BallotShare: Exploring the Effects of Social Media on E-Voting

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Abstract

Electronic voting has been used in a number of contexts and in government elections to facilitate decision making processes, increase participation and in some cases improve the quality of the final decision. However, despite the undertaken research, current e-voting systems fail to provoke participation in collective decision making. The shift from conventional voting methods to digital ones gives us the opportunity to re-envision voting as a social tool that better serves democracy by increasing participation and providing a more deliberative form of democracy that has been lost throughout the years of constitutional evolution.

Author Keywords

Decision making; e-voting; participation;

ACM Classification Keywords

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

Introduction

Since its origins in Greek and Roman history, voting has formed the bedrock of functioning democratic societies. One of the first voting methods used in Athenian democracy was the showing of hands or later using colored rocks thrown into a large jar [7]. These early voting methods provided the social setting for a
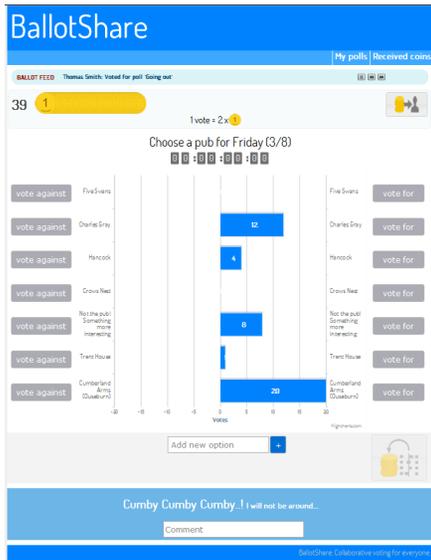
Figure 1. BallotShare: A closed poll showing the final results

deliberative participatory democracy. On the other hand modern western constitutions permit participation and facilitate access to the voting apparatus but however fail to motivate participation effectively [4]. Social media could bridge the gap between the aforementioned primordial democratic settings and modern requirements of large republics. In the USA, the use of digital voting systems has recently been championed as a way to tackle dwindling participation in national elections. However, research suggests that increasing the number of possible voting channels does not necessarily increase participation in voting processes [3]. Indeed, interesting studies [5] show that remote voting could have negative effects on participation due to the lost ritual and the lost social pressure to vote. In this paper we introduce the design of *BallotShare*, a platform designed to revisit some of the key attributes of typical formal polls to explore how social media can increase participation and provoke deliberation.

Designing e-voting

The apparently fixed attributes of voting systems observed in formal polls have evolved throughout history with the transition from democratic constitutions to large republics and usually center upon principal considerations of fairness, eligibility, verifiability, accessibility, privacy and coercion-resistance [6].

Formal modern voting contexts do not allow engagement in a deliberative voting process that will lead to quality decisions and consensus. There appears to be much to learn from a number of less formal voting instances that have developed their own voting conventions to exploit social stimuli of participation

(e.g. TV shows, idea management systems, twitter polls etc.). Rather than conflicting with voting's hard-won place at the core of democracy, such voting configurations reflect the realities of making group decisions in groups and almost mirror an ancestry model of democracy.

BallotShare

BallotShare (see Figure 1) is a social voting platform used as a probe to explore motivators of participation through the provision of voting features that could be considered provocative in the context of a poll. We implemented the following innovative features to provoke social interactivity alongside with more conventional voting functionality: votes cast were public to the online group; votes could be gifted to other poll participants; intermediate results were visible to participants; users had multiple votes to cast across many polls; negative votes could be placed to indicate disagreement; votes could be revoked and recast to introduce strategic actions; and new nominations could be spontaneously added.

User Study

Staff and postgraduate students in our research institute used BallotShare to vote on polls ranging from social activities to other spontaneous decisions that were required. Over a period of five weeks, a total of eight polls were created. From these eight polls, five were weekly scheduled polls about social activities and the remaining three were polls created by request. The duration of scheduled weekly polls varied from one to seven days in order to explore the effect that it may have on participation. Notification messages were sent to participants through email and an online messaging system.

For the first poll, email invitations were sent to a total of 18 people. From those invitations, 16 of the invited individuals participated in the poll. The mean participation for the weekly scheduled polls was 8.6, with the highest participation being 16 and the lowest being one. In general, participation in the weekly social activity polls decreased over time (see Figure 2). The mean participation for all polls, including polls created by participants, was 11.

As shown in Figure 2, at the beginning of the study both turnout and mean actions per user were relatively high. This could be attributed to the novelty of both the system and the particular decision being made. After the first two weeks, participants seemed to disengage from the regular polls. This reduction seems to have been largely caused by a perceived lack of efficacy. By the third week the decision was not being followed by the participants and active participants dropped from 16 to seven, even though two additional participants were invited. By the fourth week participation was even lower with just one active participant from the group. By comparison, participation in the unscheduled polls was quite high (14, 20 and 12 active participants), even when being run in parallel with the less popular social activities polls. Even though the system could be used remotely, collocation of participants in the working environment appeared to affect participation.

Usage logs show that most of the participants used the system during office hours and the majority of activity occurred within two hours after the invitation had been sent. The duration of the poll did not affect participation. Users tended to vote shortly after the creation of the polls and reconsider their vote shortly before voting closed. Figure 3 shows the popularity of

some of the system's features. In order to gain a greater insight into behaviors and attitudes regarding the system, we distributed questionnaires to all users and conducted 10 semi-structured interviews. Due to space restrictions we will only discuss some of the most important results.
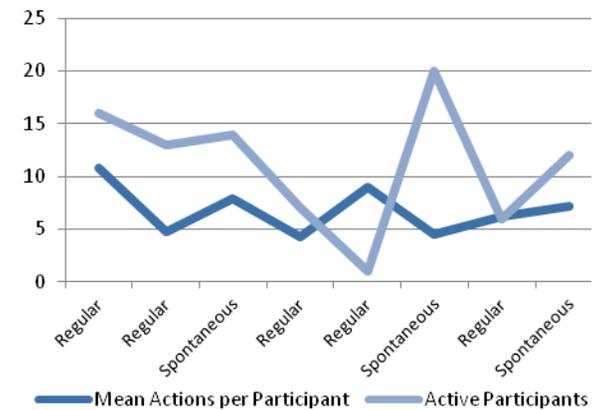

Figure 2. Active participants and actions per participant for regular weekly and unscheduled polls by request.

Discussion
Like other studies [2,8], our work demonstrated the impact that psychological and sociological theories such as efficacy, deliberation and empowerment can have on participation. Voters' self-efficacy, the collective efficacy of the group and the change that could be brought about by the result were the most influential environmental drivers of participation.

The voting system and its social features provoked offline discussions between the group which as a result increased participation in the polls. Just like in other

cases (e.g. [1]), this result shows how online social media could provoke offline action.
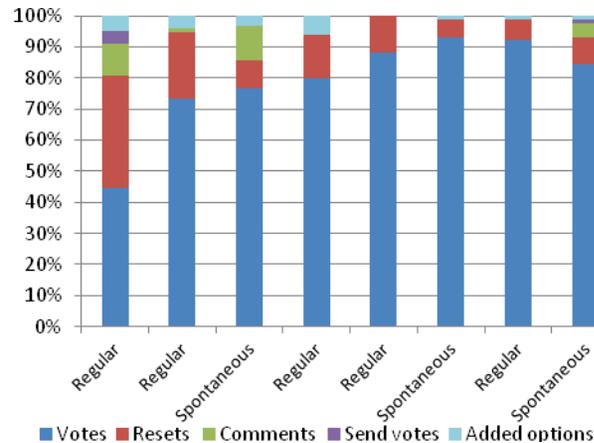

Figure 3. Usage of BallotShare's features.

BallotShare served to shift the balance of power in the working environment, and to make power structures visible that may not have been so clear before. New members of the group perceived the system as a socially non-invasive way to have their voice assimilated into the group. Numerous features of BallotShare allowed tactical voting. The uptake of strategic voting by some could suggest that such features could enhance engagement and participation. Moreover, issues highlighted by non-tactical voters show that further work is necessary to explore the balance between the provision of strategic voting and the sense of fairness. An interesting interplay exists between privacy and this sense of 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. Privacy concerns were not prominent in the study, even though user voting choices were visible on the system. Clearly such concerns are contingent upon the context and familiarity of the group members. Overall, inconsistent attitudes towards privacy were uncovered in the group, with some claiming that the partial violation of privacy engaged them to participate, and others saying that total anonymity would have been more appropriate.

Through the configuration of poll attributes and the use of social media as communication channels, we open up the discussion on how e-voting systems could serve as motivators for a deliberative, participatory democratic society.

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