

University of Dundee

Audience and Expert Perspectives on Second Screen Engagement with Political Debates

Gorkovenko, Katerina; Taylor, Nick

Published in:

TVX 2019 - Proceedings of the 2019 ACM International Conference on Interactive Experiences for TV and Online Video

DOI:

[10.1145/3317697.3323352](https://doi.org/10.1145/3317697.3323352)

Publication date:

2019

Document Version

Peer reviewed version

[Link to publication in Discovery Research Portal](#)

Citation for published version (APA):

Gorkovenko, K., & Taylor, N. (2019). Audience and Expert Perspectives on Second Screen Engagement with Political Debates. In *TVX 2019 - Proceedings of the 2019 ACM International Conference on Interactive Experiences for TV and Online Video: Proceedings of the 2019 ACM International Conference on Interactive Experiences for TV and Online Video* (pp. 70-82). (TVX 2019 - Proceedings of the 2019 ACM International Conference on Interactive Experiences for TV and Online Video). New York: Association for Computing Machinery. <https://doi.org/10.1145/3317697.3323352>

General rights

Copyright and moral rights for the publications made accessible in Discovery Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from Discovery Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain.
- You may freely distribute the URL identifying the publication in the public portal.

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Audience and Expert Perspectives on Second Screen Engagement with Political Debates

Katerina Gorkovenko
Design Informatics
University of Edinburgh
Edinburgh, UK
k.gorkovenko@ed.ac.uk

Nick Taylor
DJCAD
University of Dundee
Dundee, UK
n.x.taylor@dundee.ac.uk

ABSTRACT

Televised debates remain a key point in elections, during which there are vast amounts of online activity, much of it conducted through personal devices or *second screens*. Amidst growing recognition of the influence of online political discourse, we explore the issues and opportunities arising at this specific point in election cycles, using a design-led multi-stakeholder approach to understand both the audience and expert perspectives. Workshops with debate viewers highlighted six key issues and possible solutions, which were encapsulated in four speculative design concepts. These were used to prompt further discussion with political and media experts, who were able to identify the implications and challenges of addressing the opportunities identified by the participants. Together, these perspectives allow us to unravel some of the complexities of designing for this multifaceted problem.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**.

KEYWORDS

Second screens; television; debate; politics; social media; design research; speculative design; Facebook; Twitter

ACM Reference Format:

Katerina Gorkovenko and Nick Taylor. 2019. Audience and Expert Perspectives on Second Screen Engagement with Political Debates. In *ACM International Conference on Interactive Experiences for TV and Online Video (TVX '19)*, June 5–7, 2019, Salford (Manchester).

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.

TVX '19, June 5–7, 2019, Salford (Manchester), United Kingdom

© 2019 Association for Computing Machinery.

ACM ISBN 978-1-4503-6017-3/19/06...\$15.00

<https://doi.org/10.1145/3317697.3323352>

United Kingdom. ACM, New York, NY, USA, 13 pages. <https://doi.org/10.1145/3317697.3323352>

1 INTRODUCTION

Modern elections and referendums are contested across multiple media platforms working in tandem, composed of traditional media, including television, and digital outlets, including social media [1]. While in the past citizens had limited opportunities to engage with political campaigns, today engagement is facilitated by social networking sites including Twitter, Facebook and Instagram [1, 8, 32]. However, research indicates deep-rooted issues with the use of social media for political discourse, including fake news [17, 24], filter bubbles [41], echo chambers [19] and trolling [10]. These issues combined with revelations around data mining and targeted political advertisements [25] indicate that the technologies we work with in HCI, particularly social media, are having a dramatic impact on democratic processes around the world.

We are particularly interested in how these issues are manifested around televised political debates, where viewers utilise their personal devices or *second screens* to gauge the opinions of the public, share their own views, or as a form of entertainment [20]. Within this work we adopt a broad definition of second screens as devices used alongside television for activities that are both related and unrelated to the broadcast [7, 11, 14, 18, 39]. Political debates are a key point in election campaigns, where social media activity is particularly high. Previous research has explored how Twitter is being used in this context [2, 7, 21], what motivates viewers to use their devices [20], and the effect of social media on opinion formation during debates [33, 34]. What remains is to identify directions for the development of appropriate second screen tools that cater to viewers' needs and address the current issues with political discourse online more broadly. However, we argue that to do this we must account for the numerous stakeholders who shape this complex landscape.

Using a design-led approach, this research aims to identify the opportunities and challenges for political discourse alongside political debates from multiple perspectives, involving both viewers and experts, including politicians, television

producers and academics. These insights can be used to identify new design directions for second screens that respond to critical issues in online discourse. The research questions this paper addresses are:

- (1) What do viewers see as the key issues with political discourse at large and how are they manifested when using second screens during televised debates?
- (2) How might future second screen applications attempt to address these issues and what are the potential implications of this type of intervention?

Through a series of workshops with political debate viewers, we contribute an audience perspective on the issues with political discourse online and opportunities for second screens to address them. Based on these, we contribute four design concepts for second screen tools, used to capture possible solutions and prompt discussion. Finally, we contribute an expert opinion on the implications of addressing the issues and the designs themselves, which point to a disparity between viewer's expectations and complexities of addressing them. Our findings can inform the way future tools are developed for a more engaging and informative viewer experience.

2 BACKGROUND

Online Political Discourse

The internet has been widely adopted as a platform for discussion, campaigning and information dissemination during election periods [1, 2]. There have been high hopes that the internet can enable more inclusive political engagement, but while it is easy to voice opinions online, it is difficult to be heard [27]. As a result, influence online belongs to a small group of journalists, politicians and experts [3]. Furthermore, there are numerous barriers to participation that stop the public from contributing online, such as privacy concerns, uncivil behaviour and difficulty expressing ideas [4, 26, 41]. Trolling, the act of disrupting discussion spaces through deliberate provocation, can be especially detrimental to political discourse, where individuals can find themselves under continuous attack due to their views [26].

More recently, the influence of social media in politics has been thrown into sharp relief. Political forums and chats often contain groups of like-minded people who reinforce each other's views [45], creating echo chambers that limit exposure to diverse opinions [19]. Tools for political deliberation, like Poli [40], attempt to counteract this homogeneity of political views by curating diverse political content. The term *fake news*, describing non-factual information circulated as legitimate news, has been recently popularised in the media and recognised as a serious issue in democracies [17, 24, 43]. These articles are shared through social media, where subsequent fact-checks rarely reach those affected

[24]. Finally, the use of bot accounts and targeted advertising to intentionally manipulate political discourse have been recognised as a significant challenge [28].

Second Screens and Political Discourse

Political debates are often accompanied by *second screen* activity [2, 8, 20, 21]. This refers to personal devices used while watching television [38], both to access information relating to the show and for unrelated activity [36]. Broadcasters and television producers have catered to this emerging activity through dedicated hashtags and applications for specific programmes and events [38]. Event-specific applications, such as the ones developed for the Olympics, must address challenges such as synchronising content and limiting the need for visual attention [38]. However, the majority of second screen activity gravitates towards pre-existing social networks, in part due to their ability to foster a community [33, 39].

Much of the second screen activity around debates takes place on Facebook and Twitter [2, 20, 21]. Viewers utilise second screens to gauge the opinions of the public, share their own, and as a form of entertainment [20]. But they also face many of the same issues faced in other political discourse online, including a filter bubble effect, fear of provoking others, and reaching an unwanted audience [20]. Furthermore, using social media alongside a debate can influence viewers' opinions in favour of the online majority [33, 34], which raises concerns about the implications of encouraging political second screen use.

Tools to Support Political Engagement

Supporting better forms of political discourse is an active area of research. For example, ConsiderIt [30] encouraged political deliberation through a pros and cons format, where users submitted their opinions on election ballot measures, while Political Blend [13] was developed to break people from their existing echo chambers by introducing them to people with different political views. It supports face-to-face meetings, encouraging a personal interaction [13].

In second screen research, Democratic Replay [37] aimed to tackle trust and public engagement by supporting fact-checking and argument visualisation. Spotting Guide and Moral Compass [16] used social tagging, a process of attaching tags to content, to enable more critical viewing of politically charged reality television. Finally, Social Printers [23] explored the possibilities of a physical social network using IoT devices alongside political debates, where they discovered that some issues such as trolling and uncivil behaviour were not observed, while others, such as an echo chamber effect, became amplified. This augmentation of the prominent issues within debate second screen interactions

indicates that by changing the format of online discourse we may be able to affect its quality.

Design Research for Complex Problems

Previous research into online political discourse has largely focused on collecting and analysing Twitter data [3, 8, 42], and similar approaches have been used in second screens research [2, 7, 21]. Although this provides a good understanding of current behaviours, it is less capable of capturing the perspectives of different stakeholders involved in televised debates and the possible implications of interventions. By comparison, design research is well-equipped to explore complex, multi-faceted problems that cannot be captured or understood using traditional approaches [47]. Design interventions described above [16, 23, 37] are examples of how this approach can be used in the second screen space, but do not account for the many stakeholders at work.

As we consider possible future approaches that do not yet exist, speculative design can create space for discussion around different possibilities [15], aiming not to solve the problem, but to explore the problem space and identify potential benefits and challenges of different solutions. Similarly, design fiction creates discursive spaces through the creation of a broader world and narrative [31]. For example, by adopting fictional design concepts from science fiction novel *The Circle*, Wong et al. [46] found that the concepts were successful in highlighting their privacy and surveillance implications. They suggested that design fictions could be used as interview probes to enable reflection.

3 STUDY DESIGN

We have used multiple methods to capture and bring together both audience and expert perspectives on current issues and opportunities around the use of second screens during political debates. Below, we describe a process using workshops to identify issues and opportunities from an audience perspective, which were used to inform the design of four speculative second screen concepts. These concepts were used to prompt discussion with political and media experts to understand the wider context around the issues and the implications and difficulties of addressing them.

Audience Workshops

We conducted four two-hour workshops with 18 participants in total, where they discussed the issues with political discourse online at large and the opportunities for second screens. To guide discussion, the workshops were conducted alongside recent televised debates from national broadcasters: the first two workshops watched a BBC *Question Time* debate about the UK's EU referendum, while the second two watched a Scottish party leaders' debate from the UK 2017 General Election. Participants were also given printed tweets

and Reddit threads generated by the public throughout the debate they were viewing. The lead researcher selected 30 tweets from the 'top' page on the relevant hashtag, and the three most highly voted comment threads from the relevant discussion topics on the "ukpolitics" subreddit.

The discussions were structured around four topics inspired by Kietzmann et al.'s [29] parts of a social network to encourage the participants to consider how changing the way communication is enabled would affect the experiences of viewers. The discussions were structured around the following open-ended topics: (1) *content*, including value of the content they were given, what made content appropriate, and how to encourage the sharing of trustworthy information; (2) *identity*, including what information participants would like to share and to see about others, how an online profile can enable trust and respect, and how anonymity affects discourse; (3) *communication*, including how a tool could support meaningful political discussion during debates; and (4) *relationships*, including the relationships between users, how we could increase empathy, and diversity within social networks.

We recruited 18 participants through mailing lists, posters, flyers, political Facebook groups, Twitter, and snowball sampling at each workshop. This relatively small cohort of participants reflects similar qualitative research practices [12, 13, 16]. The events allowed us to generate 8 hours of in-depth group discussions and 212 written notes generated by the participants. Participants ranged in age from 21 to 56 ($M=30$; $SD=9$), nine were female and nine male. There were nine different nationalities (American, Brazilian, British, Bulgarian, Ghanaian, Irish, Kenyan, Mozambican and Peruvian), with the majority being British ($N=9$). Participants self-described their political engagement as low ($N=2$), medium ($N=4$) and high ($N=12$), but all were regular debate viewers or otherwise interested in politics. Participants who were eligible to vote in the UK reported voting for a variety of different parties. We refer to these participants as P1 to P18. Participation was voluntary and without a reward.

Design Concepts

We adopted a speculative design approach to convey the workshop findings to experts in a way that would support discussion and reflection. We created a series of four design concepts to serve as mediators between the audience and expert perspectives. These were not intended to act as solutions, but rather to encapsulate the key issues within the findings. By offering possible futures, none of which were intended to be without faults of their own, the designs were intended to act as provocations to prompt discussion and highlight the implications of addressing the workshop results. Simple mock-ups were presented to the experts by the lead researcher with a short descriptive paragraph.

Interviews with Experts

Seven political and media professionals were recruited to give their feedback on the issues and design concepts. Due to their limited availability, the experts' insights were gathered through one-on-one semi-structured interviews that lasted between 38 and 56 minutes rather than a workshop. Each interview started with an overview of the workshop results, followed by a discussion about each of the design concepts.

E1 is a researcher for a major social media network who focuses on social psychology. E2 is an elected city councillor who previously worked as a political advisor for 15 years. E3 was a newspaper journalist before becoming a politics textbook author and journalism lecturer. E4 is a policy researcher who used to be a local political party vice-chair, and has been involved in the running of elections and referendums locally. E5 is a politics lecturer who researches public opinions around political debates. E6 has been the interactive producer for a major political debate program in the UK since 1999. Finally, E7 is a professor of politics who was part of a parliamentary commission on digital democracy.

Data Collection and Analysis

The workshops were recorded and transcribed, then analysed in relation to the workshop topics (content, identity and communication) to draw out key issues and opportunities identified by the participants. No strong feedback on the topic of relationships emerged during the workshops because discussions around relationships between users were only discussed in relation to other topics. These issues were used to develop a number of design concepts, which were iterated until the research team was satisfied that they encapsulated the issues raised without offering solutions that were too concrete. Expert interviews were transcribed and thematically analysed [6] by the lead researcher. The codes and themes were verified by a second researcher until reaching overall agreement.

4 WORKSHOP RESULTS

Below we describe our findings from the workshops, focusing on both the issues with political discourse that are manifested during debates and opportunities for future second screen applications to address these issues.

Content

Issue 1: Lack of fact-based, informed content. The participants felt that social media, televised debates and the news have a lasting effect on people's understanding of key issues. As a result, participants showed a strong desire for extremely factual information, which they felt was not present on current platforms. Instead, they felt that political discourse online was "propagating untruths".

Televised debates themselves were also perceived to lack fact-based discussion and instead repeat party rhetoric. This confused viewers who felt that they were being exposed to conflicting information. For example, P12 recalled how one candidate said "pensioners are actually £1,000 better off [...] but everything else I have read says the total opposite". Thus, social media became a useful information source alongside debates: "I feel like if mainstream media was doing its job properly people wouldn't need Twitter" (P3). Participants felt that despite second screens' potential to be used as a crowdsourced fact-checker, the content they had observed alongside debates was like "noise", lacking "substance" and "political education".

Opportunity 1: Increase informational value through supporting material. The participants felt that a second screen tool should be there to enlighten the public. They saw three opportunities to increase the informational value of online content. Firstly, by providing factual complimentary material provided by the political parties through a second screen tool to support their claims. Secondly, that second screen tools should also encourage viewers to share the history and context of their opinions (P8: "Everyone must try and explain why they feel a certain way"). Finally, though a viewer generated fact-base consisting of official and media sources. P9 said it should be open source, publicly accessible, reliable and independently regulated, much like Wikipedia. A tool that enables users to quickly and easily find facts could help the public identify misinformation from the live debate.

Issue 2: Writing and understanding content is difficult at fast pace. The tweets and Reddit posts at the workshop were seen to lack insight and political focus. The participants felt that Twitter's short comment length meant that content could easily be misinterpreted due to the way it is worded. The vast amounts of tweets generated live along the debate also meant that any "useful comments get just lost" in the crowd. Reddit was seen as "useful" but "too long", while Facebook's recent live streaming and commenting tools were seen as chaotic. P14 thought that the low quality of online content is in part due to how difficult it is to write commentary and watch the debate at the same time. All of these issues around how difficult it is to understand and write second screen content were tied to the limited tools we use.

Opportunity 2: Create alternative participation methods. The social networks we use alongside debates enable us to view opinions and share our own in a way that does not complement the fast-paced debate. To enable political focus, P8 had the idea of compartmentalising the discussion by prompting viewers to share their thoughts on the debate questions, which could help increase content quality by giving posts more context, while lowering visible quantity. Rather than

written posts, P14 felt that viewers should be able to provide views in a simpler form: “*you get agree or disagree on an app and you just tick [...] it stops you having to type*”. P10 envisioned an online network like Twitch, which lets people live-stream themselves while others send them messages. P13 imagined a tool that is centred around a game “*where you can put in how you think the country should be governed and actually model that and show other people*”.

Identity

Issue 3: Anonymity can empower abusive behaviour but revealing identities can negatively impact users. From personal accounts and observations, participants often attributed abusive and derogatory language online to anonymity. P5 felt that anonymity online is “*dangerous*”, while P16 recalled how her 17-year-old friend was bullied by an anonymous Twitter account due to her political views. While anonymity can help people express themselves more freely, they also leave a record that can be seen by our friends, family and employers. P12 felt that political discourse “*shouldn’t have to factor in your family and friendships and getting jobs*”. Furthermore, your location and job may be used as a tool to undermine the value of your opinions. P3 described how in Kenya, a person’s name is indicative of the region they come from and opinions may be dismissed based on that information alone.

Opportunity 3: Support equal levels of anonymity or disclosure between all users. Some participants supported full transparency online, reasoning that sharing their name, age, education, ideology and even salary could aid a self-regulated respectful discussion, because people’s experience could validate their opinions. P17 felt that despite fears people may have, it is vital that there is an open discussion with full transparency because it is “*the most effective way of defending our freedom of speech*”. Other participants preferred pseudonyms, which would still enable respect and civil discussion while allowing relationships and a sense of community to be built over time. Due to this disagreement, discussion leaned towards promoting choice and equality. Participants suggested that debate viewers should have a choice in their online presence and be able to take part in both pseudonymous and full-identity networks—but suggested that second screen tools could restrict interactions between profiles with unequally visible personal information.

Issue 4: Filter bubbles can limit viewers’ exposure to diverse political opinions. In the context of online political discourse, it was seen as beneficial to be exposed to a broad range of opinions that challenge your own views. The participants were aware of effects commonly referred to as filter bubbles or echo chambers: “*you can be fed stuff that kind of backs your opinion, which is I feel social media’s extreme weakness at*

this point” (P14). They identified that the structure of social networks can limit exposure to diverse opinion through the way they bring people together. The pages users follow and the friends they have influence what content the network shows them, having the effect of relegating content and perspectives from outside their personal network.

Opportunity 4: Create diversity in the discussion by curating groups of users. In line with the ethos of political debates, participants felt a second screen tool should connect people with different views. P8 imagined a tool with different topic-related chat rooms, where a user would volunteer information such as voting history, location and interests, to allow “*debating in assigned rooms, based on a diverse population of people*”. By compartmentalising the discussion and grouping viewers, a second screen tool could both limit the vast amounts of content and allow users to talk about issues they are interested in. P13 imagined a forum where each discussion topic was split in two, where users see both sides of an argument and can contribute to either.

Communication

Issue 5: Communication with others alongside the debate can be uncivil. This was seen as a major issue in political discourse due to its ability to deteriorate the discussion: “*if someone says something offensive that dominates the political debate*” (P8). Although participants recognised that free speech is vital for political discourse, they felt that abuse and trolling border on anti-social and criminal behaviour and have the potential to make a lasting negative impact.

The format of the debates themselves aided personal attacks. Both the media and the public comment on the way the politicians dress, talk and behave. For example, P9 observed that one UK politician’s appearance was routinely criticized by news outlets. However, while the participants were aware that politicians’ self-presentation was often used to attack and undermine them, they often did the same when focusing on the debate within the workshop. P18 identified that political debates stimulate an emotional reaction, where it is difficult for viewers to “*filter their thoughts*”.

Opportunity 5: Reorient discussion around a fact base and smaller group discussions. It was agreed that online content needs to use “*non-derogatory language, productive discussion, backed by evidence, not assumptions*”. The participants felt that reorienting the discussion around facts and sources, rather than subjective opinions, would lead to more civil discussion. When viewers are posting personal opinions, they should be prompted to share the reasons for their opinions, which would enable understanding. Moderation was seen as a viable way to establish a self-regulated and productive discussion. P18 felt that a “*flame war*” on social media is mostly

conducted for the benefit of the audience, which could be tackled creating intimate conversations with fewer people.

Issue 6: Users lack power within the network. Participants saw huge potential for social networks as second screen platforms alongside debates, including improving personal debating skills, gaining in-depth understanding of the issues and establishing meaningful connections. In this way, online discourse can create “value for the community” and help “build civil society”. However, they felt that these benefits are undermined by the unequal distribution of power between the networks and their users. In their current form, social networks mediate and moderate the discourse, which was seen as problematic, particularly in light of recent allegations that bot accounts are being used to influence election and referendum results internationally [5], and the perception that social networks’ policies are opaque or unevenly applied.

Opportunity 6: Delegate moderation powers to users. The participants envisioned future second screen tools that could shift the power to the users, with moderators from within the community and a code of conduct to support enable communication that is “always respectful and following pre-determined rules”. The moderators could be determined by “a system allowing a reputation score”, while respect between users could be encouraged through a sense of community that spans beyond political allegiance. This could be done by amplifying other commonalities between people, such as their interests and location. A mix between a forum and chat room was widely favoured, as forums benefit from having a compartmentalised discussion with some level of moderation, while chat rooms can foster a personal conversation.

5 DESIGN CONCEPTS

Based on the issues and opportunities generated by the participants, we developed four speculative design concepts. They attempt to make visible some of the possibilities for using second screens to address current issues with political discourse. Although second screens do not need to be social, the designs all have social elements because they tend to seek a way to help debate viewers voice their opinions, find facts, or interact with others, which were seen as beneficial in the workshops.

Viewers’ Debate

This tool would allow debate viewers to find, submit and summarise links to external information to make a case for or against policies being discussed during the debate (Figure 1). Users would moderate the content by voting for or against links on both sides of the argument, in a similar fashion to Reddit. Rather than directly tackling fake news or enabling fact-checking, it aims to expose viewers to a wide range of quality information and viewpoints that differ

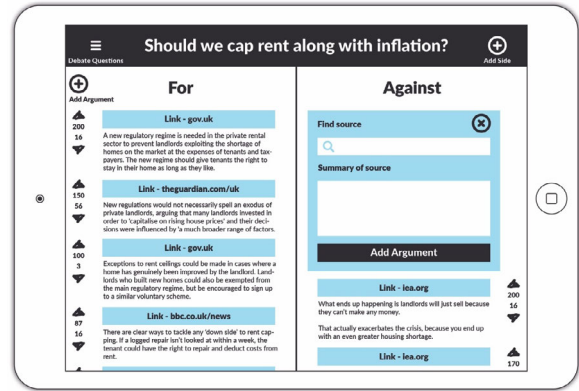


Figure 1: *Viewers’ Debate* is used to share links to external sources during a debate.

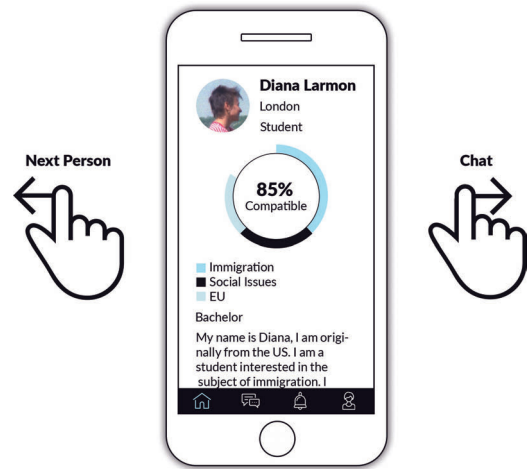


Figure 2: *Political Date* supports one-on-one conversations between viewers with differing opinions.

from their own and ultimately to break their filter bubbles. It also aims to tackle issues around anonymity and identity by eliminating user profiles altogether.

This design responds to the strong desire for fact-based deliberation (Opportunity 1), but also incorporates elements of Opportunities 4, 5, and 6. The application was partly inspired by ConsiderIt, a political deliberation tool [30]. The main difference is that *Viewers’ Debate* only lets users share links to external sources rather than opinions.

Political Date

Political Date (Figure 2) was inspired by apps including Tinder and Chat Roulette, where users are potentially exposed to a wide variety of other users. Rather than start romantic relationships, *Political Date* would enable one-on-one chat

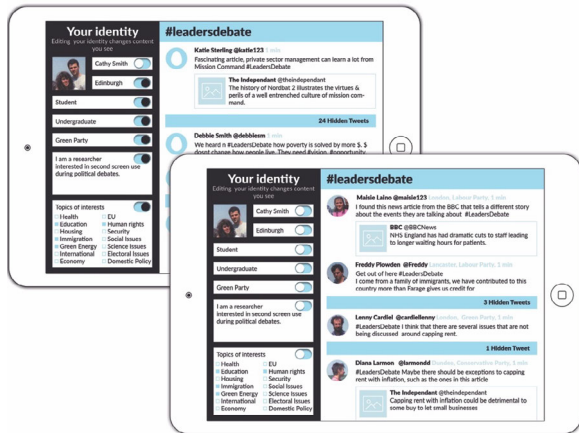


Figure 3: *Identity Equality* only allows discussion between people with the same degree of anonymity.

between people with different political views during a televised debate, aiming to encourage personal, civil interaction between users with different perspectives. Profiles would summarise the users' views on different issues (e.g. health-care or sustainability), allowing comparison with other users on both points of similarity and difference between them.

This concept responds to Opportunities 3 and 4, which relate to identity. The ability to compare different aspects of you and your partner's political positions was designed to reduce the temptation to see the other person solely in terms of a single issue, considering things you share as well as things you do not.

Identity Equality

Identity Equality (Figure 3) would promote equality between users by removing differing levels of anonymity. Although it would give users full control and choice in their self-representation online, allowing them to reveal as much or as little about themselves as they wish, it would only allow them to see and interact with content from accounts that have made the same level of public personal information available. This enables them to interact with others on an equal basis. We expect to see a positive influence on comfort levels within users and the emergence of civil discourse within the more developed identity discussions.

This tool mainly addresses Opportunities 3, 4, relating to identity, and Opportunity 5, relating to communication. By restricting interactions between users to a network of people with the same level of public information available, the tool aims to encourage respectful and equal communication.

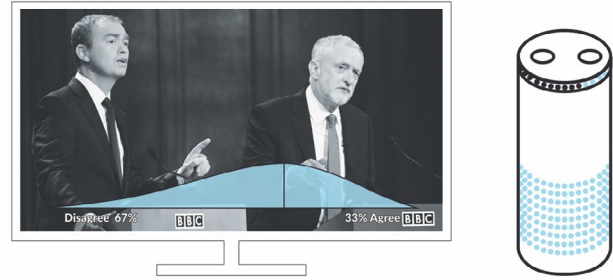


Figure 4: *Live Feedback* utilises voice assistants to judge reactions in real time.

Live Feedback

Live Feedback (Figure 4) would use voice assistants in the home to capture viewers' sentiment in real time, judging whether they agree and disagree to the arguments brought forward by the politicians. Based on the sentiment analysis, the feedback would be overlaid onto the debate as a wave-like visualisation reflecting the quantity and attitude of viewer opinion. This concept would automate feedback collection and would also remove any personal communication, which will eliminate abuse between users and include viewers who are keen to avoid confrontation on social media.

The design explores ways to address Opportunity 2, where participants expressed a desire for new forms of feedback, reflecting difficulty in responding quickly enough. It also responds to concerns about arguments and abuse online that discouraged participation.

6 EXPERT FEEDBACK

The design concepts were presented to a series of experts for feedback. Overall, the experts felt that the workshop results accurately reflected the issues with political discourse. Uncivil behaviour and anonymity were generally seen as the most prominent of the six issues. However, considering recent claims of foreign intervention through social media, which dominated the media at the time, E2 felt that the biggest issue with social media is its openness to abuse by external influences. There was no one specific design concept that was favoured by the majority of experts. Instead, they predicted an ever-changing and diverse design space that adapts to issues and caters to a variety of viewers (E7: "different tools for different people, different types of conversations").

Fact-Based, Informed Content

The lack of fact-based and informed content online was by far the most controversial issue for the experts. Most felt that this claim was problematic: E5 referred to Shephard et al. [42], which contradicts the notion that content on

Twitter is uninformed. Furthermore, political discourse is often speculative and opinion based—for example, when discussing the likely effects of a possible future policy. These positions are represented as facts, which can seem biased to viewers. E4 felt that rather than creating a new second screen tool, broadcasters could promote the perception of a more-fact based debate by allowing additional information to be displayed on-screen.

Despite their issues with the underlying beliefs, *Viewers' Debate* received positive attention. The experts felt that voting on content should be excluded because viewers would not be able to appropriately access the credibility of sources, instead such tools should focus on exposing viewers to a wide range of content. Conversely, E1 felt that in order for *Viewers' Debate* to promote people's understanding of key issues, sources would need to be verified. She felt that vetted individuals such as journalists or an independent body of professionals, rather than viewers, should fact-check sources.

E6, who works as an interactive debate producer, felt that a complex tool like *Viewers' Debate* could be difficult to use alongside a debate due to time pressures, but could bring about great benefits by extending the conversation throughout the week after the debate: (“go beyond a mere one-hour shouting match and actually take it onto a much more serious and informed debate on a more prolonged scale”). It could promote reflection among viewers in the days following the debate and be used as an information bank.

Uncivil Communication

There was an overall agreement on the issues caused by uncivil behaviour: “it is a very hostile environment and people are often right to step away from it” (E4). E1 felt that eliminating anonymity, as in the case of *Political Date* and parts of *Identity Equality*, would decrease anti-social behaviour. She referred to YouTube as an example: “the abuse got so bad that they had to enforce a comment-only-if-you're-logged-in policy, which drove down engagement but also decreased harassment”.

There was no agreement on which of the design concepts would encourage respectful conversation the most. E5 and E7 felt that *Identity Equality* would encourage civility, while the politicians and debate program producer seemed to favour *Political Date*. E2 felt that no digital tools encouraged a collectivist view of the world or finding common ground with each other. Instead, he felt that face-to-face communication is better for political discourse, so favoured that way that *Political Date* was “effectively digitising face-to-face conversation”. E6, who works as a producer on a debate program, compared the interaction that *Political Date* may create to what he observes in the program between audience members. On the other hand, the politics professors felt that *Political Date* would not encourage political deliberation because it

would break the debate viewer's filter bubble, thus hindering a relaxed conversation.

Filter Bubbles and Echo Chambers

Filter bubbles were seen as contributing to people's perceptions of a lack of informed content. E7 felt that they are at times responsible for the public's inability to spot fake news, because they see a very limited scope of bias and opinions. At the same time E6 and E7 doubted the public's genuine desire to escape those bubbles, especially during political debates. E7 states that “people are only willing to deliberate and discuss [...] when they agree with each other”, citing Mutz [35], who identifies a common misconception that the public want to discuss and deliberate, whereas in reality only a minority of informed individuals participate.

The rest of the experts felt that breaking the existing filter bubbles during political debates is vital to help inform people's voting choices. The two design concepts that are meant to address this issue are *Viewers' Debate* and *Political Date*, but they were both found to be at risk of creating filter bubbles of their own. Both were thought to appeal to only a narrow subset of particularly engaged viewers.

However, *Viewers' Debate* was favoured by E1, E3 and E5, who felt that it has significant potential to expose viewers to a wide range of opinions. Even if the content is imperfect, E3 felt it may still be beneficial to viewers who observe the range of information. E2 and E4 preferred *Political Date*, identifying that one-on-one conversation in the context of a political debate would be less intimidating, less time demanding, and more entertaining. Contrary to E7's citation of Mutz [35], they felt that the way the interaction is structured may even feel supportive due to the highlighting of similarities between users. E4 felt that the tool would be more engaging if it matched people based on opposing views on key issues such as immigration, instead of differences in party allegiance.

Effects of Different Media

In the context of political debates, current second screen tools can feel inaccessible to the general public. Of our designs, *Viewers' Debate* was seen as the most inaccessible tool for the public due to the level of involvement and knowledge required, while *Live Feedback* was seen as the only design concept that supported feedback from less politically engaged segment of the audience.

Despite this, *Live Feedback* was the most disliked concept, with concern being raised around the ethics of collecting and owning the data, its reliability and its effect on the debate. However, it was also seen as the most likely to come into existence in the near future, since it has the most potential to excite TV producers, politicians and pollsters. At the most extreme, E2 felt that with the prevalence of smart TVs

and personal assistants, it would eventually be an opt-out rather than an opt-in aspect of watching televised debates. E1 felt *Live Feedback* could encourage the public to be abusive towards the politicians, while E2, E3 and E5 thought that it would encourage politicians to appeal to the masses by expressing populist opinions. Instead of agreement, they felt the tool could measure party allegiance of the viewers throughout the debate: “[it] could tell us what we are getting right and what we are getting wrong” (E4).

Identity and Anonymity

The experts also agreed that anonymity is linked to abusive behaviour. E4 pointed out that in addition to not developing an online profile, people can also feel anonymous by hiding in plain sight (“in the sense that it gets lost in the crowd”). They felt that with a smaller group of people, as in *Political Date*, “people will automatically behave themselves a bit more”. Although that may positively affect behaviour, *Political Date* would not aid the formation of a community, which E7 felt was vital for engagement. Instead, tools like *Identity Equality* could help people build their confidence and relationships with others over time. Despite this E2 felt that it may “become too dry too quickly”, with only a small group of very engaged individuals engaging with the full-identity sections.

E4 and E5 noted that the design concepts highlighted vital questions about the meaning of labelling oneself with a party allegiance or specific topic of interest (E5: “Are they a member of the Green Party, did they vote Green last time, are they going to vote Green next time?”). Instead users should be allowed to provide a more nuanced biography. They also saw potential in combining the core concepts of *Identity Equality* with *Political Date* and *Viewers’ Debate*. By elevating the importance of equality between users, promoting intimate conversations, and developing a community, a tool could have a positive effect on behaviour and ability to deliberate.

Regulation and Moderation

E1, who works for a major social network, felt that it is possible to enable more civil and productive discussion by empowering the public to moderate together like in *Viewers’ Debate*. However, E7 explained that the different perspectives on expression online across the globe makes it difficult for networks to accommodate for everyone. When E1 was asked if future social networks would be able to account for these differences for political contexts she said: “trying to meet everyone in the middle is the best compromise I can see”. Contrary to the view that social networks can find a compromise solution to discourse regulation and moderation E2 felt that “we will come to the point reasonably soon where people think, why on earth did we allow these companies to have a global monopoly on how we interact as human beings?”

Instead, E7 predicted that the future of second screen tools for political debates would be very volatile and dynamic, with many tools for different types of people. She felt that these tools would be owned by the major social networks that exist today because of their capital and influence, instead she felt governments could “promote regulations and laws that shape and frame the space”. On the other hand, E5 felt that broadcasters could take a stronger role in moderating and facilitating discourse by integrating second screen tools more closely with their existing online resources.

7 DISCUSSION

Designing appropriate second screen tools inevitably involves engaging with the larger issues with online political discourse. The experts felt that the range of issues viewers are currently experiencing are all interconnected: anonymity empowers abusive behaviour, filter bubbles limit our ability to spot factual and false content, and the prevalence of social networks enables all of the above. However, there are opportunities for the development of a healthier practices around second screens and debates. Below, we discuss some of the key themes from our research that suggest possible ways forward, drawing on both viewer and expert insights.

Alternatives to Fast-Paced Interaction

A recurring theme in the discussions were the barriers to less politically engaged viewers becoming involved in the conversation. The participants reflected that the real-time format of the debates meant that viewers experience a time pressure to write and interact with others online. This contributes to the kind of commentary that participants felt lacked substance and was also particularly difficult for less politically engaged viewers. Future second screen tools could take multiple approaches to this problem, either by helping viewers to share their opinions more easily or by prolonging the conversation beyond the broadcast.

To simplify interfaces, workshop participants imagined an agree/disagree interface for rapid feedback, but other possibilities exist. Previous research has explored feedback cards to allow viewers to give nuanced feedback [12] or social tagging as a way to enable critical viewing [16]. New technological developments in the home, such as Internet of Things devices, could help facilitate instant interactions with the debate content and provide an alternative to conventional applications [23]. However, the critical response to *Live Feedback* shows that this could be controversial, and experts felt that such a tool may have negative effects on the debate quality.

Faster, easier interactions might exacerbate issues around low-quality content. Instead we propose that second screen tools could gather insights and opinions throughout the debate but encourage users to continue using the tool after it

is finished. This idea is supported by research around politically charged reality TV, which found that content on Twitter became less judgemental and more empathetic over time [7]. While extending the use of a second screen tools beyond the duration of a broadcast is unsuitable for most TV contexts, it may be beneficial for political debate discussions. E6, the interactive debate producer, favoured *Viewers' Debate* because he felt that extending the discussion throughout the week may increase the viewers' ability to be informed, deliberate and form a community.

Facts and Validity of Content

The currently unfolding narrative around the impact of fake news on democracy emphasises the importance of factually accurate content online. Social media gives a platform for “troll” or “bot” accounts to attempt to influence discourse, and thereby opinions and elections, by posting divisive political opinions or misinformation [5]. Furthermore, the use of data gathered about people's opinions and identity can be used to influence voting choices, as was seen in the recent Cambridge Analytica scandal [25]. These issues raise serious concerns about the effects of encouraging more political engagement through second screen tools, where a variety of stakeholders attempt to gather data and influence the public's opinions.

This study indicates that care needs to be taken not to give moderation powers to groups who may find it hard to rate the validity of information, possibly including both viewers and social networking sites. While viewers felt the power to moderate and fact-check should be given to the audience, the experts found this problematic—and were in fact sceptical of the desire for objective facts altogether. Political debates often expose the public to speculations about the future impact of their proposed political agenda. As E2, who is a politician, identified that politicians often propose their hypothesis about the future during elections and referendums. Instead of searching for an elusive truth, debate viewers could be exposed to a wide range of diverse information where biases are explicitly highlighted, although there is a risk that this could be overwhelming. Additionally, as E7 identified, future second screen tools are likely to be influenced by new government legislation seeking to limit the impact and exposure of debate viewers to targeted adverts, trolls and bots, or by increasing input from broadcasters.

Diversity vs Homogeneity

Both experts and viewers felt debate audiences should not communicate in filter bubbles around debates, particularly as understanding opposing opinions could help people make informed voting choices. However, while diversity in political discourse was desired by everyone, the experts identified the risk that extreme political opinions could alienate the general

public. Existing research also gives us conflicting perspectives: Semaan et al. [40] show that people actively seek out an audience that is diverse in political opinion, while Mutz [35] shows that people seek out supportive and homogenous political deliberation environments. Although our participants expressed a desire for diverse opinions, the experts were critical of the extent to which people really wanted to be challenged.

Future second screen tools will need to strike a balance between creating a supportive online environment and fostering diverse political views. Both the experts and debate viewers agreed that networks containing politically polarising views can encourage abusive and derogatory language, which can in turn limit deliberation and engagement. Participants and experts suggested a variety of ways that these unwanted effects could be addressed, such as promoting the equal sharing of personal information. However, full identity tools might feel inaccessible for the general public due to fear of engaging with controversial topics [44] or sounding ignorant [23]. Instead, future second screen tools could encourage the sharing of partial personal information, as explored through *Identity Equality*, but pay closer attention to the power dynamics between users and attempt to make these relationships more equal.

Beyond notions of anonymity, this research identified that limiting the group size of discussions, adopting a code of conduct, and enabling trust prior to discussion, may also enable discourse between politically diverse people. These strategies were identified by the workshop participants in opportunities 4 and 5, where they identified that promoting dialogue within groups would help the development of a community, which can raise engagement and accountability. These opportunities were illustrated within the Political Date design, where similarities between users are highlighted in order to build trust in small one on one conversations between people with different political ideologies prior to initiating a conversation. Similar strategies including a code of conduct, establishing personal connections, and small group sizes were used in the development of the Talkabout tool by Cambre et al. [9]. An early pilot of the tool has generated positive feedback from participants, who despite low participation rates, were able to have political discussion within a relatively diverse group [9].

Combining Perspectives

Finally, we reflect briefly on our approach, which sought to gather perspectives from both debate viewers and experts. While most research in this area has focused on audience perspectives, our additional step of gaining an expert perspective demonstrated the limitations of earlier work. Although the experts agreed with the majority of the viewer's issues with political discourse, they also identified some of

the negatives of the opportunities for second screen that the participants identified. Where the viewers wanted more fact-based discussion, the experts felt that “facts” were subjective; where the viewers wanted full identity discussion spaces and to break away from their filter bubbles, experts felt this may exclude the wider public. At the same time, experts and the audience agreed on many of the issues and potential solutions for second screen debate tools, such as the problem of uncivil behaviour, issues with anonymity and the limitations of conventional social networks during debates.

As the influence of technology in democracy continues to become more pronounced, these approaches allow us to not just investigate the current properties of technology, but also to explore potential alternatives and their implications. Our prototypes reflected the ideas and preferences of the workshop participants, but they were in no way without fault, and these flaws helped to identify broader problems, such as their search for an elusive objective truth. Future work in this area might benefit from building more functional speculative prototypes that could allow users to experience these implications first-hand. Combining this with other approaches, such as design fiction or roleplaying, might help to explore issues that cannot be accurately implemented.

8 CONCLUSION

The use of second screens during political debates is vulnerable to an array of issues that undermine the audience’s ability to deliberate and discuss. Our approach of engaging with both audiences and experts involved in politics, social media and television have shown broad agreement on the issues involved, but also significant differences in how this could be addressed. By combining these perspectives, we have been able to suggest possible ways forward that reconcile these differences, including constructing safe and diverse networks, more consideration of moderation issues, and finding alternatives to the current fast-paced online experiences.

ACKNOWLEDGMENTS

This work was funded by EPSRC through a DTP studentship and the Chatty Factories project (EP/R021031/1). Workshop and interview transcripts generated through this research are available from the University of Dundee [22].

REFERENCES

- [1] Hana Al-Deen and John Hendricks. 2012. *Social Media: Usage and Impact*. Lexington Books, Lanham, MD, USA.
- [2] Nick Anstead and Ben O’Loughlin. 2011. The emerging viewertariat and BBC Question Time: Television debate and real-time commenting online. *International Journal of Press/Politics* 16, 4 (2011), 440–462. <https://doi.org/10.1177/1940161211415519>
- [3] Julian Ausserhofer and Axel Maireder. 2013. National politics on Twitter. *Information, Communication & Society* 16, 3 (2013), 291–314. <https://doi.org/10.1080/1369118X.2012.756050>
- [4] Tom Bakker. 2013. *Citizens as Political Participants: The Myth of the Active Online Audience?* Ph.D. Dissertation. University of Amsterdam. <https://doi.org/11245/1.384371>
- [5] BBC News. 2017. How Russian bots appear in your timeline. Retrieved August 06, 2018 from <https://www.bbc.co.uk/news/technology-41982569>
- [6] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 2 (2006), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- [7] Phil Brooker, John Vines, Selina Sutton, Julie Barnett, Tom Feltwell, and Shaun Lawson. 2015. Debating poverty porn on Twitter: social media as a place for everyday socio-political talk. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI ’15)*. ACM, New York, NY, USA, 3177–3186. <https://doi.org/10.1145/2702123.2702291>
- [8] Alex Bruns and Jean Burgess. 2011. #Ausvotes: How twitter covered the 2010 Australian federal election. *Communication, Politics & Culture* 44 (2011), 37–56. Issue 2. <https://search.informit.com.au/documentSummary;dn=627330171744964;res=IELHSS>
- [9] Julia Cambre, Scott R. Klemmer, and Chinmay Kulkarni. 2017. Escaping the Echo Chamber: Ideologically and Geographically Diverse Discussions About Politics. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA ’17)*. ACM, New York, NY, USA, 2423–2428. <https://doi.org/10.1145/3027063.3053265>
- [10] Justin Cheng, Michael Bernstein, Cristian Danescu-Niculescu-Mizil, and Jure Leskovec. 2017. Anyone can dance a troll: Causes of trolling behavior in online discussions. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW ’17)*. ACM, New York, NY, USA, 1217–1230. <https://doi.org/10.1145/2998181.2998213>
- [11] Cédric Courtois and Evelien D’heer. 2012. Second Screen Applications and Tablet Users: Constellation, Awareness, Experience, and Interest. In *Proceedings of the 10th European Conference on Interactive TV and Video (EuroITV ’12)*. ACM, New York, NY, USA, 153–156. <https://doi.org/10.1145/2325616.2325646>
- [12] Anna De Liddo, Brian Plüss, and Paul Wilson. 2017. A novel method to gauge audience engagement with televised election debates through instant, nuanced feedback elicitation. In *Proceedings of the 8th International Conference on Communities and Technologies (C&T ’17)*. ACM, New York, NY, USA, 68–77. <https://doi.org/10.1145/3083671.3083673>
- [13] Abraham Doris-Down, Husayn Versee, and Eric Gilbert. 2013. Political Blend: An application designed to bring people together based on political differences. In *Proceedings of the 6th International Conference on Communities and Technologies (C&T ’13)*. ACM, New York, NY, USA, 120–130. <https://doi.org/10.1145/2482991.2483002>
- [14] Mark Doughty, Duncan Rowland, and Shaun Lawson. 2012. Who is on Your Sofa?: TV Audience Communities and Second Screening Social Networks. In *Proceedings of the 10th European Conference on Interactive TV and Video (EuroITV ’12)*. ACM, New York, NY, USA, 79–86. <https://doi.org/10.1145/2325616.2325635>
- [15] Anthony Dunne and Fiona Raby. 2013. *Speculative Everything: Design, Fiction and Social Dreaming*. MIT Press, Cambridge, MA, USA.
- [16] Tom Feltwell, Gavin Wood, Kiel Long, Phillip Brooker, Tom Schofield, Ioannis Petridis, Julie Barnett, John Vines, and Shaun Lawson. 2017. “I’ve been manipulated!”: Designing second screen experiences for critical viewing of reality TV. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI ’17)*. ACM, New York, NY, USA, 2252–2263. <https://doi.org/10.1145/3025453.3025833>
- [17] Adam Fournay, Miklos Z. Racz, Gireeja Ranade, Markus Mobius, and Eric Horvitz. 2017. Geographic and temporal trends in fake

- news consumption during the 2016 US Presidential Election. In *Proceedings of the 2017 ACM on Conference on Information and Knowledge Management (CIKM '17)*. ACM, New York, NY, USA, 2071–2074. <https://doi.org/10.1145/3132847.3133147>
- [18] Homero Gil de Zúñiga, Victor Garcia-Perdomo, and Shannon Mcgregor. 2015. What Is Second Screening? Exploring Motivations of Second Screen Use and Its Effect on Online Political Participation. *Journal of Communication* (07 2015). <https://doi.org/10.1111/jcom.12174>
- [19] Eric Gilbert, Tony Bergstrom, and Karrie Karahalios. 2009. Blogs are echo chambers: Blogs are echo chambers. In *2009 42nd Hawaii International Conference on System Sciences*. IEEE. <https://doi.org/10.1109/HICSS.2009.91>
- [20] Katerina Gorkovenko and Nick Taylor. 2016. Politics at home: Second screen behaviours and motivations during TV debates. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction (NordCHI '16)*. ACM, New York, NY, USA, Article 22, 10 pages. <https://doi.org/10.1145/2971485.2971514>
- [21] Katerina Gorkovenko and Nick Taylor. 2017. Understanding how people use Twitter during election debates. In *Proceedings of the 31st International BCS Human Computer Interaction Conference (BritishHCI '17)*. BCS, Swindon, UK. <https://doi.org/10.14236/ewic/HCI2017.88>
- [22] Katerina Gorkovenko and Nick Taylor. 2019. Audience and Expert Perspectives on Second Screens (Transcripts of Co-Design Workshop and Expert Interviews). <https://doi.org/10.15132/10000148>
- [23] Katerina Gorkovenko, Nick Taylor, and Jon Rogers. 2017. Social Printers: A physical social network for political debates. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17)*. ACM, New York, NY, USA, 2269–2281. <https://doi.org/10.1145/3025453.3025611>
- [24] Andrew Guess, Brendan Nyhan, and Jason Reifler. 2018. Selective exposure to misinformation: Evidence from the consumption of fake news during the 2016 U.S. presidential campaign. Retrieved August 07, 2018 from <http://www.dartmouth.edu/~nyhan/fake-news-2016.pdf>
- [25] Sue Halpern. 2018. Cambridge Analytica and the perils of psychographics. Retrieved August 07, 2018 from <https://www.newyorker.com/news/news-desk/cambridge-analytica-and-the-perils-of-psychographics>
- [26] Susan Herring, Kirk Job-Sluder, Rebecca Scheckler, and Sasha Barab. 2002. Searching for safety online: Managing “trolling” in a feminist forum. *The Information Society* 18, 5 (2002), 371–384. <https://doi.org/10.1080/01972240290108186>
- [27] Matthew Hindman. 2009. *The Myth of the Digital Democracy*. Princeton University Press, Princeton, NJ, USA.
- [28] Philip N. Howard, Samuel Woolley, and Ryan Calo. 2018. Algorithms, bots, and political communication in the US 2016 election: The challenge of automated political communication for election law and administration. *Journal of Information Technology & Politics* 15, 2 (2018), 81–93. <https://doi.org/10.1080/19331681.2018.1448735>
- [29] Jan H. Kietzmann, Kristopher Hermkens, Ian P. McCarthy, and Bruno S. Silvestre. 2011. Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons* 54, 3 (2011), 241–251. <https://doi.org/10.1016/j.bushor.2011.01.005>
- [30] Travis Kriplean, Jonathan Morgan, Deen Freelon, Alan Borning, and Lance Bennett. 2012. Supporting reflective public thought with ConsiderIt. In *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work (CSCW '12)*. ACM, New York, NY, USA, 265–274. <https://doi.org/10.1145/2145204.2145249>
- [31] Joseph Lindley and Paul Coulton. 2015. Back to the future: 10 years of design fiction. In *Proceedings of the 2015 British HCI Conference (British HCI '15)*. ACM, New York, NY, USA, 210–211. <https://doi.org/10.1145/2783446.2783592>
- [32] Jamie Mahoney, Tom Feltwell, Obinna Ajuruchi, and Shaun Lawson. 2016. Constructing the visual online political self: An analysis of Instagram use by the Scottish electorate. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*. ACM, New York, NY, USA, 3339–3351. <https://doi.org/10.1145/2858036.2858160>
- [33] Misa Maruyama, Scott P. Robertson, Sara Douglas, Roxanne Raine, and Bryan Semaan. 2017. Social watching a civic broadcast: Understanding the effects of positive feedback and other users’ opinions. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17)*. ACM, New York, NY, USA, 794–807. <https://doi.org/10.1145/2998181.2998340>
- [34] Misa T. Maruyama, Scott P. Robertson, Sara K. Douglas, Bryan C. Semaan, and Heather A. Faucett. 2014. Hybrid media consumption: How tweeting during a televised political debate influences the vote decision. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '14)*. ACM, New York, NY, USA, 1422–1432. <https://doi.org/10.1145/2531602.2531719>
- [35] Diana C. Mutz. 2013. Reflections on hearing the other side, in theory and in practice. *Critical Review* 25, 2 (2013), 260–276. <https://doi.org/10.1080/08913811.2013.852346>
- [36] Abhishek Nandakumar and Janet Murray. 2014. Companion apps for long arc TV series: Supporting new viewers in complex storyworlds with tightly synchronized context-sensitive annotations. In *Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX '14)*. ACM, New York, NY, USA, 3–10. <https://doi.org/10.1145/2602299.2602317>
- [37] Brian Plüss and Anna De Liddo. 2015. Engaging citizens with televised election debates through online interactive replays. In *Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX '15)*. ACM, New York, NY, USA, 179–184. <https://doi.org/10.1145/2745197.2755521>
- [38] Mike Proulx and Stacey Shepatin. 2012. *Social TV: How Markets Can Reach and Engage Audiences by Connecting Television to the Web, Social Media and Mobile*. John Wiley & Sons, Hoboken, NJ, USA.
- [39] Steven Schirra, Huan Sun, and Frank Bentley. 2014. Together alone: Motivations for live-tweeting a television series. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. ACM, New York, NY, USA, 2441–2450. <https://doi.org/10.1145/2556288.2557070>
- [40] Bryan Semaan, Heather Faucett, Scott Robertson, Misa Maruyama, and Sara Douglas. 2015. Navigating imagined audiences: Motivations for participating in the online public sphere. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*. ACM, New York, NY, USA, 1158–1169. <https://doi.org/10.1145/2675133.2675187>
- [41] Bryan Semaan, Heather Faucett, Scott P. Robertson, Misa Maruyama, and Sara Douglas. 2015. Designing political deliberation environments to support interactions in the public sphere. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*. ACM, New York, NY, USA, 3167–3176. <https://doi.org/10.1145/2702123.2702403>
- [42] Mike Shephard, Stephen Quinlan, Stephen Tagg, and Lindsay Paterson. 2014. Twittish tweets? Twitter’s ability to be deliberative?. In *Proceedings of Annual Meeting of the American Political Science Association (APSA '14)*. <https://ssrn.com/abstract=2452646>
- [43] Dominic Spohr. 2017. Fake news and ideological polarization: Filter bubbles and selective exposure on social media. *Business Information Review* 34, 3 (2017), 150–160. <https://doi.org/10.1177/0266382117722446>
- [44] Lee Taber and Steve Whittaker. 2018. Personality depends on the medium: Differences in self-perception on Snapchat, Facebook and

- offline. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA, Article 607, 13 pages. <https://doi.org/10.1145/3173574.3174181>
- [45] Magdalena E. Wojcieszak and Diana C. Mutz. 2009. Online groups and political discourse: Do online discussion spaces facilitate exposure to political disagreement? *Journal of Communication* 59, 1 (2009), 40–56. <https://doi.org/10.1111/j.1460-2466.2008.01403.x>
- [46] Richmond Y. Wong, Ellen Van Wyk, and James Pierce. 2017. Real-fictional entanglements: Using science fiction and design fiction to interrogate sensing technologies. In *Proceedings of the 2017 Conference on Designing Interactive Systems (DIS '17)*. ACM, New York, NY, USA, 567–579. <https://doi.org/10.1145/3064663.3064682>
- [47] John Zimmerman, Jodi Forlizzi, and Shelley Evenson. 2007. Research through design as a method for interaction design research in HCI. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '07)*. ACM, New York, NY, USA, 493–502. <https://doi.org/10.1145/1240624.1240704>