Culture and context in an online voting system for young people

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**Abstract.** This paper describes the design and evaluation of an e-voting system used to elect representatives to a local youth parliament, in the Highland region of Scotland. The system was designed with a team of young people, based on their input and the evaluation of a previous system. It was used by young people in secondary schools (aged 11-18) in October 2002 and evaluated in focus groups about a month later. The paper looks at the democratic aims of the system beyond the election itself. It focuses on challenges surrounding usability for young people and a variety of social and technological challenges within the varied and unknown contexts of use.

# Introduction

Much has been written recently about the possibilities of using information and communication technologies, particularly the Internet, to reinvigorate democracy. One popular idea is to increase the convenience of voting by introducing the option of voting online. Most investigations of this idea centre on concerns about the security of the system. However, there are also important usability challenges, as well as the central question of whether e-voting could have an impact on attitudes to the democratic process. The creation and evaluation of an online voting system for use in schools enables us to explore some of these issues, with the added interest of designing for and with young people.

The e-voting system is part of an e-democracy website for a young people’s parliament. The aims of the system are to provide a convenient and reliable way to elect representatives and to give an early and positive experience of democracy through participation [1]. A further aim is to enable each voter to be suitably informed: about both the parliament and the candidates up for election.

If doubts arise about the security of the system or the accuracy of the results, the legitimacy of representatives elected through it is questioned and it is likely to have a negative impact on feelings about the youth parliament and online voting. An unattractive or difficult to use system could also create negative impressions. This would be unlikely to produce a positive experience of democracy. Thus any problems with the system itself or the voters’ perception of it can thwart our aims.

# Usability and Context of Use

The participatory design methods used in development help to minimise cultural and usability problems. However a series of contextual challenges arise due to the use of the system in up to thirty different schools, as well as other environments. Access to Internet-enabled computers varies widely between schools, as does the way that hardware and software are deployed and configured. Further, the role of teaching staff, as intermediaries, introduces an unpredictable variable. Within schools, staff control access to technology (hardware and Internet access) and, potentially, the pages of the website which voters have the opportunity to see. Teaching staff have also been given the opportunity to play supportive roles: through online access to log-in details and telephone access to the developers.

Beyond contextual challenges lie the difficulties in designing a system that will be attractive and easy to use for young people with a large range of technological experience and abilities. This is a period when young people are learning how to use technology and often becoming increasingly confident with it as well as developing from children to adults. Their choice and use of media changes, as well as their cultural preferences [2].

# Project Outline

Highland Youth Voice is a youth parliament for the Highland region of Scotland. About 80 young people (aged 14-18) are elected to represent 16,000 young people (aged 11-18) through schools and Youth Fora: these act as local constituencies. The project concerns the development of an e-democracy website[[1]](#footnote-1) to support the work of the parliament, including publicising its activities and extending online involvement to all young people in the region. The aims of the website include increasing young people’s participation in local issues and giving a positive experience of democracy.

To this end the website comprises three major sections:

* HYV News: a content management system for news and information;
* Your Voice: an online policy-debating facility in the form of an issue-based discussion forum;
* Elections: comprehensive information to support the election of members to the parliament in October 2002, including a facility to vote online.

This paper concentrates on the Elections[[2]](#footnote-2) section. Each school chooses whether to use the online voting system or hold a paper ballot. The information provided in the Elections section aims to support both methods.

A full description of the e-voting system will appear in the full paper.

# Participatory Design Method

The specification for the website was developed based on an evaluation of an e-voting website created to support the first Highland Youth Voice elections in 2000[[3]](#footnote-3). This evaluation took the form of voting figures from the elections (a comparison of turnout between schools voting online and those using a paper ballot), questionnaires completed by students in specific schools and workshops with elected members of the parliament.

A group of Highland Youth Voice members became the Web Development Team. Through meetings, workshops and increasingly functional prototypes, the team influenced all aspects of the website: from ‘look and feel’ to functionality. This process helped ensure that it was attractive to and usable by young people, as well as increasing feelings of ‘ownership’ of the website within the parliament [3]. A *Mock Election* section was created so that non-voting stakeholders, such as teaching staff, could experience the voting process.

# Evaluation Methods

Two methods have been used to evaluate thee-voting system. A quantitative method: figures based on turnout and the number of votes cast[[4]](#footnote-4) are used as a basis for comparison between voting methods (paper ballot or online) and between elections (2000 and 2002). A qualitative method: focus groups held with newly elected representatives. We also have feedback received from staff coordinating the elections. A more comprehensive evaluation is being undertaken by independent parties.

# Results

Out of 29 schools in 2000 and 30 in 2002, about a third of schools used the e-voting system, a third held a paper ballot and in a third the election was uncontested. Two sets of figures were calculated. The election turnout formula produced the number of students who voted as a percentage of those registered in that school. In 2002, this figure was only available from 3 schools out of those holding paper ballot elections. The *percentage of votes cast* formula produced the number of votes cast as a percentage of possible votes for that school (with figures calculable from all schools).

The figures for 2000 show a slightly higher turnout in schools holding a paper ballot, but a greater percentage of votes cast in schools voting online. In both cases the turnout was good. The figures for 2002 show a higher turnout in schools using a paper ballot. There was a drop in turnout from 2000 to 2002. (See Table 1.)

While the figures are not encouraging, the results from the focus groups were more positive. No major usability problems were reported and those who’d used the e-voting system called it “simple” and “fun”. They particularly liked the attractiveness of the website, the information provided and the option of voting from home.

**Table 1.** Summary of results **(**\* figure based on results from 3 schools only)

|  |  |
| --- | --- |
| **2000 Elections** | **2002 Elections** |
| **Turnout** | **% of votes cast** | **Turnout** | **% of votes cast** |
| online | paper  | online | paper  | online | paper \* | online | paper |
| 71 % | 73 % | 67 % | 61 % | 52 % | 71 %  | 48 % | 66 % |

The positioning of the online voting system within the Highland Youth Voice website enabled controlled and comprehensive delivery of information about the parliament in general and the elections in particular. This was reported as useful and interesting. This is significant in light of research into voter turnout in statutory elections. Young people highlighted a lack of knowledge, both about government bodies and the mechanics of voting, as disincentives to voting [4, 5][[5]](#footnote-5).

The use of a qualitative evaluation method gave valuable insights into the website’s context of use, especially the roles teaching staff played. In one school, staff had set the computers’ home pages to the log-in page of the e-voting system. Each student thus completed the 3-screen e-voting process without seeing the rest of the website. This unforeseen intervention meant that they did not have access to information about the parliament or to their candidates’ manifestos.

The focus groups also gave insights into the ergonomics of voting. In some schools the secrecy of voting online was compromised by computer screens being visible to the ‘next student in line’. Others reported a similar problem with paper ballot elections: being required to fill in their forms while sharing a table.

Feedback from teaching staff indicates that problems with timely distribution of log-in information was a major cause of the fall in turnout for e-voting in 2002. Each student was provided with a user name, a password and a PIN number. The first 2 were needed to use the discussion forum and all 3 were needed to vote online. Log-in information was distributed up to six weeks before the voting period to enable students to use the website’s discussion forum. However, many students were not made aware of the purpose of the log-in information and lost it before the voting period. Teaching staff do not seem to have used the mechanisms provided for easy retrieval of this information at a later date. In one school, problems seem to have arisen with a teacher interpreting the log-in information for the students. The user names consist of the student’s first name combined with a number (e.g. Ella04). In certain year groups in one school, the user names were keyed in with a space between the name and the number. The concentration of this in one place indicates staff intervention.

The way the focus groups were run and results collated will be explored in the full paper.

# Discussion

The enthusiastic responses of the focus groups indicate that the website and e-voting system were a success. As the young people in the focus groups had been successfully elected to the parliament, it is difficult to judge whether the system increased their interest in democracy through participation. Other feedback mechanisms indicate that it did. Messages left on the website’s Guest book indicate that “Voting is so Cool !!!!!!!!!!!!!!!” and “great web page really enjoyed voting great way to learn about voting and parliament”. However, for the 48% of students, who did not vote, this was probably not a positive experience of democracy.

The project is developed in iterative cycles of participation and evaluation with Youth Voice members followed by reflection and further development: reflecting the practices of action research [6]. This has encouraged flexibility to the needs and preferences of the parliament and helped to make the website suitable and attractive to the target age-range. Because the Web Development Team use the website in similar contexts to the target audience as a whole, problems with bandwidth, compatibility and usability are identified early. However, the team does not contain students from every school and technological contexts differ widely between schools [7].

Some contextual problems could be avoided by a detailed analysis of the technology in each school. Other problems arise from the roles of teaching staff as stakeholders in the project. Staff were provided with ‘Teachers’ Packs’ containing comprehensive information about the elections, both paper ballot and online. These included an illustrated step-by-step guide to the online voting system and instructions for downloading students’ log-in details at any time. However problems with log-in interpretation and distribution, plus use of the log-in screen as a start page, indicate that a closer understanding between teaching staff and developers is needed.

# References

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1. http://www.highlandyouthvoice.org/ [↑](#footnote-ref-1)
2. http://www.highlandyouthvoice.org/elections [↑](#footnote-ref-2)
3. http://itc.napier.ac.uk/e-voter/version1highlandyouth/default.asp [↑](#footnote-ref-3)
4. Each student had 2 to 3 votes, depending on the size of the school. [↑](#footnote-ref-4)
5. It is interesting to see how the e-voting pilot in Sheffield (UK) in the May 2003 local government elections, provides information about the work of the Council within its e-voting tool: http://evotesheffield.com/ (accessed May 2003) [↑](#footnote-ref-5)