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Motivations to use a mobile participation application

Titiana Petra Ertiö[†], Sampo Ruoppila[†], and Sarah-Kristin Thiel[‡]

University of Turku, Department of Social Research, Finland[†]
titiana.ertio@utu.fi,sampo.ruoppila@utu.fi
AIT Austrian Institute of Technology, Vienna, Austria[‡]
sarah-kristin.thiel@ait.ac.at

Abstract. This paper reports results on presumably the first city-wide mobile participation trial (Living Lab) examining citizen participation in urban planning, conducted in Turku, Finland, in 2015. The questions examined are the socio-economic characteristics of the application users, as well as their motivations to participate. The inclusion of online participation has been discussed widely in literature on e-participation and the digital divide, arguing for a great influence of socio-economic factors, interest in the topic, and users' online skills. The results reveal that this application, too, was used predominantly by young adults and middle-aged, highly educated, and technology savvy citizens, who were already interested in urban planning. Their use of the application was motivated primarily by the opportunity to bring their own ideas and issues to the city authorities' attention, rather than participating in missions given by the municipality or discussing planning issues with fellow citizens, indicating a rather individualistic usage interest. The location-based features and ease of use of a mobile application were valued highly. Those who idled reported predominantly technical challenges with the app.

Keywords: mobile application, citizen participation, urban planning, digital divide

1 Introduction

Digital inclusion is a key question for governance, since many public engagement opportunities and services have moved online. One area of interest has been urban planning, in which variations of Public Participation Geographic Information Systems (PPGIS) have become widely used for collecting citizens' viewpoints. Recently, the increasing usage of smartphones and tablets has created new possibilities for mobile participation [1-6]. A plethora of so-called reporting apps have emerged, enabling citizens to send maintenance requests to the local authorities. Another type of participation app employs the so-called citizen sensing approach, where built-in sensors in citizens' mobile devices collect the data and submit it to a back-end database [7]. These applications tie "the problem to be solved" to a place, thereby situating engagement [1]. In fact, situated (in-situ) engagement is one of the biggest promises of mobile participation:

it enables citizens to discuss topics of interest at the particular location where they occur [4]. However, little is known about which citizens would be interested in using mobile participation apps for civic engagement and why. Neither have the questions of digital inclusion yet been investigated in the realm of mobile participation.

This paper is based on - to the best of our knowledge - the first city-wide trial of mobile participation in urban planning carried out in the world to date. The mobile application Täsä ("here" in Turku dialect), developed in the research project "Building Pervasive Participation" (b-Part; www.b-part.eu), was tested in a Living Lab run in cooperation with the City of Turku (Finland) between June and October 2015. The app enabled citizens to add and discuss geo-referenced urban development ideas (referred to as contributions in the app) visible to all users. Any contribution could be enhanced by adding a title, short description, photo, feeling, location, and tags (e.g. green areas, transportation, culture) (see Figure 1). Most of the features were implicitly recognisable to users familiar with social media. Contributions could be commented and voted upon, forming the bi-directional communication between city officials and citizens, as well as among citizens. Users could further choose to participate in so-called missions, which were in-app tasks given by the municipality to solicit feedback on certain topics. In fact, both city officials and citizens could create missions, but in practice only the officials did. For example, one mission invited citizens to vote and comment on the question of whether to build a new light-traffic bridge in a particular place in Turku.

The Täsä application was built on the participatory sourcing approach, meaning that users were encouraged to contribute their own ideas and voice concerns (bottom up), which were then processed by authorities to eventually inform decisions. Täsä extended this approach by putting a main focus on the communication between citizens and city authorities. In this respect, city officials and urban planners responded to citizens' input, but also asked for input on specific topics (missions) themselves (top down). During the Living Lab, Täsä was formally one official participation channel of the municipality.

Täsä was available for Android, iOS, and Windows phones free of charge. 780 users downloaded Täsä, of which one third (32%) produced content (contributions, comments, votes, or likes) within the app. The Täsä website was visited by more than 1 700 unique users. Täsä was marketed through social media (predominantly Facebook) by the municipality, as well as by the research team, using flyers, mailing lists, and electronic newsletters. It was also featured in several stories published in local newspapers and on radio. Information was also disseminated via speaking engagements and events organised for neighbourhood associations. Täsä had its own website with video tutorials on how to download the app and how to use it. In addition, users could contact the research team and ask for instructions, if needed.

Drawing on the results of the Täsä user surveys, this paper discusses what added value mobile applications can bring to citizen participation. More precisely, we will discuss who chose to participate in Turku's urban planning through

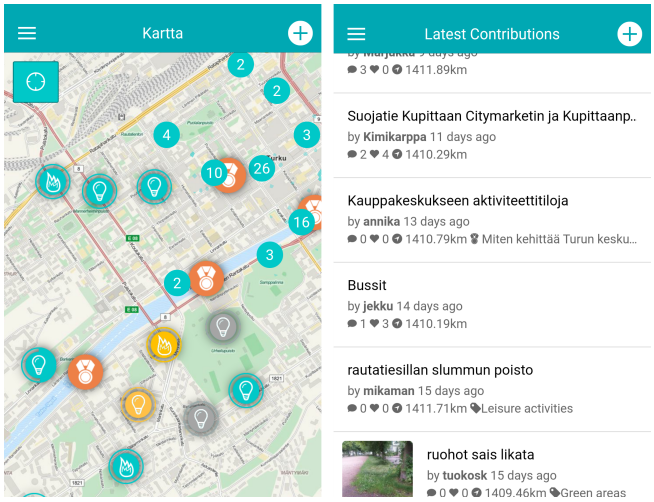


Fig. 1. Screenshots of the Täsä application used in Turku. Map view (left) and contribution list (right)

the Täsä application, and why. The study contributes to the growing literature on digital inclusion in terms of the motivations for adopting new technologies, the factors encouraging their usage, barriers to adoption, and benefits of implementation.

2 Inclusive e-participation and motives for adopting new technologies

The inclusion of self-selected participants online has been discussed widely in literature on e-participation and - more broadly, including adopting new technologies - on the digital divide, arguing for a great influence of socio-economic factors, interest in the topic, and users' online skills.

2.1 Inclusive e-participation

Perhaps the greatest promise of e-participation is its potential to broaden the pool of participants. Compared to traditional (off-line) forms of participation, e-participation can involve almost a limitless number of participants. Meanwhile, the greatest challenge remains the inclusion of disengaged citizens and also giving less articulated groups a voice in the political arena.

The popularity of e-participation channels has been on the rise. For example, in Germany, online petitions have been increasing in number, as have registered users of official participation portals [8]. Compared to face-to-face participation, e-participation has a number of other advantages. For instance, [9] enumerates the anonymity of participants, as well as the speed and reach of ideas posted

online. The adoption of new technologies has been boosted with the shift towards Web 2.0, which has emphasised the role of citizens as active knowledge producers [10]. These new skills that citizens have learned have proven to be transferable to many fields of activity, including participatory urban planning [11].

The empirical results of various e-participation platforms, however, have given little support for enhancing inclusive participation, in terms of representativeness at least. The "usual suspects" in online participation are well-educated men, already active in other areas of political life [8, 12]. While they may propose useful arguments and various relevant viewpoints, the challenge remains that this may also reinforce previously existing power imbalances [13]. Conversely, the characteristics of non-participants (feminine gender, low social-economic status, age, ethnic background, disability) have significant consequences for the process and the outcomes [14]. The empirical studies on e-participation indicate that interest in it reflects interest in political participation in general. Interests in politics, time, money, and (civic) skills are the most important predictors of political participation [15]. The specific novel technology, however, may require the effort of learning new skills, which might raise the participation barrier [16]. On the other hand, new technologies may also be a tempting factor. For instance, some studies indicate that citizens would prefer to use social media tools to engage with planning [17, 18].

Despite benefits and pitfalls, scholars and pundits alike agree that e-participation tools have gained momentum and interest [8] especially because they support deliberative processes among participants, and between citizens and public officials [19]. The lack of statistical representativeness "does not necessarily mean a poverty of views, information, and arguments and low quality deliberation" [19:2].

2.2 The digital divide in the mobile Internet era

The exclusion caused by the adoption of new technologies has been discussed in the literature on the digital divide. The traditional topic of this discussion has been access to the Internet and, more recently, differentiation in its usage. The discussion is useful in examining the gradual diffusion of Internet-related participation technologies. It has been asserted that socio-economic background factors (notably education, income, age) are associated with Internet access [20, 21]. As access to the Internet became more common, the focus of the discussion shifted to differences in what the Internet is used for, mediated by online skills (and indirectly education), a phenomenon known as the second-level digital divide [22, 23]. The current debate is focused on differences in digital skills and the consequent differentiation between types of users [21, 24-26]. [27] summarizes how the variety of activities online is a critical indicator of digital inequalities. Far from being dismissed, socio-economic factors influence usage far beyond skills; more affluent people engage in more competence-enhancing activities compared with lower income people, whose usage concentrates on entertainment [24, 25, 28]. Consequently, the benefits are spread unequally; "those who are already in more privileged positions are more likely to use the medium for activities from which

they may benefit" [28: 615]. Considerable effort has been put into investigating the users of online technologies and the disadvantages of low or non-usage [29, 30].

Nonetheless, overall Internet access continues to improve, and consequently basic digital skills are becoming increasingly common sense. Moreover, the mobile Internet offers an access breakthrough for lower socio-economic groups worldwide [31]. If users' skills are limited or the technology is modest, disadvantaged groups might not be able to exploit the potential of mobile phones to the fullest, which can lead to consecutive exclusions online [32]. The mobile Internet might reduce the access divide but widen the usage gap [33]. Digital skills are directly associated with online participation, including expressing an opinion, or participating in consultation or petitioning [34].

In addition to material access, skills, and usage, motivation continues to be the most important factor mediating digital inclusion [20]. Hence, there is a constant concern that if users do not see value in using the Internet for a particular purpose, they leave it unused despite having access and skills [20]. [35] identify an emotional (technophobia) and a rational factor (no need for a specific technology) in such a lack of usage motivation. Further, they found that the relation between access quality and skills fully mediates motivation in content-related skills [35].

The perceived usefulness of a technology affects users' motivation to try it, leading to its use or not. [36] extended the Technology Acceptance Model (TAM) and applied it to Internet use and non-use. [30] found that non-users have negative attitudes towards online technologies and feel uncomfortable using them. Such attitudes have been attributed to lower perceived skills in handling technologies (indirectly mediated by education), coupled with a lack of confidence [37]. [30] also found that education is the strongest predictor when differentiating between broad and narrow uses. Another study showed that positive attitudes towards online technologies were significant predictors for differentiating between low-users and non-users [29].

The rapidly increased use of the mobile Internet, coupled with increased social media usage, has also opened new avenues for electronic participation. Through the myriad of social media applications, citizens learn new mobile usage skills. Social media, including the likes of Facebook and Twitter, are already ranked third as the preferred interaction channels between citizens and a municipality, after email and municipal websites [38]. [39] found that social media use explains more variance than socio-economic factors in the political participation of young people. In part, this finding is explained by the ease of engagement: liking, sharing, and retweeting entail less effort than commenting on a post [40]. Attaching a photo as well as posting about public services (transportation, urban planning) also elicits a high level of engagement [40]. The effects of attaching a location to a post are unknown. Especially on mobile phones, attaching a location to a social media post is easy and quick, thanks to the GPS embedded in the phone. The skills and mobile communication practices that citizens appro-

priate through social media are easily transferable to other contexts, including participatory urban planning.

3 Research questions and data

The research question leading this inquiry is what characterised the citizens who adopted the new mobile participation tool, and what were their motivations for using it? Specifically, we are interested in

RQ1. Who signed up for the Täsä application trial?
RQ2. What was their initial motivation to download the app?
RQ3. What factors encouraged usage of the app?
RQ4. What factors discouraged usage of the app?

The first two questions are answered based on the data of a pre-survey of registered users of the Täsä application. After downloading the app and registering, a pop-up window appeared on their device containing the survey, with questions regarding their social background (gender, age, educational achievement), experience with mobile devices, and attitudes towards urban planning and politics. During the trial, reminders were sent to complete the survey. 185 people, out of 780 who downloaded the app, answered the pre-survey.

Answers to the last two questions are based on the data of a post-survey, which was sent out to all registered users at the end of the trial. In the post-survey, respondents were asked about their experiences in using the application, including motivating factors, evaluations of the app and mobile participation, and improvement ideas. This survey was answered by 97 users. The overlap of those who answered both the pre- and post-survey was rather small (39 users). In addition, to address the last question more profoundly, we conducted, during a period late in the trial, 12 telephone interviews with passive users, meaning those who had downloaded the app and created user accounts but had not produced any content in the app. These people consisted of onlookers, who used the app just for observing other people's input, and those who quickly abandoned usage altogether. Passive users were sampled randomly and approached by e-mail initially. Interviews were conducted until data saturation was achieved. Interviews were recorded after the participants were informed and had consented. Participants were asked about their impression of the app, factors that hampered their participation, and features that would make the application more appealing.

4 Findings

4.1 Täsä application users

The self-selected users of the mobile participation application were mostly young adults and middle-aged people with a high level of education - like a number of previous e-participation trials. Men outnumbered women, but not greatly. Compared with the inhabitants of Turku (Figure 2), for Täsä the 21-40 age group was considerably over-represented (72%), but Täsä lacked participants younger than

21 and especially senior citizens. The average education level of participants was high: more than half had an academic degree - another considerable difference compared to the city population overall. Most respondents reported good to excellent perceived skills in using mobile phones (89%), which also presumably differentiates them from the average.

Although the trial was intended for all smartphone users (more than 70% of the Finnish population by the time of the trial), the users needed to own a device with a rather recent operating system for the application to work well, which favoured the participation of people of active working age, with a good socio-economic status, and good mobile phone usage skills (and/or requirements for their phones), which is a classic restricting access factor of the digital divide.

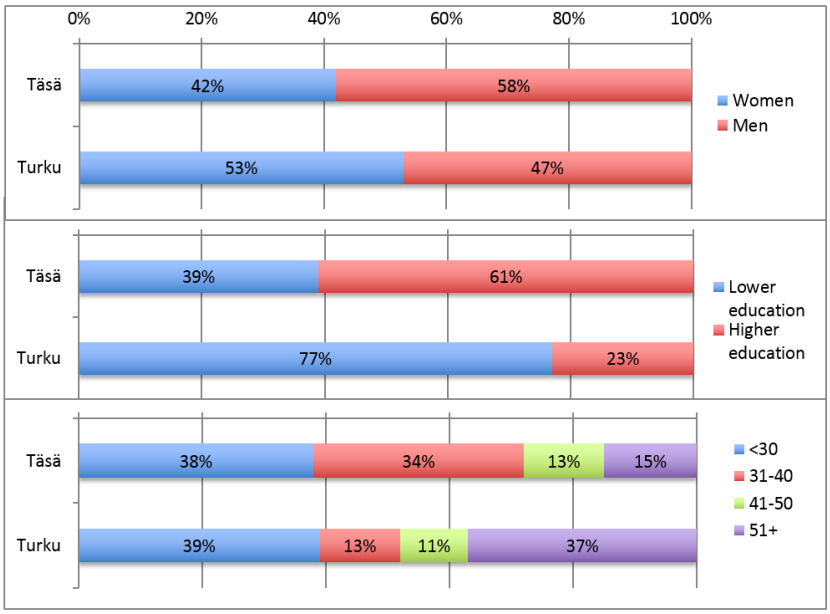


Fig. 2. Täsä users compared with the Turku population: gender, education, and age. Source: Pre-survey of registered users of the application (N=185) and the City of Turku population statistics.

4.2 Motivation to download the app

The results indicate the two most important reasons to download and start using the application. First, almost half of the respondents were initially motivated fairly or very much by curiosity to test the mobile participation application (Figure 3). Citizens also rated highly their desire to be informed about ongoing discussions about Turku's urban planning. Interestingly, taking action by using

the Täsä app to communicate a specific idea of something in need of change to the City of Turku, or getting engaged in dialogue on planning issues with fellow citizens, was reported as less important. Secondly, when we asked about respondents' general interest in Turku's urban planning, almost all of them were very (64%) or fairly interested (30%), which indicates that they did not download the app solely because of their curiosity in testing the app.

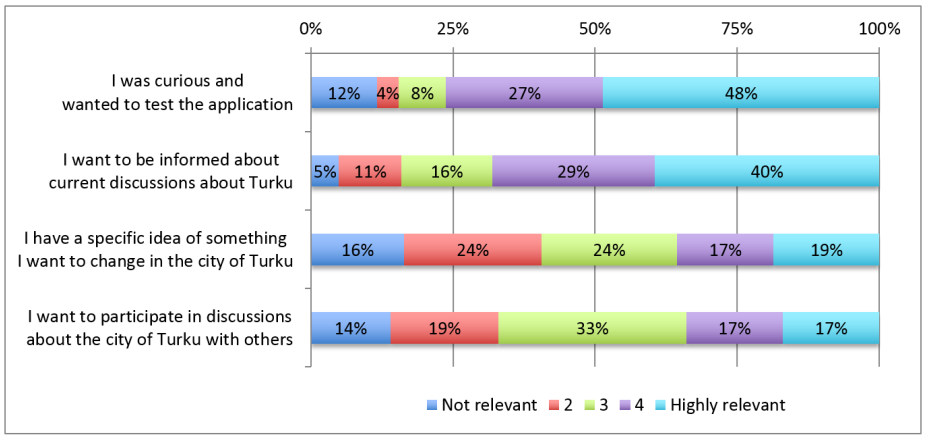


Fig. 3. Initial motivation to download the Täsä application. Source: Pre-survey of registered users of the application (N=185).

4.3 Factors encouraging usage

If one of the main reasons to download the application was curiosity to test a new tool, at the end of the trial, we inquired what factors actually motivated its usage (Figure 4). In hindsight, the greatest motivator was the opportunity to bring one's own idea to the attention of city authorities, which 45% of respondents reported as influencing their participation very much. On the other hand, receiving feedback from the authorities motivated people much less than anticipated [2]. In addition, participating in missions (tasks) given by the city administration in the app and communicating with peers were not rated highly. In fact, people stated a will to use (and also used) the app largely as a reporting tool, making little use of its many interactive features, which functioned akin to social media. This finding indicates a more individualistic usage mode than expected.

Affordances specific to the mobile participation tool were also given great importance, which is a promising result regarding further development. The ability to give in-situ feedback, as well as ease of mobile participation usage, motivated the participants highly.

When asked, as many as 46% of post-survey respondents reported they had learned fairly or very much about how a mobile app could assist urban planning, and 71% reported that the experience increased their faith in the applicability of mobile apps in (participatory) urban planning. The application users made use of their existing skills in handling the new application, rather than being forced to learn new ones, since most people (86%) perceived no change in their general mobile device using skills after participating in the trial.

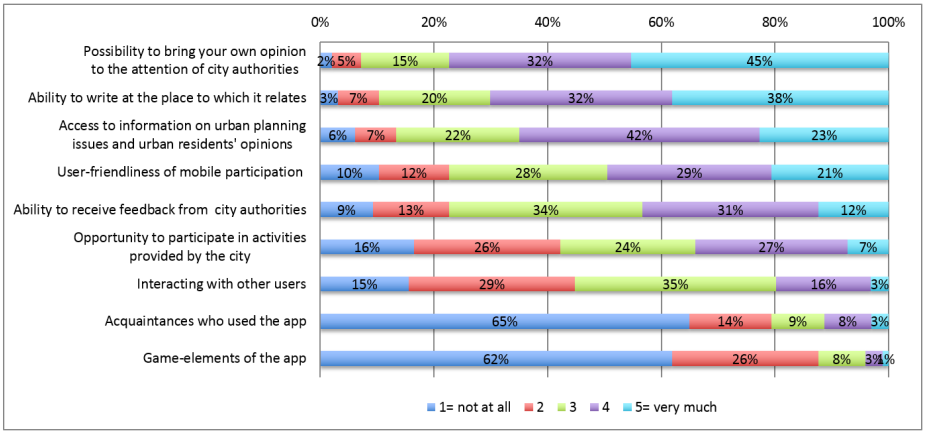


Fig. 4. Motivations for using Täsä. Source: Post-survey of registered users of the application (N=97).

4.4 Factors discouraging usage

In order to understand which factors discouraged the use of the application, interviews were conducted with passive users, meaning those who had created user accounts, but had not produced any content in the app. The interviews confirmed that these people were partly onlookers and partly those who had quickly abandoned usage altogether. Unsurprisingly, the main reason for abandoning usage was technical challenges in their many forms. Some had trouble downloading and registering, some complained about the bugs in the app, while others would have preferred to participate through a webpage using a personal computer rather than a mobile phone. Even when active participation was not the case, interviews revealed that users still read and followed up on content posted in Täsä because they were interested in accessing topical information regarding Turku's urban planning. When we asked interviewees what it would take for them to use the app, the theme of the webpage - mobile optimized webpage - surfaced again. Another feature that would enhance participation would be a better structure for the content.

5 Conclusions and Discussion

The rapid development of mobile technologies has raised interest in broadening the realm of e-participation towards mobile participation [3]. However, applying new technologies to societal matters, such as participatory urban planning, comes with concerns regarding the "digital divide", meaning limiting factors influencing their usage.

This paper has reported results on the socio-economic characteristics of participants and their motivations to participate, analysed through surveys conducted when they registered as users and after the large mobile participation trial (Living Lab) conducted in Turku, Finland, in 2015.

The self-selected users of our mobile participation application were mostly young adults and middle-aged people with a high level of education, and a great interest in urban planning topics. As in a number of other previous e-participation initiatives, Täsä users insufficiently represented Turku's inhabitants. However, while Täsä might have given a voice to people in advantageous positions, it certainly gave it to those who have been notoriously absent from traditional face-to-face participation. For those young adults and middle-age people, perhaps at the busiest stages of their lives, juggling job and family responsibilities, mobile participation proved its potential for civic engagement. Mobile participation's affordances, such as ubiquity and simplicity, appealed to this particular group, to bring their issues to the municipality's attention. Hence, the results suggest that mobile participation can have a complementary role in developing tools for citizen engagement.

Aiming for inclusive participation, the easiest step forward would be to introduce a mobile-optimised web-based participation platform alongside the mobile application. Websites are well-suited to involve those with older phones or those who take time to ponder by the keyboard. This idea surfaced in the feedback received during the trial, the interviews, and open questions in the post-survey. Our results are in line with recommendations that in-situ engagement should be complemented with ex-situ engagement [1]. Unsurprisingly, we found that the technical challenges quickly displaced the initial motivation to try a new application, and led to passive usage or giving up use of the app altogether. Thus user-friendliness, ease of use, and technical reliability are certainly drivers of loyalty.

The self-selection process of the users was driven by curiosity towards the new application, confirming the "novelty effect" [41] as one motivator. Courtois and Verdegem regard confidence in one's own skills to be indirectly supported by motivation [35]. In a similar manner, most of our users reported excellent mobile usage skills from the beginning. We can only estimate how much the "second-order digital divide" [22] played a role among our young adults and middle-aged user groups, and how much their skills and their trust in them affected their self-selection. Nonetheless, the same users reported learning a lot about how a mobile application can contribute to developing participatory urban planning. This result indicates that early adopters of a technology expand their

knowledge-base, which in turn helps them to better navigate future participation opportunities.

Participation in the Täsä trial happened mainly out of an interest in the city's urban planning. The results indicate that most citizens were motivated to use the mobile participation opportunity primarily as a tool to bring their own ideas to the attention of the city authorities. Despite the fact that the app had many features affording interaction among citizens, as well as between citizens and city officials, the respondents were much less interested in receiving feedback from the municipality, participating in missions (tasks) given by the municipality, or discussing planning ideas with fellow citizens. These findings on the motivation to use the app primarily independently are slightly surprising. Moreover, they also conflict with previous studies, which have found that citizens are eager to engage with planners using social media tools [17, 18]. Living labs are highly context specific and their rollouts might have unexpected turns [42]. Perhaps the technical difficulties confronted by many users might explain why the application did not develop into a more socially active platform. On the other hand, as many as half of the post-survey respondents (52%) were so-called passive users, who might have reflected upon an intention rather than the actual experience of using the app. Providing further insights into the relation between intentions and actual usage (based on saved back-end data) is beyond the scope of this paper, but will be addressed in a future analysis. Nevertheless, the large number of passive users who responded to the post-survey, giving constructive critique and encouraging comments, indicates a broad interest in an improved app. Such findings are consistent with the Technology Acceptance Model (TAM) and suggest a positive future usage intention, after realising the potential of mobile apps as participatory tools in urban planning.

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