Designing Voting Technology for Participation

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ABSTRACT
Falling levels of participation in national and local elections and deliberation around public issues are major concerns of many modern democratic states. However, how exactly technology can support active citizenship is still an underexplored area of research. Digital technologies can provide more than ready access to electoral mechanisms. They can provide a platform for deliberation and therefore realize some of the fundamental goals of democratic systems. To extract the design requirements of technology for deliberation, exploratory prototypes are developed that serve as technology probes to explore psychological and sociological constructs that drive participation. In this article the theoretical framework and methodology of my PhD research are briefly introduced and some preliminary findings are discussed.

Categories and Subject Descriptors
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous;

General Terms
Design; Human Factors; Theory;

Keywords
e-democracy; e-participation; e-voting;

1. INTRODUCTION
There are a multiple accounts of falling participation in democracy with theoretical accounts proposed from a variety of disciplines such as Psychology, Sociology and Politics. The picture that emerges from unengaged citizens is one of a disconnect from politics, leading to the conclusion that modern democracies create a system that permits participation but fail to motivate and facilitate this participation effectively [5].
Recent events, such as worldwide economic and social crises, but also the emergence of Information and Communication Technologies (ICTs) able to reinvent how we realize democracy, suggest that discussion around democracy and its implementation in western societies is pertinent. The evolution of ICTs is seen by many as an opportunity to reform our democratic societies to be more participatory and deliberative. Current research on technology and democracy is mainly focused on how to use technology to facilitate dwindling participation in national elections. In addition to facilitating access to the electoral mechanisms, technology if designed appropriately could bridge the gap between representatives and citizens by simulating the settings found in early democracies and allowing a more direct and deliberative democracy [12].
In this work we propose that the suitability of technology for democracy is highly dependent on its design. The design and features of e-participation systems will be explored to facilitate democracy by increasing participation and facilitating effective deliberation.

2. FORMS OF DEMOCRACY
Democratic theory, and more specifically the theory of deliberative democracy (DD), is one of the main theoretical frameworks of this research. Many well-known researchers in the area of Politics and Sociology with sometimes contradicting accounts are exploring the broad area of DD.
According to Fishkin [5], democratic systems can be classified in a three dimensional space. The vertical axis describes systems from Madisonian [6] to majoritarian. The horizontal axis categorizes democratic systems as direct or representative and the z-axis classifies democratic systems as deliberative and non-deliberative: systems that promote and require deliberation to reach a decision versus those that allow decisions to be made only by registering participants’ preferences.
Technology has been proposed as a possible mediator to bridge the gap between citizens and representatives and facilitate direct democracy. However, the vast majority of cyber-democratic experiments illustrate a tendency to substitute deliberative political discussion with mere registering of opinions without exchanging ideas to reach a consensus [12].
The classification of democratic systems in this three dimensional space, highlights an interesting relationship between the types of participation and democracy. More specifically, increasing the size of participation does not necessarily improve deliberation. There is a largely unanswered research question, which is finding the design requirements for ICTs to facilitate democracy by taking into account democratic conditions such as equality, non-tyranny and deliberation.

3. THEORY OF PLANNED BEHAVIOR
The theory of planned behavior (TPB) is a well-established psychological framework to explain and predict human behavior [1]. The TPB has been applied to a number of contexts such as recycling and physical exercise [4, 10] and lately it has been suggested for the context of e-participation and e-democracy [8].
A number of recent studies show the effect that some determinants of behavior can have on voting behaviors and participation. For example a recent study found that banner
messages on a social network about friends who had voted in government elections drove more than 280,000 more people to vote [2], exemplifying how social pressure can be used to increase participation in decision-making. Another possible factor of participation is the relationship between secrecy and identity, which could underlie the determinants of behavior in the TPB [3]. Another aspect of secrecy involves rules relating to the publication of interim results prior to the end of a poll. Many Western democracies forbid the publication of exit polls until after voting has closed. However, sociological studies have indicated that such social stimuli can positively affect the quality of decisions made [11].

Relative to the TPB and the determinants that contribute to intentions and behaviors is the educative function of participation [9]. According to Pateman [9], individuals should receive some training in democracy outside the national political process. What proponents of this theory argue is that, due to the mediating role of psychological factors in participation, increasing efficacy in everyday life increases political efficacy in national elections.

4. METHODOLOGY

In order to explore motivators of participation platforms to support democracy (e.g. participatory and voting platforms) will be developed to serve as technology probes [7]. Technology probes are a specific type of deployed research prototypes widely used in human computer interaction research that combine three main goals: the collection of information about the use and the users of a technology in real world; the field-testing of the given technology; and inspiring users and designers to invent new technologies to support users’ needs. Empirical studies will be conducted with technology probes designed to provoke behavior change based on the aforementioned psychological theory of planned behavior and test how these carefully designed voting systems could meet the requirements of DD such as justifiability; accessibility, reciprocity and public; binding results; and dynamic deliberative process.

5. PRELIMINARY FINDINGS

As a preliminary case study, a voting platform was developed and designed to probe the motivators of participation. Like other studies [3], the quantitative and qualitative analysis conducted demonstrated the impact that psychological and sociological constructs such as efficacy and social capital can have on participation. Intuitively, participants appeared most likely to take part in a poll when they felt their actions would have a measurable effect on the final result. Voters’ self-efficacy, the collective efficacy of the group and the change that could be brought about by the result were the most influential drivers of participation.

Informal discussions were observed to be a particularly engaging experience that motivated participation in the polls. Some features, such as commenting and vote sharing, were implemented in anticipation of such a finding but neither supported this process as we expected. The collocation of participants during office hours supported participation and provided a means for discussion. Even though this study was not designed to assess deliberation, some of the prerequisites of DD such as binding decisions and justification emerged from the interviews as important design requirements.

The system served to shift the balance of power in the working environment in which it was applied, and to make power structures visible. Some group members appeared industrious and strategic, trying to influence others, and others abstained from strategic voting. The uptake of strategic voting by some suggests that such features could facilitate participation. However, issues highlighted by non-strategic voters indicate that further work is necessary to explore the balance between the provision of strategic voting and fairness. An interesting interplay exists between efficacy and fairness, as while increasing self-efficacy through strategic voting could be important for participation our findings suggest that if the voting system provides too much power to change the final decision then participation is negatively impacted.

This study, gave us only some preliminary indications on the impact that psychological stimuli such as self-efficacy and empowerment can have on participation. We argue that appropriately configured systems to support democracy can provide a platform for deliberation and therefore realize some of the fundamental goals of democratic systems.

6. REFERENCES