizens in political decision-making (Chadwick, 2003; Christensen, 2013; Päivärinta & Sæbø, 2006). Although both are of importance when considering the relationship between citizens and authorities, the individual in a citizen role is of primary importance from a democratic perspective (Chadwick, 2003).

All participatory platforms consist of a bundle of *design features*, i.e. different possibilities and demands that the users are faced with when using the platform (Åström & Grönlund, 2012; Esau et al., 2017; Fung, 2003; Steibel & Estevez, 2015). Examples of design features include whether a platform allows users to discuss a topic with other users or whether it is possible to ask questions from decision-makers. It may be difficult to decide exactly what to include in a platform. For a participatory platform to appeal to citizens, it is important that it incorporates features that enable users to perform the tasks they want to accomplish. However, jamming the platform with too many features makes it complicated to comprehend the possibilities exist and take advantage of them. The platform should therefore preferably not include unnecessary design features that are not demanded by users.

What design features are included determines how much it empowers citizens in influencing political decisions, and thereby also reveal what democratic ideal the platform adheres to. It is helpful to distinguish three democratic ideals that differ in their conceptualizations of the role of citizens in democracy (Christensen, 2013; Held, 2006; Päivärinta & Sæbø, 2006): The representative, the participatory and the deliberative democratic ideal.

According to *the representative ideal*, democracy is about citizens being able to select their leaders in free and fair elections. Accordingly, participatory platforms should help citizens keep track of their official representatives and thereby enable them to punish or reward them in regular elections. Hence, it becomes imperative to provide information on decision-making processes and the actions of representatives, but not necessarily to allow citizens to take an active role in the decision making. The *participatory democratic ideal* advocates a more active role for citizens as this helps ensure that their views are given due consideration during the decision-making (Pateman, 1970). Hence, participatory platforms that subscribe to this ideal should turn the information flow and allow citizens to provide input into the decision-making, for example by making it possible for users to ask questions, make recommendations, and even take final decisions to ensure that decisions correspond to the preferences of citizens (Chadwick, 2003). The *deliberative democratic ideal* also emphasizes citizen involvement, but to a larger extent than the two other ideals highlights the importance of developing and modifying preferences during participation to reach an enlightened understanding of the issues involved (Chambers, 2003; Fishkin, 2009). Compared to the unidirectional flows of information in the representative and participatory ideals, communication is here multidirectional and interactive (Chadwick, 2003: 449). Accordingly, participatory platforms should emphasize deliberation among citizens, possibly also including their representatives, to achieve a dialogue based on respect and mutual consideration between participants (Coleman & Shane, 2012; Dahlberg, 2001; Dahlgren, 2005).

An important question in connection to this is who will take advantage of the possibilities on offer? The possibilities offered by participatory platforms should ideally make political decision-making accessible to all. However, demands for specific features may vary systematically across subgroups, which means that including them can empower certain groups while excluding others, thereby creating a digital divide that exacerbate existing differences in participation (Norris, 2001).

For the present purposes, it is particularly important to determine whether people who are accustomed to using ICTs have entirely different preferences. Those who already use ICTs are likely to differ from the general population in key socio-demographic characteristics such as age, education and place of living (Dijk, 2005; DiMaggio & Garip, 2012; Warschauer, 2004). Because of their familiarity with ICTs, they are also likely to have specific preferences for what design features a participatory platform should incorporate. While these preferences may be said to be superior in the sense that they are based on actual experience, constructing a new platform solely on such preferences may lead to insurmountable obstacles for less experienced users to take full advantage of the possibilities offered. Consequently, rather than even out existing differences, participatory platforms may unwillingly create deeper digital divides. On the other hand, this risk would be negligible when preferences were even across prior use.

3 Research design

The study considers two broad hypotheses:

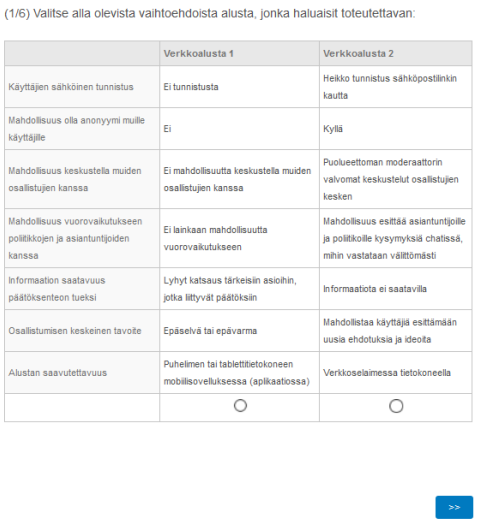
H1: Design features influence evaluations of participatory platforms.
H2: The effects of design features differ across prior use of ICTs.

3.1 A conjoint experiment of how design features affect evaluations of participatory platforms

The causal impact of seven central design features of participatory platforms is analyzed with the help of a conjoint experiment, which is a form of survey experiment that makes it possible to study the causal impact of several factors simultaneously (Hainmueller et al., 2014; Leeper et al., 2020). This method is valuable for the present research questions because it makes it possible to discern the impact of various design features on respondents' attitudes towards a specific participatory platform. Furthermore, it is possible to explore differences across sub-groups, such as depending on prior ICT use, to discern whether the effects are homogenous across the population (Abramson et al., 2019; Leeper et al., 2020).

In the choice-based conjoint design used here, respondents were first presented with an introduction that explain the aim of the study. Following this, they were six times shown two different hypothetical participatory platforms and asked to select the platform they prefer to see introduced in Finland. The hypothetical platforms were constructed by randomizing the values of the design features, thereby making it possible to determine the causal effect of these on the probability that a platform will be preferred. Figure 1 shows a screenshot of how the conjoint appeared in Qualtrics, which was used for collecting data.

Figure 1 Screenshot from Qualtrics



(1/6) Valitse alla olevista vaihtoehdoista alusta, jonka haluaisit toteutettavan:

	Verkkoalusta 1	Verkkoalusta 2
Käyttäjien sähköinen tunnistus	Ei tunnistusta	Heikko tunnistus sähköpostilinkin kautta
Mahdollisuus olla anonyymi muille käyttäjille	Ei	Kyllä
Mahdollisuus keskustella muiden osallistujien kanssa	Ei mahdollisuutta keskustella muiden osallistujien kanssa	Puolueettoman moderaattorin valvomat keskustelut osallistujien kesken
Mahdollisuus vuorovaikutukseen politikkojen ja asiantuntijoiden kanssa	Ei lainkaan mahdollisuutta vuorovaikutukseen	Mahdollisuus esittää asiantuntijoille ja politikoille kysymyksiä chatissä, mihin vastataan välittömästi
Informaation saatavuus päätöksenteon tueksi	Lyhyt katsaus tärkeisiin asioihin, jotka liittyvät päätöksiin	Informaatiota ei saatavilla
Osallistumisen keskeinen tavoite	Epäselvä tai epävarma	Mahdollistaa käyttäjiä esittämään uusia ehdotuksia ja ideoita
Alustan saavutettavuus	Puhelimen tai tablettitietokoneen mobiilisovelluksessa (aplikaatiossa)	Verkkoselaimessa tietokoneella
	○	○

>>

In the following, I explain what features are included and how these may affect evaluations. The first four design features concerns various features that empower citizens and are closely related to the democratic ideals outlined above. The latter three concerns the user experience and are of a more practical nature to make the scenarios more realistic, although they also have consequences for how closely the platforms realize either of the democratic ideals.

The first design feature concerns the possibility for *discussions*, which is often considered one of the key advantages of participatory platforms (Bravo et al., 2019; Esau et al., 2020; Tambouris & Gorilas, 2003). This feature is clearly in line with the deliberative conceptualization of democracy, according to which citizens ought to develop their preferences through dialogue and rational assessment of their prior beliefs. However, this may require that a facilitator or moderator ensures that discussions are conducted in a civilized manner (Coleman & Moss, 2012; Landwehr, 2014). While moderation improves the quality of discussions (Strandberg et al., 2017), online moderation is sensitive on government platforms due to fears that it leads to censorship (Wright, 2006). Hence, even when people realize that moderation can increase the quality of discussions, it cannot be taken for granted that they prefer this over unmoderated discussions.

Interaction with decision makers is another important design feature with clear implications for democracy. Most platforms involve some form of interaction, if only in the sense of being able to submit questions to decision-makers (Christensen, 2013). An important difference is whether interaction occurs in real-time or is asynchronous, giving participants the time to contemplate the issues involved before asking further questions or adding comments(Coleman & Moss, 2012, p. 8). Asynchronous interaction may increase the quality of deliberation on platforms (Esau et al., 2017). But the type of interaction is also important given that people are more likely to engage in reading text than writing it (Rhee & Kim, 2009).

Availability of information is also included as a design feature because dissemination of information is considered one of the key advantages of ICTs (Coleman & Blumler, 2009, p. 8). Disclosure of information helps empower citizens and hold officials responsible for any mismanagement of public resources (Kosack & Fung, 2014, p. 66). Nevertheless, the provision of information can range from short digested summaries to large-scale access to all information. Openness and transparency are

generally considered prerequisites for a well-functioning democratic process (Bertot et al., 2010). However, citizens may prefer small pieces of information that make it possible to gain a quick overview over the proceedings.

Another design feature in the conjoint involves the *role of the platform in political decision-making* (Åström & Grönlund, 2012). This concerns how much influence citizens are afforded when using participatory platforms. Participatory platforms can play different roles in the decision-making process, and this has consequences for the degree of policy influence (Åström & Grönlund, 2012). Some platforms make it possible for citizens to provide general suggestions to decision makers, whereas others allow them to make decisions. It remains unclear what role citizens prefer for online platforms since some studies show that it cannot be taken for granted that they favor stronger decision-making competences (Christensen, 2020).

The *type of verification* has consequences for how difficult it is for users to take part, but also affect the legitimacy of the platform. Public websites often demand some form of identity verification, especially when allowing participants to provide input into formal political decision-making processes (Ma & Agarwal, 2007; Mir et al., 2020; Mordini & Green, 2009). The verification process can involve weak verification (for example sending a link to an email address that participants must click to verify their identity) or strong verification (use of official documents to verify identity). The dilemma here is that the authorities' demand for identity verification must be combined with the individual's right to privacy. It is important to verify that users have the right to contribute from an administrative perspective, but the right to privacy is also important, especially since it is imperative to ensure adequate protection of digital private data (Boehme-Neßler, 2016). Worries over security breaches may entail that people are reluctant to give authorities access to sensitive information needed for strong identity verification.

Related to this, *anonymity* has been a debated topic for online participation (Asenbaum, 2018; Moore et al., 2020; Nissenbaum, 1999).[1] While the right of anonymity is considered an intrinsic democratic right when it comes to voting, the situation is very different when it comes to online participation, where it has been debated whether people should be allowed to participate anonymously on public platforms and especially on various media sites, where anonymity can create an environment hostile to a sound democratic discussion (Cho & Kwon, 2015). However, while making people identifiable can increase deliberative quality it can also decrease engagement because people become less eager to contribute (Rhee & Kim, 2009).

The final design feature investigates the impact of *accessibility* by varying whether the platform is available through a computer browser or in an application developed for these purposes by the authorities or on their behalf (Desouza & Bhagwatwar, 2012; Jäske & Ertiö, 2019). Applications provide additional possibilities in a user environment developed for specific purposes, and may even help realize central democratic ideals (Jäske & Ertiö, 2019). Nevertheless, it can from a user perspective be easier to access a participatory platform through a web browser that is readily available on any device, do not require installation, and do not pose additional risks of privacy breaches. From a design perspective, it is therefore important to understand how this aspect affects evaluations.

[1] Anonymity here concerns whether users reveal their identity to other users rather than the authorities behind the platform and is therefore distinct from the verification design feature.

Table 1 shows the design features and the possible values included in the conjoint.

Table 1. Design features and values

Design feature	Description	Value (R=reference category)
Discussions	Possibilities for discussions among participants	1. No discussions (R) 2. Unmoderated discussions between participants 3. Discussions between participants supervised by a neutral moderator
Interaction	Possibilities for interaction with politicians and experts	1. No interaction (R) 2. Submit questions to experts and politicians that are answered after a few days 3. Chat questions to experts and politicians that are answered immediately 4. Ask questions to experts and politicians in occasional live meetings with webcams
Information	Availability of information	1. No information is available (R) 2. Access to all official documents in connection to decisions 3. Short overview of important issues in connection to decisions
Decision-making role	The main goal of participation	1. Undefined (R) 2. Come up with new suggestions and ideas 3. Discuss existing suggestions and ideas 4. Decide on final policies
Verification	Verification of the identifies of participants	1. No verification (R) 2. Weak verification by sending email link 3. Strong verification with bank codes or personal id
Anonymity	Possibility to participate anonymously	1. Not possible (R) 2. Possible
Accessibility	Possibilities for accessing platform	1. Via Internet browser on computer (R) 2. In an application for phones and tablets

3.2 Data, variables, and methods of analysis

The data come from a survey distributed via Qualtrics (n=1048) collected during 13 November-11 December 2019, which was filled in by a sample of respondents representative of the Finnish population when it comes to age, gender, and region of living.[2]

Finland provides an interesting case for the present purposes as the Finnish state has a relatively long history of providing possibilities for online participation on official platforms.[3] The Finnish population may therefore be argued to be experienced in using ICTs for political purposes and therefore better able to determine what features they demand.

While the survey includes 1048 respondents, the unit of analysis is the profiles evaluated, meaning the total number of units of analysis is the number of respondents (1048) times the number of profiles in each comparison (2) times the number of comparisons each respondent makes (6) =12576 units of analysis.

The dependent variable is a dichotomous variable indicating whether a profile is chosen (1) or not (0) in each comparison.

The central independent variables are the design features, or attributes in conjoint terminology. These are measured as categorial variables indicating the values, or attribute levels, shown in each profile.

[2] The use of an online panel for data collection mean that it is impossible to reach people who completely refrain from using the Internet. However, this problems is negligible considering that the use of the Internet is widespread in Finland, where 93.5% of the population were Internet users in 2015 (https://www.internetworldstats.com/eu/fi.htm).
[3] An overview in English of the current possibilities can be found at http://www.demokratia.fi/en/home/.

The variables are categorical variables represented by dummy variables for each attribute level, which makes it necessary to designate a reference category as indicated in Table 1. In most cases, the reference category is the level that indicates absence of a feature, which means that the estimates can be understood as the effect of introducing a feature on the favorability of a platform.[4]

The randomization of conjoint attributes ensures that the effects are independent of respondent characteristics, meaning that it is unnecessary to include control variables. However, it is important to verify establish whether the effects are similar across subgroups because certain attributes may have stronger or weaker impacts depending on this (Abramson et al., 2019; Leeper et al., 2020). This is closely related to the second aim here, which is to explore differences across prior use of ICTs. Three respondent characteristics are used to examine differences across prior use of ICTs to gauge a possible digital divide: Generation, time online and experience with using participatory platforms.

Generations is included since older generations are considered to be less willing or able to adopt new technology, whereas younger generation are digital natives who grew up with ICTs and therefore take the possibilities for granted (Bailey & Ngwenyama, 2010; Howe & Strauss, 2009). It is therefore likely that the effects of design features will differ across generations as the young have different expectations. Respondents are grouped by age into four categories that follows common generational distinctions: *Generation Z*: 18-24 years (n=166 respondents /1992 units of analysis), *Millennials* 25-39 years (288/3456), *Generation X*: 40-54 years (309/3708), and *Boomers*: 55-75 (285/3420).[5]

It is also to be expected that effects differ depending on *time online* as high-end users are likely to have different preferences compared to those who never or only rarely use the Internet. To gauge this aspect respondents were asked how much time they are online on an average day (*On an average day, how much time do you spend using the Internet?*) with five answer categories:[6] 'Less than 30 minutes a day' (n=12), '30-60 minutes'(n=125), '1-2 hours' (n=259), '2-3 hours' (n=290) and 'More than three hours a day' (n=357). Few respondents indicated a low daily time online, and this variable was therefore recoded into three categories: Low online time (less than 2 hours), Intermediate online time (2-3 hours) and High online time (more than three hours).

Prior use of participatory platforms may also matter as those who are used to using these will have entirely differences needs and expectations than those who are novices. Here respondents were asked about their prior use of a selection of government platforms available to citizens in Finland.[7] For each of them, respondents had four answer possibilities: 'Never heard of', 'Heard of but never used', 'Used once or rarely', 'Use regularly'. The answers to all were combined into a composite index of prior use that ranged between 0-24 (mean=8.24, SD=4.40, Alpha=0.81).[8] This index as subsequently recoded into three categories of roughly equal sizes, where 0-6=Low use (n=379), 7-9=Intermediate use (n=322), and 10-24=High use (n=347).

---

[4] For accessibility there are only two categories, meaning the effect simply indicates the difference between the platform being accessible via web browser or in an application.

[5] I tested an alternative classification of age that did not follow generational patterns, but instead divided respondents into four groups of approximately equal sizes (30 or less, 31-42, 43-55, 56-75) and this led to similar substantial results.

[6] Another question asked how often respondents used the Internet (Several times a day, once a day, less often than once a day), but the variation here was limited (0.76% used less than once a day and 93% several times a day) so this was not used.

[7] The platforms included were: www.kansalaisaloite.fi, www.kuntalaisaloite.fi, www.demokratia.fi, www.nuortenideat.fi, www.otakantaa.fi, www.lasunto.fi, www.vaalit.fi, and the municipal homepage of the respondent. While some of these cater to special needs, most are general platforms available to all citizens in Finland.

[8] An exploratory factor analysis indicated that the underlying structure was one-dimensional (eigenvalue factor 1=2.99, factor 2=0.72), which indicates that users do generally not specialize in certain types of platforms.

To assess the impact of the attributes on platform favorability, I regress the candidate choice on all attribute levels using OLS regression with clustered standard errors to account for the fact that candidate choices are nested within respondents (Hainmueller et al., 2014). The coefficients obtained can be interpreted as Average Marginal Component Effect (AMCE), which describes how much the probability of choosing a platform would change on average if one of the platform's attributes were switched from the reference category to the particular attribute level (Hainmueller et al., 2014).

The AMCEs are population averages, which as mentioned entails that there may be important differences across subgroups (Leeper et al., 2020). To inspect whether there are differences in effects depending on the prior use of ICTs, interaction terms between the attributes and the relevant groups are included to discern whether the causal effect of an attribute depends on another attribute or characteristic of the respondents (Hainmueller et al., 2014). This average component interaction effect (ACIE) shows effect sizes for the different groups. To establish the substantial relevance of interaction effects, it is insufficient to rely on tests of significance (Kam & Franzese, 2009, pp. 43–44). The practical implications are therefore also ascertained by seeing whether the effects have similar magnitudes and directions for different values of the moderator.

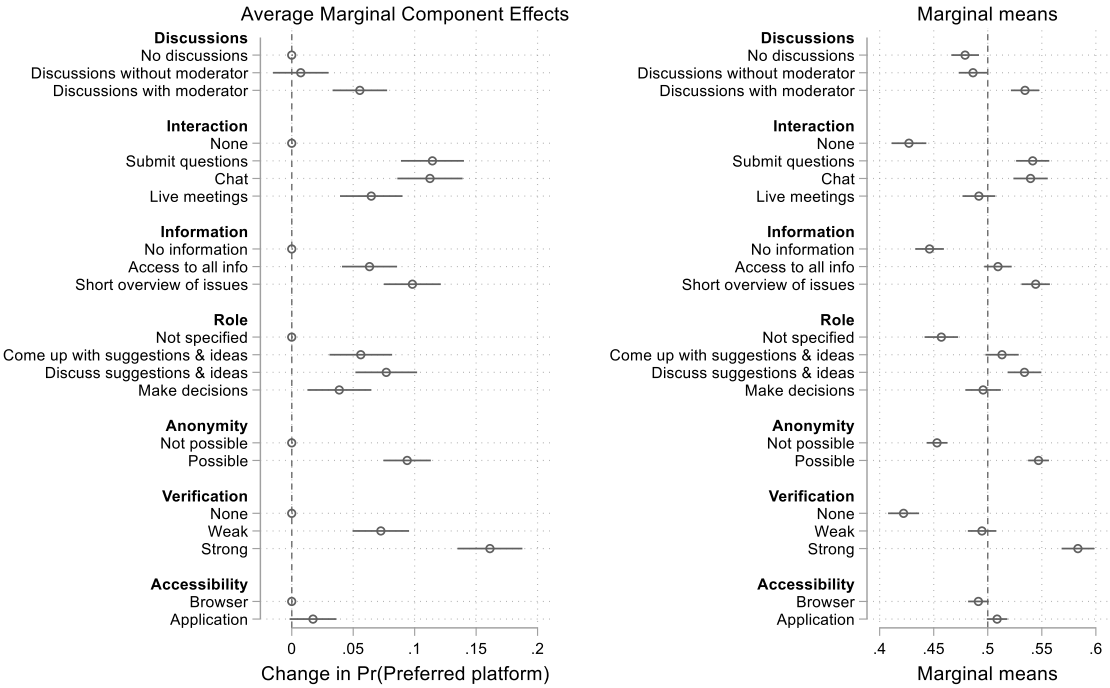
A final measure of interest is the marginal mean, which describes the level of favorability toward platforms with a particular feature level when ignoring all other features (Leeper et al., 2020). The AMCE and ACIE depend on what reference category is used, which may at times be somewhat arbitrary and can lead to misleading interpretations when assessing differences across subgroups. It is therefore important to complement these with marginal means that are independent of the reference category chosen.

As recommended by Hainmueller et al (2014), all results are reported in coefficient plots, where estimates are indicated by dots and 95% confidence intervals show the uncertainty around this point estimate. For ACMEs and ACIEs, there is a vertical line at 0. Point estimates to the right of this line indicate a positive ACME/ACIE and estimates to the left indicates a negative ACME/ACIE. If the confidence intervals cross the line, it cannot be ruled out that the true estimate is zero. For the marginal means, the vertical line is at 0.5, and when the intervals crosses this line, it means it cannot be ascertained that platforms incorporating this design feature are selected with a probability that deviates from the overall mean of 0.5. The full regression results are included in the appendix.

4 Empirical analysis

The first step in the analysis concerns the direct effects of the attributes on favorability. Figure 2 shows AMCEs and marginal means to address this issue.

Figure 2. Effects on total population



For possibilities for discussions, moderated discussions have a positive effect on favorability compared to no possibilities for discussions (AMCE=0.055, p=0.000), which entails that the marginal mean moves from an average probability of being picked of 0.48 when no discussions are included to 0.53 when moderated discussions form part of a platform. The corresponding effect of discussions without moderation is not significant (AMCE=0.01, p=0.525).

All types of interaction with policy makers have positive effects, whether it is in the form of the possibility to submit questions (AMCE=0.114, p=0.000), chatting (AMCE =0.112, p=0.000) or live via web cams (AMCE =0.064, p=0.000). However, only submitting questions and chatting have marginal means above 0.5 (both about 0.54), meaning platforms including these have an above average favorability among respondents when ignoring other features.

For access to information, there are also positive effects of availability compared to no information, be it all available information (AMCE =0.063, P=0.000) or a digested version which only contains an overview (AMCE =0.098, P=0.000) However, it is only the latter digested version that respondents are more likely to select (mean=0.54).

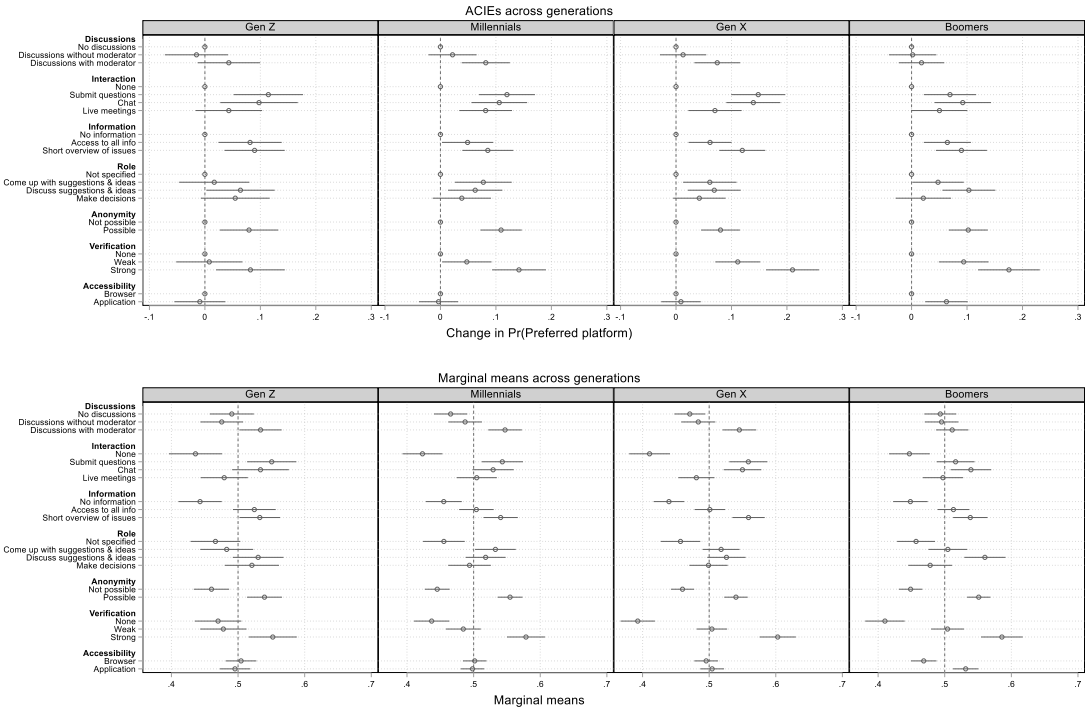
Respondents also prefer a specific role in decision-making, effects of being able to come up with suggestions (AMCE =0.065, p=0.000), discuss existing suggestions (B=0.077, p=0.000) and taking decisions (AMCE =0.039, p=0.004). But the marginal means again reveal important differences as only the advisory roles of coming up with new ideas (Mean=0.51) and discussing existing ideas (Mean=0.53) are preferred by a majority of respondents across other attributes.

Including the possibility to remain anonymous has a positive effect (AMCE =0.093, p=0.000), and such platforms a preferred by a majority (mean=0.55). For verification, both weak (B=0.07, p=0.000) and strong verification (AMCE =0.16, p=0.000) have positive effects on favorability compared to having no

verification system, but the marginal means show that only strong verification leads to an average level of favorability above 0.5 (mean=0.58). This attribute has the strongest effects of all, showing that verification is an important topic for prospective users. For accessibility on the other hand, it makes little difference whether the platform is delivered through an app or over an Internet browser (AMCE=0.02, p=0.075).

The following figures 3-5 show the results for H2 and differences across familiarity with the use of ICTs. Figure 3 shows differences in effects across generations.

Fig 3. ACIEs across generations

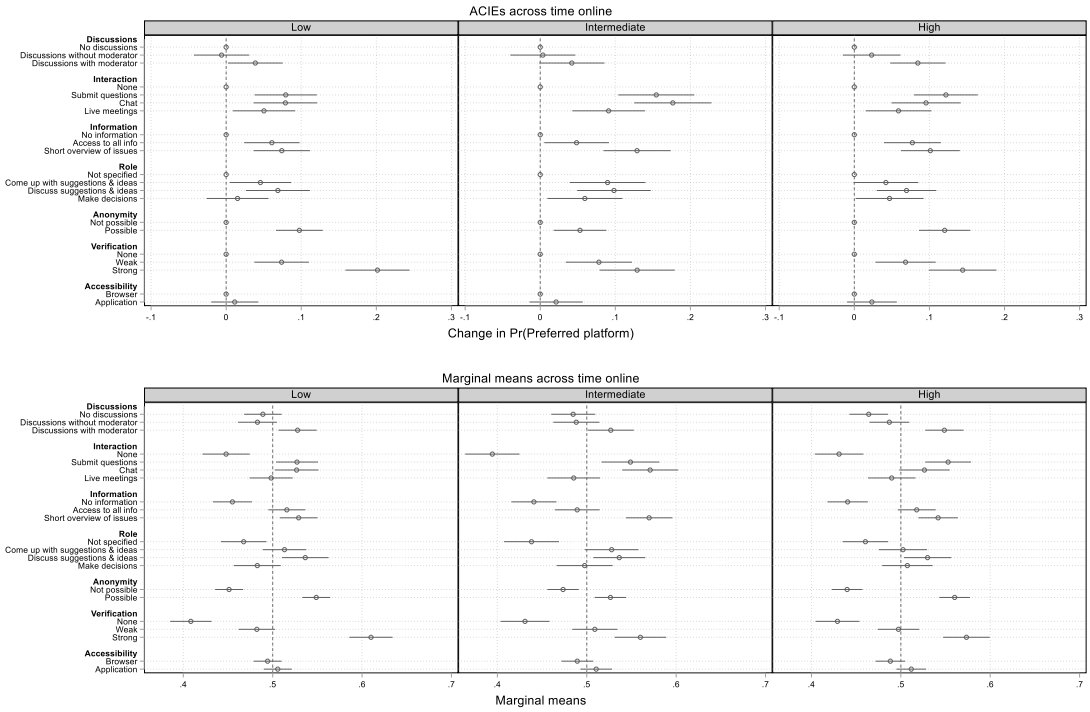


The main difference is for verification, where there are significant interaction effects for the effect of weak verification for Generation X (ACIE= 0.103, p=0.005) and Boomers (ACIE=0.086, p=0.005) and for strong verification also for Generation X (ACIE=0.128, p=0.001) and Boomers (ACIE=0.093, p=0.027). This entails that verification has stronger effects for the older generations, whereas they are weaker for Generation Z, and to some extent the Millennials.

There is also a significant interaction effect for accessibility where the effect differ for Boomers (ACIE=0.072, p=0.017), which entails that it has a stronger effect to allow access via an application rather than a computer browser for this generation.

Figure 4 shows the results depending on time spend online daily.

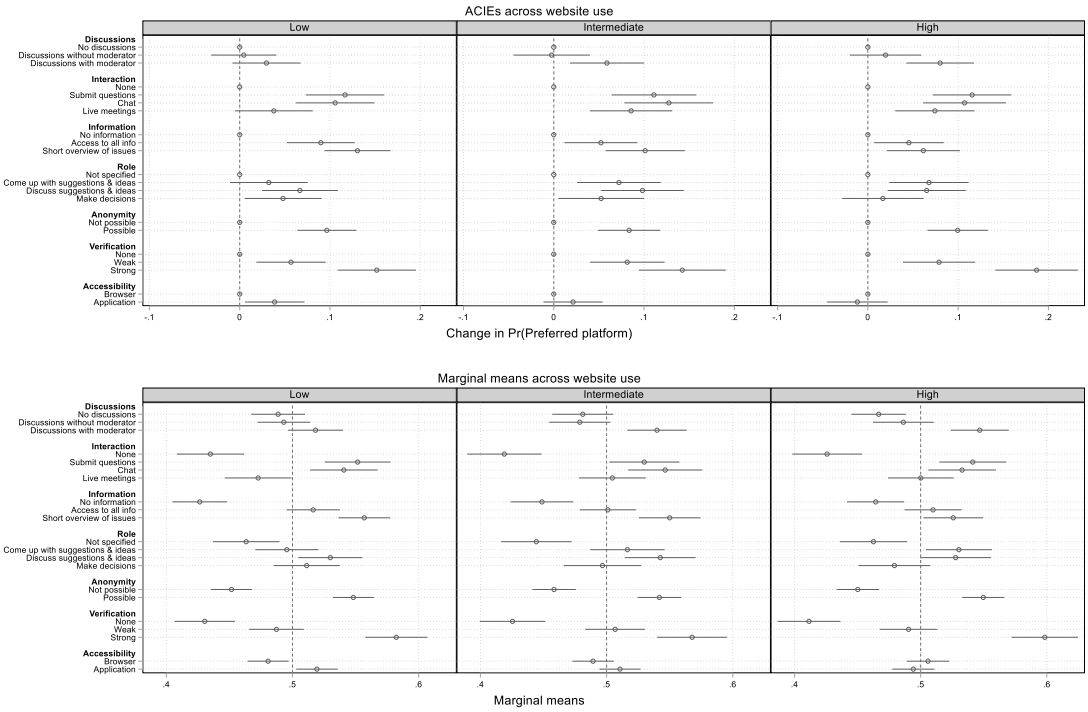
Fig 4. ACIEs across time online



For discussions, an interaction effect between discussions with moderation and being online more than 3 hours a day approaches significance (ACIE=0.039, p=0.082), but it is nonetheless noteworthy since it indicates that moderation is mainly demanded by those who are more online. Otherwise, it is often the intermediate group that stands out as several effects are or come close to close to being significant. For interactions with policy makers, the effects differ when it comes to submitting questions to (AICE=0.075, p=0.024) and chatting with decision makers (ACIE=0.098, p=0.004). However, the marginal means reveal that the stronger effects is mainly because platforms with no possibility for interaction are only picked 39.4% of the time among the intermediate users. For information, the interaction term for short overviews approaches significance in this group (ACIE=0.055, p=0.064), and this is also the case for allowing anonymity (ACIE=-0.045, p=0.062). However, the practical implications here appear to be limited. Finally, the effect of strong verification also differs among those with intermediate daily use (ACIE=-0.072, p=0.030), and it even comes close to doing so in the group high daily usage (ACIE=-0.057, p=0.070). The main implication of this is that the group with low daily usage are more likely to pick a platform with strong verification (mean=0.61 compared to 0.56 for intermediate and 0.57 for those with high usage).

Figure 5 shows differences across prior use of participatory platforms.

Figure 5. ACIEs across prior platform use

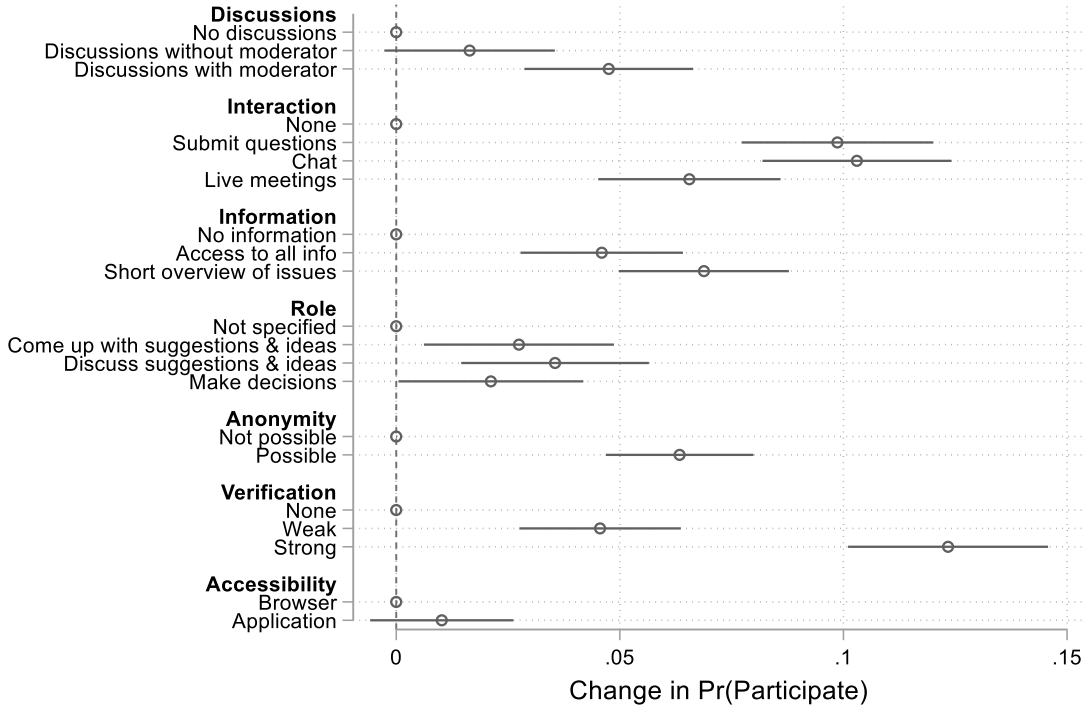


Here there are some indications that effects differ for the group most accustomed to using platforms. The interaction effect with moderated discussions approaches significance (ACIE=0.050, p=0.063), which indicates that this design feature is more appreciated in this group. A significant interaction term for short information overviews shows that this feature is less appreciated among avid users (ACIE=-0.069, p=0.013). Finally, a significant interaction effect for accessibility (ACIE=-0.050, p=0.035) entails that it is only among those with low prior involvement we find a preference for an application over accessing via the browser, whereas more accustomed users find it irrelevant.

4.1 Robustness and assumptions

Various factors may affect the validity of the results. It may be objected that favorability does not imply that the design features also affect the willingness to participate. A follow-up question was therefore asked each time a respondent had indicated which platform they favored, asking them whether they would also participate on the selected platform. Fig. 6 shows the ACMES for this question. The marginal means are not shown since the follow-up question is only asked for the profile picked in the first place, which distorts the interpretation of the means.

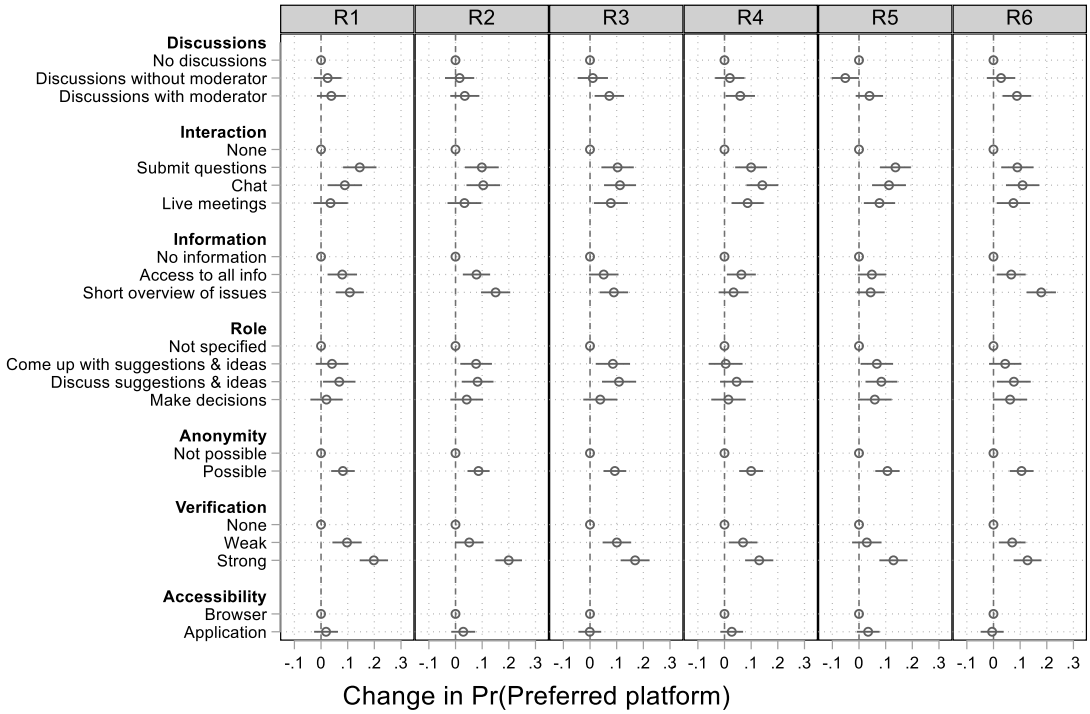
Fig 6. Effects on willingness to participate



The pattern resembles the one shown in figure 1, although the effects are weaker because selecting a platform in each comparison does not necessarily imply a willingness to also become active on this platform. Nevertheless, the results show that design features affect the willingness to participate in a similar manner.

It is also important to assess the robustness of the results across the conjoint design (Hainmueller et al., 2014). While randomization can ensure that most features do not affect the results, it is necessary to examine differences across round of comparison and left/right profile. Figure 7 shows differences across the six rounds of comparisons to see whether there are patterns in the effects.

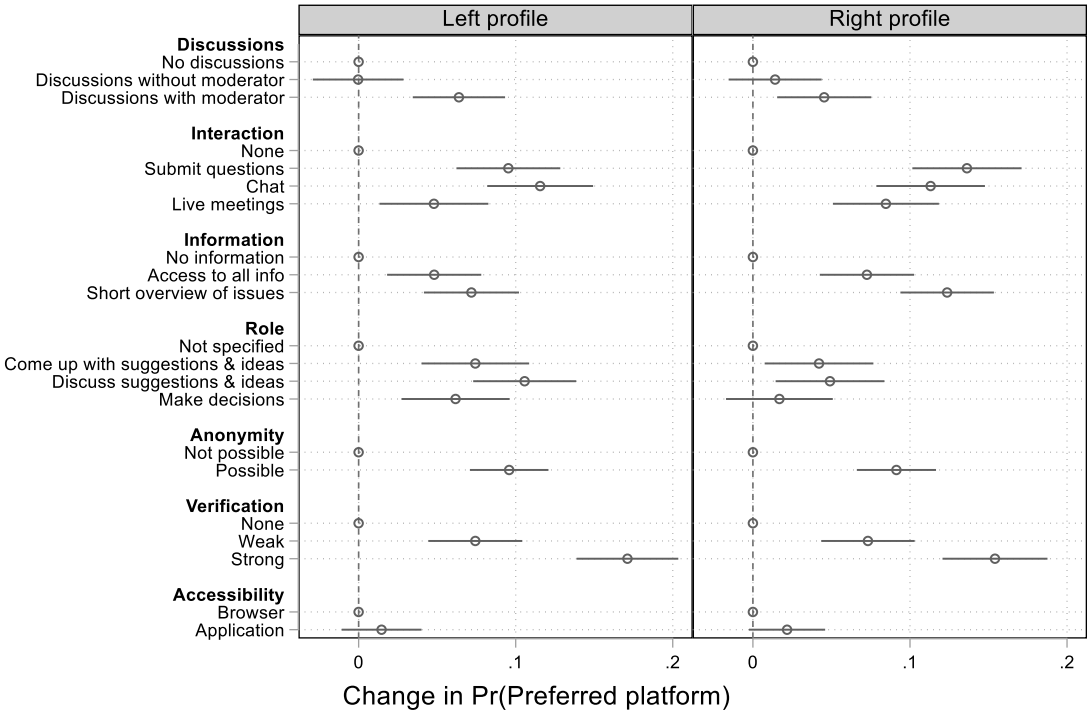
Figure 7. ACIEs across rounds of comparison



These results show that there are some fluctuations, and a tendency for strong verification to have weaker effects in round 4-6 (although none of the interaction effects are significant at a $p<0.05$). However, there is no uniform pattern towards weaker effects in the latter rounds, as would be expected if survey satisficing were affecting the results (Bansak et al., 2018). The results are therefore unlikely to be affected by respondents growing tired of comparing platforms.

The final check reported here concerns whether there are systematic differences depending on whether a profile was presented to the left or the right of the screen as this may also bias the results (Hainmueller et al., 2014).

Figure 8. ACIES across left/right placement



Here there is a tendency for the effects concerning all levels in role of the platform to be weaker when presented in the right pane rather than the left pane, which may have affected the impact of this attribute. However, because this is not the case for all other attributes, there is no reason to believe that this fluke biased the results.

5 Discussion of results and conclusions

This study has examined how design features affect evaluations of participatory platforms. The following highlights the main findings and their implications for advice on how to successfully launch a participatory platform.

First, the results for H1 clearly show that design features of public websites have important consequences for how people evaluate the use of participatory platforms. As highlighted by previous studies, design matters for the impact of participatory platforms platform (Åström & Grönlund, 2012; Esau et al., 2017; Fung, 2003; Steibel & Estevez, 2015). However, this research goes beyond the previous endeavors to show that design features directly affect how citizens, and thereby prospective users, evaluate the usefulness of such platforms and even their willingness to participate on such platforms. The results clearly demonstrate that it has negative consequences when features are missing, as indicated by the mean scores in Figure 2. When launching a participatory platform, the creators should therefore consider what the public want rather than rely solely on abstract ideals or technological possibilities.

However, there are also important differences between different features in how much they affect evaluations. Several studies emphasize the need to increase the deliberativeness of participatory platforms (Coleman & Moss, 2012; Esau et al., 2017; Fishkin, 2009; Landwehr, 2014; Neblo et al., 2018; Rhee & Kim, 2009). The results here generally also show that the public prefer platforms that adhere

to deliberative ideals over representation or participation. The clearest evidence is the strong preference for moderated discussions, but also that people on average prefer platforms that aim to discuss suggestions and ideas rather than make final decisions. While it may seem surprising that people are willing to engage in such demanding forms of participation, similar results have been found for offline participatory mechanisms (Christensen, 2020). This means that a new participatory platform should include deliberative features that enable respectful dialogue and careful contemplation of the pros and cons of the issues under consideration.

But what was just as important was the more pragmatic features that had an effect as strong or even stronger in the case of verification. People want platforms with a high level of identity verification of users (Ma & Agarwal, 2007; Mir et al., 2020; Mordini & Green, 2009), but at the same time they do value the possibility to remain anonymous (Asenbaum, 2018; Moore et al., 2020; Nissenbaum, 1999). Hence, while people may trust authorities with their private information, it does not necessarily mean that they want to share their identity with other users. Platform developers should therefore aim to develop platforms that enable strong verification, but at least give users the possibility to not disclose their identity to other users.

Finally, some differences exist among people depending on their prior use of ICTs, as conjectured by H2. Nevertheless, the differences were less acute than what the most dire interpretations of the digital divide suggest living (Dijk, 2005; DiMaggio & Garip, 2012; Norris, 2001; Warschauer, 2004). The clearest difference concerned the use of verification, where there were stronger effects among less accustomed users. This is most likely because these people worry more about security issues and therefore wants to ensure that verification is as strong as possible. To mobilize these users, it is therefore important to create platforms that can alleviate such fears.

These results clearly show that it is important to consider a user perspective when launching a participatory platform. What design features are included has direct implications for how citizens assess participatory platforms and their willingness to participate on them. This inattention may help explain why so many platforms fail to deliver on their promises (Anthopoulos et al., 2016; Choi & Chandler, 2020; Elkadi, 2013; Toots, 2019). Even when it may not make sense to ask users directly, it is important to find alternative ways to gauge citizens' preferences. Survey experiments such as conjoint analysis may provide a useful tool for gaining an insight into demands that respondents are unwilling or unable to articulate when asked directly.

While these findings thus provide important insights, it is still necessary to assess whether similar effects can be replicated outside of Finland. Although the results here do not reveal major differences across groups in the population, it cannot be taken for granted that this is also the case in other countries, where the population is less accustomed to participatory platforms. It is always important to consider contextual differences in this regard.

Funding: This work was supported by the Academy of Finland [Grant number 285167].

References

Abramson, S. F., Koçak, K., & Magazinnik, A. (2019). *What Do We Learn About Voter Preferences From Conjoint Experiments?* Unpublished manuscript. https://pdfs.semanticscholar.org/023a/24a7dfaddfce626d011596b187f26361ee86.pdf

Anthopoulos, L., Reddick, C. G., Giannakidou, I., & Mavridis, N. (2016). Why e-government projects fail? An analysis of the Healthcare.gov website. *Government Information Quarterly*, *33*(1), 161–173. https://doi.org/10.1016/j.giq.2015.07.003

Anttiroiko, A.-V., Valkama, P., & Bailey, S. J. (2014). Smart cities in the new service economy: Building platforms for smart services. *AI & SOCIETY*, *29*(3), 323–334. https://doi.org/10.1007/s00146-013-0464-0

Asenbaum, H. (2018). Anonymity and Democracy: Absence as Presence in the Public Sphere. *American Political Science Review*, *112*(3), 459–472. https://doi.org/10.1017/S0003055418000163

Åström, J., & Grönlund, Å. (2012). Online Consultation in Local government: What works, When, and Why? In S. Coleman & P. M. Shane (Eds.), *Connecting Democracy: Online Consultation and the Flow of Political Communication* (pp. 75–96). MIT Press.

Bailey, A., & Ngwenyama, O. (2010). Bridging the Generation Gap in ICT Use: Interrogating Identity, Technology and Interactions in Community Telecenters. *Information Technology for Development*, *16*(1), 62–82. https://doi.org/10.1080/02681100903566156

Bansak, K., Hainmueller, J., Hopkins, D. J., & Yamamoto, T. (2018). The Number of Choice Tasks and Survey Satisficing in Conjoint Experiments. *Political Analysis*, *26*(1), 112–119. https://doi.org/10.1017/pan.2017.40

Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, *27*(3), 264–271. https://doi.org/10.1016/j.giq.2010.03.001

Boehme-Neßler, V. (2016). Privacy: A matter of democracy. Why democracy needs privacy and data protection. *International Data Privacy Law*, *6*(3), 222–229. https://doi.org/10.1093/idpl/ipw007

Bravo, R. B., Balcells, J., & Padró-Solanet, A. (2019). Platform Politics in Europe | A Model for the Analysis of Online Citizen Deliberation: Barcelona Case Study. *International Journal of Communication*, *13*(0), 25.

Chadwick, A. (2003). Bringing E-Democracy Back In: Why it Matters for Future Research on E-Governance. *Social Science Computer Review*, *21*(4), 443–455.

Chambers, S. (2003). Deliberative Democratic Theory. *Annual Review of Political Science*, *6*(1), 307–326. https://doi.org/10.1146/annurev.polisci.6.121901.085538

Cho, D., & Kwon, K. H. (2015). The impacts of identity verification and disclosure of social cues on flaming in online user comments. *Computers in Human Behavior*, *51*, 363–372. https://doi.org/10.1016/j.chb.2015.04.046

Choi, T., & Chandler, S. M. (2020). Knowledge vacuum: An organizational learning dynamic of how e-government innovations fail. *Government Information Quarterly*, *37*(1), 101416. https://doi.org/10.1016/j.giq.2019.101416

Christensen, H. S. (2013). Broadening Democratic Participation? An exploratory study of e-democracy in 188 Finnish municipalities. *Scandinavian Journal of Public Administration*, *17*(3), 3–21.

Christensen, H. S. (2020). How citizens evaluate participatory processes: A conjoint analysis. *European Political Science Review*, *12*(2), 239–253. https://doi.org/10.1017/S1755773920000107

Coleman, S., & Blumler, J. G. (2009). *The Internet and Democratic Citizenship: Theory, Practice and Policy*. Cambridge University Press.

Coleman, S., & Moss, G. (2012). Under Construction: The Field of Online Deliberation Research. *Journal of Information Technology & Politics*, *9*(1), 1–15. https://doi.org/10.1080/19331681.2011.635957

Coleman, S., & Shane, P. M. (Eds.). (2012). *Connecting Democracy: Online Consultation and the Flow of Political Communication*. MIT Press.

Dahl, R. A. (1989). *Democracy and Its Critics*. Yale University Press.

Dahlberg, L. (2001). The Internet and Democratic Discourse: Exploring The Prospects of Online Deliberative Forums Extending the Public Sphere. *Information, Communication & Society*, *4*(4), 615–633. https://doi.org/10.1080/13691180110097030

Dahlgren, P. (2005). The Internet, Public Spheres, and Political Communication: Dispersion and Deliberation. *Political Communication*, *22*(2), 147–162. https://doi.org/10.1080/10584600590933160

Desouza, K. C., & Bhagwatwar, A. (2012). Citizen Apps to Solve Complex Urban Problems. *Journal of Urban Technology*, *19*(3), 107–136. https://doi.org/10.1080/10630732.2012.673056

Dijk, J. A. G. M. van. (2005). *The Deepening Divide: Inequality in the Information Society*. SAGE Publications.

DiMaggio, P., & Garip, F. (2012). Network Effects and Social Inequality. *Annual Review of Sociology*, *38*(1), 93–118. https://doi.org/10.1146/annurev.soc.012809.102545

Dutton, W. H. (1992). Political Science Research on Teledemocracy. *Social Science Computer Review*, *10*(4), 505–522. https://doi.org/10.1177/089443939201000405

Elkadi, H. (2013). Success and failure factors for e-government projects: A case from Egypt. *Egyptian Informatics Journal*, *14*(2), 165–173. https://doi.org/10.1016/j.eij.2013.06.002

Esau, K., Fleuß, D., & Nienhaus, S.-M. (2020). Different Arenas, Different Deliberative Quality? Using a Systemic Framework to Evaluate Online Deliberation on Immigration Policy in Germany. *Policy & Internet*. https://doi.org/10.1002/poi3.232

Esau, K., Friess, D., & Eilders, C. (2017). Design Matters! An Empirical Analysis of Online Deliberation on Different News Platforms. *Policy & Internet*, *9*(3), 321–342. https://doi.org/10.1002/poi3.154

Fishkin, J. (2009). *When the People Speak: Deliberative Democracy and Public Consultation*. Oxford University Press.

Fung, A. (2003). Survey Article: Recipes for Public Spheres: Eight Institutional Design Choices and Their Consequences. *Journal of Political Philosophy*, *11*(3), 338–367. https://doi.org/10.1111/1467-9760.00181

Hainmueller, J., Hopkins, D. J., & Yamamoto, T. (2014). Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments. *Political Analysis*, *22*(01), 1–30. https://doi.org/10.1093/pan/mpt024

Held, D. (2006). *Models of Democracy* (3rd ed.). Stanford University Press.

Holden, S., Norris, D. F., & Fletcher, P. D. (2003). Electronic Government at the Local Level. *Public Performance & Management Review*, *26*(4), 325–344. https://doi.org/10.1177/1530957603252580

Howe, N., & Strauss, W. (2009). *Millennials Rising: The Next Great Generation*. Knopf Doubleday Publishing Group.

Jäske, M., & Ertiö, T. (2019). The democratic potential of civic applications. *Information Polity*, *24*(1), 21–39. https://doi.org/10.3233/IP-180105

Kam, C., & Franzese, R. J. (2009). *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. University of Michigan Press.

Kitsing, M. (2011). Success Without Strategy: E-Government Development in Estonia. *Policy & Internet*, *3*(1), 86–106. https://doi.org/10.2202/1944-2866.1095

Kosack, S., & Fung, A. (2014). Does Transparency Improve Governance? *Annual Review of Political Science*, *17*(1), 65–87. https://doi.org/10.1146/annurev-polisci-032210-144356

Landwehr, C. (2014). Facilitating Deliberation: The Role of Impartial Intermediaries in Deliberative Mini-Publics. In K. Grönlund, A. Bächtiger, & M. Setälä (Eds.), *Deliberative Mini-Publics: Involving Citizens in the Democratic Process* (pp. 77–92). ECPR Press.

Leeper, T. J., Hobolt, S. B., & Tilley, J. (2020). Measuring Subgroup Preferences in Conjoint Experiments. *Political Analysis*, *28*(2), 207–221. https://doi.org/10.1017/pan.2019.30

Lim, J. H. (2010). Digital Divides in Urban E-Government in South Korea: Exploring Differences in Municipalities' Use of the Internet for Environmental Governance. *Policy & Internet*, *2*(3), 31–68. https://doi.org/10.2202/1944-2866.1051

Ma, M., & Agarwal, R. (2007). Through a Glass Darkly: Information Technology Design, Identity Verification, and Knowledge Contribution in Online Communities. *Information Systems Research*, *18*(1), 42–67. https://doi.org/10.1287/isre.1070.0113

Manoharan, A., & Holzer, M. (Eds.). (2012). *Active Citizen Participation in E-Government: A Global Perspective*. IGI Global. www.igi-global.com/book/active-citizen-participation-government/58264

Mir, U. B., Kar, A. K., Dwivedi, Y. K., Gupta, M. P., & Sharma, R. S. (2020). Realizing digital identity in government: Prioritizing design and implementation objectives for Aadhaar in India. *Government Information Quarterly*, *37*(2), 101442. https://doi.org/10.1016/j.giq.2019.101442

Moore, A., Fredheim, R., Wyss, D., & Beste, S. (2020). Deliberation and Identity Rules: The Effect of Anonymity, Pseudonyms and Real-Name Requirements on the Cognitive Complexity of Online News Comments: *Political Studies*. https://doi.org/10.1177/0032321719891385

Mordini, E., & Green, M. (Eds.). (2009). *Identity, Security and Democracy: The Wider Social and Ethical Implications of Automated Systems for Human Identification*. IOS Press.

Neblo, M. A., Esterling, K. M., & Lazer, D. (2018). *Politics with the people: Building a directly representative democracy*. Cambridge University Press.

Nielsen, J., & Pernice, K. (2010). *Eyetracking Web Usability*. New Riders.

Nissenbaum, H. (1999). The Meaning of Anonymity in an Information Age. *The Information Society*, *15*(2), 141–144. https://doi.org/10.1080/019722499128592

Norris, P. (2001). *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge University Press.

Päivärinta, T., & Sæbø, Ø. (2006). Models of E-Democracy. *Communications of the Association for Information Systems*, *17*(1). https://doi.org/10.17705/1CAIS.01737

Pateman, C. (1970). *Participation and Democratic Theory*. Cambridge University Press.

Rhee, J. W., & Kim, E.-M. (2009). Deliberation on the Net: Lessons from a Field Experiment. In T. Davies & S. P. Gangadharan (Eds.), *Online Deliberation: Design, Research and Practice* (pp. 223–232). University of Chicago Press.

Steibel, F., & Estevez, E. (2015). Designing Web 2.0 Tools for Online Public Consultation. In A. Chib, J. May, & R. Barrantes (Eds.), *Impact of Information Society Research in the Global South* (pp. 243–263). Springer. https://doi.org/10.1007/978-981-287-381-1_13

Strandberg, K., Himmelroos, S., & Grönlund, K. (2017). Do discussions in like-minded groups necessarily lead to more extreme opinions? Deliberative democracy and group polarization. *International Political Science Review*.

Tambouris, E., & Gorilas, S. (2003). Evaluation of an e-democracy Platform for European Cities. In R. Traunmüller (Ed.), *Electronic Government* (pp. 43–48). Springer. https://doi.org/10.1007/10929179_7

Toots, M. (2019). Why E-participation systems fail: The case of Estonia's Osale.ee. *Government Information Quarterly*, *36*(3), 546–559. https://doi.org/10.1016/j.giq.2019.02.002

United Nations. (2018). *2018 E-government survey: Gearing e-government to support transformation towards sustainable and resilient societies*. United Nations.

Warschauer, M. (2004). *Technology and Social Inclusion: Rethinking the Digital Divide*. MIT Press.

Wright, S. (2006). Government-run Online Discussion Fora: Moderation, Censorship and the Shadow of Control. *The British Journal of Politics and International Relations*, *8*(4), 550–568. https://doi.org/10.1111/j.1467-856x.2006.00247.x

Zaller, J. R. (1992). *The Nature and Origins of Mass Opinion*. Cambridge University Press. https://doi.org/10.1017/CBO9780511818691

Appendix

Table A1. Regressions results

	ACME	Interaction with generation	Interaction with time online	Interaction with prior website use
Discussion (Ref: No discussions)				
Discussions without moderation	0.007	-0.015	-0.006	0.005
	(0.011)	(0.029)	(0.019)	(0.018)
Discussions with moderation	0.055***	0.043	0.039**	0.030
	(0.011)	(0.028)	(0.019)	(0.019)
Interaction (Ref. No interaction)				
Submit questions	0.114***	0.114***	0.079***	0.117***
	(0.013)	(0.032)	(0.021)	(0.022)
Chat questions	0.112***	0.098***	0.079***	0.106***
	(0.014)	(0.035)	(0.021)	(0.022)
Live questions	0.065***	0.043	0.050**	0.038*
	(0.013)	(0.030)	(0.021)	(0.022)
Information (Ref. No information)				
All information	0.063***	0.081***	0.061***	0.090***
	(0.011)	(0.029)	(0.019)	(0.019)
Overview	0.098***	0.090***	0.074***	0.130***
	(0.012)	(0.027)	(0.019)	(0.019)
Role (Ref undefined)				
Come up with ideas	0.056***	0.017	0.046**	0.032
	(0.013)	(0.032)	(0.021)	(0.022)
Discuss existing ideas	0.077***	0.064**	0.069***	0.067***
	(0.013)	(0.031)	(0.022)	(0.021)
Make final decisions	0.039***	0.055*	0.015	0.048**
	(0.013)	(0.031)	(0.021)	(0.022)
Anonymity (Ref. Not possible)	0.094***	0.080***	0.098***	0.097***
	(0.010)	(0.027)	(0.016)	(0.017)
Verification (Ref. No verification)				
Weak verification	0.073***	0.008	0.074***	0.057***
	(0.012)	(0.030)	(0.018)	(0.020)
Strong accessibility	0.161***	0.082***	0.202***	0.152***
	(0.013)	(0.031)	(0.022)	(0.022)
Accessibility (Ref. Web browser)	0.017*	-0.009	0.011	0.039**
Generation (Ref Gen Z)				
Millennials		-0.087		
		(0.060)		
Gen X		-0.144**		
		(0.058)		
Boomers		-0.097		
		(0.059)		
Discussions without moderation#Millennial		0.037		
		(0.036)		
Discussions without moderation#Gen X		0.028		
		(0.036)		
Discussions without moderation#Boomer		0.017		
		(0.036)		
Discussions with moderation #Millennial		0.039		
		(0.036)		
Discussions with moderation #Gen X		0.031		
		(0.035)		
Discussions with moderation#Boomer		-0.025		
		(0.035)		
Submit questions#Millennial		0.005		
		(0.041)		
Submit questions#Gen X		0.034		
		(0.040)		
Submit questions#Boomer		-0.045		
		(0.040)		
Chat questions#Millennial		0.008		
		(0.044)		
Chat questions#Gen X		0.042		
		(0.043)		
Chat questions#Boomer		-0.005		
		(0.044)		
Live questions#Millennial		0.038		

	ACME	Interaction with generation	Interaction with time online	Interaction with prior website use
		(0.039)		
Live questions#Gen X		0.027		
		(0.039)		
Live questions#Boomer		0.007		
		(0.040)		
All information#Millennial		-0.033		
		(0.037)		
All information#Gen X		-0.020		
		(0.035)		
All information#Boomer		-0.017		
		(0.036)		
Overview#Millennial		-0.004		
		(0.036)		
Overview#Gen X		0.030		
		(0.035)		
Overview#Boomer		0.000		
		(0.036)		
Come up with ideas#Millennial		0.060		
		(0.041)		
Come up with ideas#Gen X		0.044		
		(0.040)		
Come up with ideas#Boomer		0.031		
		(0.040)		
Discuss ideas#Millennial		-0.001		
		(0.040)		
Discuss ideas#Gen X		0.005		
		(0.039)		
Discuss ideas#Boomer		0.039		
		(0.039)		
Make decisions#Millennial		-0.016		
		(0.041)		
Make decisions#Gen X		-0.013		
		(0.039)		
Make decisions#Boomer		-0.034		
		(0.040)		
Anonymity possible#Millennial		0.030		
		(0.033)		
Anonymity possible#Gen X		0.001		
		(0.032)		
Anonymity possible#Boomer		0.023		
		(0.032)		
Weak#Millennial		0.040		
		(0.038)		
Weak#Gen X		0.103***		
		(0.036)		
Weak#Boomer		0.086**		
		(0.038)		
Strong#Millennial		0.059		
		(0.040)		
Strong#Gen X		0.128***		
		(0.040)		
Strong#Boomer		0.093**		
		(0.042)		
2.att_access#Millennial		0.006		
		(0.029)		
2.att_access#Gen X		0.018		
		(0.029)		
2.att_access#Boomer		0.072**		
		(0.030)		
Time online (Ref. Low)				
Intermediate			-0.061	
			(0.045)	
High			-0.060	
			(0.044)	
Discussions without moderation#Intermediate			0.010	
			(0.029)	
Discussions without moderation#High			0.029	
			(0.027)	

	ACME	Interaction with generation	Interaction with time online	Interaction with prior website use
Discussion with moderation#Intermediate			0.003	
			(0.029)	
Discussion with moderation #High			0.046*	
			(0.026)	
Submit questions#Intermediate			0.075**	
			(0.033)	
Submit questions#High			0.043	
			(0.030)	
Chat questions#Intermediate			0.098***	
			(0.034)	
Chat questions#High			0.017	
			(0.032)	
Live questions#Intermediate			0.041	
			(0.032)	
Live questions#High			0.009	
			(0.031)	
All information#Intermediate			-0.012	
			(0.029)	
All information#High			0.016	
			(0.027)	
Overview#Intermediate			0.055*	
			(0.030)	
Overview#High			0.027	
			(0.028)	
Come up with ideas#Intermediate			0.044	
			(0.033)	
Come up with ideas#High			-0.004	
			(0.030)	
Discuss ideas#Intermediate			0.029	
			(0.033)	
Discuss ideas#High			0.001	
			(0.030)	
Make decisions#Intermediate			0.044	
			(0.033)	
Make decisions#High			0.032	
			(0.031)	
Anonymity possible#Intermediate			-0.045*	
			(0.024)	
Anonymity possible#High			0.023	
			(0.024)	
Weak#Intermediate			0.004	
			(0.029)	
Weak#High			-0.006	
			(0.028)	
Strong#Intermediate			-0.072**	
			(0.033)	
Strong#High			-0.057*	
			(0.032)	
Application#Intermediate			0.010	
			(0.024)	
Application#High			0.012	
			(0.023)	
Prior website use (Ref Low)				
Intermediate				-0.010
				(0.046)
High				0.011
				(0.044)
Discussions without moderation#Intermediate				-0.007
				(0.028)
Discussions without moderation#High				0.015
				(0.027)
Discussions with moderation#Intermediate				0.029
				(0.028)
Discussions with moderation#High				0.050*
				(0.027)
Submit questions#Intermediate				-0.006
				(0.033)
Submit questions#High				-0.001

	ACME	Interaction with generation	Interaction with time online	Interaction with prior website use
				(0.031)
Chat questions#Intermediate				0.022
				(0.033)
Chat questions#High				0.001
				(0.032)
Live questions#Intermediate				0.048
				(0.032)
Live questions#High				0.036
				(0.031)
All information#Intermediate				-0.038
				(0.028)
All information#High				-0.044
				(0.027)
Overview#Intermediate				-0.029
				(0.029)
Overview#High				-0.069**
				(0.028)
Come up with ideas#Intermediate				0.040
				(0.032)
Come up with ideas#High				0.035
				(0.031)
Discuss ideas#Intermediate				0.031
				(0.032)
Discuss ideas#High				-0.002
				(0.031)
Make decisions#Intermediate				0.004
				(0.032)
Make decisions#High				-0.031
				(0.032)
Anonymity possible#Intermediate				-0.013
				(0.024)
Anonymity possible#High				0.003
				(0.024)
Weak#Intermediate				0.025
				(0.029)
Weak#High				0.022
				(0.028)
Strong#Intermediate				-0.009
				(0.033)
Strong#High				0.035
				(0.032)
Application#Intermediate				-0.017
				(0.024)
Application#High				-0.050**
				(0.024)
Constant	0.176***	0.271***	0.213***	0.176***
	(0.018)	(0.048)	(0.032)	(0.031)
Observations	12576	12576	12576	12576

Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1