Understanding large scale public political conversation online in austerity Britain through an iterative, quali-quanti investigation.

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The candidate confirms that the work submitted is his own, except where work which has formed part of jointly authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

Chapter 1 of the thesis – the introduction and literature – contains a section which reviews the literature surrounding attempts to design online systems for deliberative participation (section 1-5, "Designing for Deliberation", pages 21-43). This content was also used in a published book chapter with Professor Stephen Coleman: Birchall C, Coleman S (2015) "Creating spaces for online deliberation", In: Coleman & Freelon (eds.) *Handbook of Digital Politics*, Edward Elgar Publishing Ltd, pp.264-280. The content that is duplicated in both places – the review of the literature – was written entirely by Christopher Birchall, with the contribution from Professor Coleman only appearing in the book chapter.

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Abstract

This study investigated online public political conversation in the UK. Drawing on theories of deliberative democracy, it emphasised the importance of inter-ideological discussion between citizens in the formation of informed opinion and preferences, focussing on the potential of the internet to facilitate this through large scale, ideologically diverse conversations. A multivariate analysis investigated the roles of interface design, institutional linkage and participant community dynamics in the formation of online political conversation. The investigation of conversation from across the internet required a very large scale approach, situating the study within the big data paradigm. However, it also required deeper understanding of human communication, gained through more qualitative analysis. Therefore the study utilised a novel, iterative, *quali-quanti* approach featuring initial, large scale quantitative analysis – involving bespoke software to automate the collection and analysis of conversation data – that was used to direct further iterations of increasingly smaller scale and qualitative analysis. Reflections on the successful application of the methodology are significant in themselves, but the study also generated novel observations of online public political conversation. The findings illustrated participatory spaces as unique online niches, each with specific communities and goals, and described how participant agency allows citizens to contribute according to various democratic models. For example, an *action-oriented* approach existed in policy related spaces, in which participants sought only to express a preference, rather than engage in discussion. In more discursive spaces, non-political social bonds between participants were seen to be particularly important in the facilitation of civil, productive, inter-ideological debate and certain participatory roles were important in facilitating these bonds. The design of spaces exerted a significant, but not determining effect on conversation, being used to present conversation in particular ways. However, certain features, notably active facilitation, helped to shape conversation through enabling some of the important community roles to be performed.

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1 Introduction and Literature

1.1 Background and Context

This study was conducted at a moment of profound economic and political uncertainty in the United Kingdom (UK). After the financial crash that occurred in 2008, a "lengthy period of restructuring of politics as well as economics, similar in its scale if not in its detail to what took place in the 1930s" (Gamble, 2010 p. 3). The most significant political response to the crisis was the adoption of an austerity programme, realised through sharp cuts to public budgets, and with them many services and welfare benefits. From 2010, this programme was carried out by the country's first coalition government in half a century, a further cause of uncertainty. In the face of the coalition's austerity programme, the continuing reverberations of the economic crisis and widespread public belief, promoted by large parts of the mass media, that the 'political class' could not be trusted to behave competently or fairly, there was widespread public discontent among citizens about the government, its policies and, like in most modern, western democracies, such a period generated a level of discontent among the populace about the government, its policies and the political system that led to its formation (Bartlett et al., 2013; Borges et al., 2014; Henn and Foard, 2011; Hensby, 2014). Discontent included the disappointment of at least a proportion of the population at election results; disenchantment at the lack of outright victory for any party; and dismay at government decisions amongst those most heavily affected by them. Many citizens became disillusioned by the slew of general bad news about the state of the economy, services and society at large; others were frustrated by the speed of government action. Some of the discontent, however, was more directly aimed at the system of government – the voting system, the strength of the voice of the citizen or a perceived self-interest of the governing elite (Moreira et al., 2009; Millard et al., 2009), something which was exacerbated by the various political improprieties, such as MPs expenses scandal that occurred in the same time period. Left unaddressed, there was every chance that such disenchantment could harden into long-term cynicism. One possible outcome could have been a continuation of the trend of citizens turning their backs on the political system altogether, thereby diminishing its legitimacy (Gurevitch et al., 2009; Coleman and Blumler, 2009). This disenchantment and reduced engagement can be exacerbated as the political establishment becomes ever more detached from the public and public knowledge and critique of political debates reduces; a vicious cycle that leads to even less participation and less assistance to government through the useful aspects of participation (Macintosh, 2008). Poor public engagement and voter turnout have been cited as examples of a failing democracy in the UK and reasons for the lack of public engagement have been discussed (Thomas, 2004; Henn et

al., 2007; Miller, 2004; Kelso, 2009; Manning and Holmes, 2013). Some look to the public as the cause, describing a lack of interest in, and therefore conversation and debate about, the issues of the day, others look to the political structures, describing a lack of voting choice, the perceived lack of accountability of MPs or distrust and cynicism amongst the public as well as a feeling of detachment from decision making, something often linked to the limiting of public involvement to a single vote per parliament. Coleman and Gotze (2001) describe how this separation of public from representatives and decision-making weakens democracy by creating a public that is hostile to decision making and in turn populist decision making by representatives. Such public disengagement negatively affects political systems by encouraging poorly informed voting and antagonistic politics. Improving governance through informing and consulting the public, encouraging deliberative and collaborative interaction and integrating public feedback into policy making are popular topics raised by many scholars (Bohman, 2000; Dryzek, 2000; Goodin and Niemeyer, 2003; Fishkin, 2009). In recent years, much of this work has centred on the power of the internet to enable this kind of improved governance (Gimmler, 2001). In response to these issues, this study investigated the roll of the internet in the relationship between the public and their government, and sought to understand how the different political practices of discussing public issues and acting upon them occur in online spaces, using online tools. The study looked at how the internet was used during the time period described above, examining the nature of the public discussion that occurred online and investigating how public engagement with politics can be related to political action of participants. This study utilises the frameworks of deliberative democracy, set forth by scholars such as Arendt (1968), Habermas (1984) and Coleman (2004), as a way of understanding how discussion of public issues by citizens themselves, amongst themselves, can enhance democracy. Consequently, a central question of the research was around how the internet might best be used to strengthen democracy by enriching discussion of public issues and facilitating public participation through large scale deliberative communication. This is a specific facet of study of the internet and new media that sits within ongoing contemporary debate about the effect of the internet on democracy.

Deliberation and deliberative democracy, and the potential held by digital media for their implementation have been researched previously in depth, as discussed further below in sections 1.2 to 1.5. Scholars have sought to analyse the forms of communication present in online systems, evaluating them according to deliberative ideals; to design spaces to enable the kinds of interactions and contributions that conform to these ideals; and to understand the forces that shape the communication that occurs in these spaces. This study builds on this previous work by identifying and analysing existing conversation within the contributory spaces that make up the contemporary participatory web, exploring the interactive behaviour that

occurs there and advancing the understanding of patterns of participation in political conversation online, such as motivation, inspiration, social conformance, identity and interaction. The insight gained allows the theories of scholars such as Freelon (2011) and Dahlgren (2005), which describe different models of online democratic participation and are described further in section 1.5, to be refined and expanded in different ways, giving a more granular view of some of the categories of participation that they describe, while illustrating new and valuable communicative dynamics that permeate them.

Understanding emergent online political debate in the UK requires an extremely broad approach that takes into account a diverse range of different spaces and communities, which generate conversation of different forms. In embracing this challenge this study expands the previous body of literature and responds to some of the criticisms of it, including the focus of previous studies on single participatory spaces, particular institutional initiatives or new trends and innovations rather than the wider media ecology (Casteltrione, 2015; Freelon, 2011; Graham et al., 2015; Gurevitch et al., 2009) and a focus on particular, unrepresentative times, such as election campaigns, rather than longitudinal studies (Stromer-Galley, 2006; Lutz et al., 2014). Rather than limit the analysis in any of these ways, this study sought to harvest as wide a range of data and case studies as possible, over a wide time period, responding to suggestions made by Wright (2012) – to look beyond large or new platforms to the wider ecology, including non-political “third spaces”, and to research over longer time periods.

Wright also called for innovative social science methodologies to be utilised in the study of online deliberation (2012), and this study responds to that by complimenting the broad and diverse data set with an innovative, mixed methods approach to analysis, which is described further in section 1.7. As Lutz et al. described, studies of online deliberation have often privileged particular practices and evaluative techniques, concentrating on solely quantitative or qualitative methods that are too narrow to provide deeper understanding of the phenomenon (Lutz et al., 2014). This study involved the development and use of an innovative, iterative digital method developed to look at large scale, human communication online. This approach provides a cutting edge application of digital methods – the rapidly developing field of inquiry which places technology within methodologies to answer questions about technology, in this case incorporating qualitative and quantitative techniques to allow better understanding of the relationship between the technology and the human and social actors and environments in which it is used. The methodology developed here serves to introduce a second strand of inquiry into the study, as the methodological approach is analysed and evaluated itself, providing insight into automated and mixed methodologies as a means of understanding online human

communication at a very large scale. This work adds to the body of literature relating to digital methods, including both the innovations in understanding people through technology (Lovelace et al., 2016; Mayer-Schönberger and Cukier, 2013; Ruppert et al., 2013; Savage and Burrows, 2009; Thelwall et al., 2011; Wu et al., 2014) and the critics of such an approach (Baym, 2013; Boyd and Crawford, 2012; Clough et al., 2015; Gitelman and Jackson, 2013; Kitchin and Lauriault, 2014; Kitchin, 2014; Manovich, 2011; Van Dijck, 2014). The development, use and evaluation of the mixed methodology in this study provides insight into such approaches that allows many of the questions raised to be looked at anew, with the scale and diversity of the data sets and the depth of the iterative analysis providing a richer large scale study than ever before, which moves from the generation of insight based upon a calculated public to more qualitative insights led by patterns generated by large scale quantitative observations.

These three contributions – the innovative methodology, the broad and large scale investigation that the methodology enabled, and the in-depth understanding of complex online conversation dynamics generated through that investigation – is detailed throughout the chapters that follow. In the remaining sections of this chapter, however, the study is placed more thoroughly within the existing literature. The nature of deliberation and the forms that it takes online, the attempts to design online spaces to facilitate deliberation, and the challenges involved in the study of online spaces are all discussed. Before considering any impact of the internet on deliberation, however, the place of public deliberation within democracies is first examined. To look at whether public deliberation can enhance democratic politics it is first necessary to place this activity within democratic political theory and examine the role of the public in a democracy.

1.2 Public Deliberation in Democracy

Many political scholars, such as Burke (1987), Weber (1946), Schumpeter (1942) and Dahl (1956), have argued that the public should not be directly involved in policy making within a democracy and this argument can be seen in the some of the classic works of political philosophers throughout history. Edmund Burke described the deliberations of the 'multitude' as being so far removed from normal operation, and taking so long, that it is better for them to be represented by politicians who are better suited to the task (1987). Max Weber described the 'emotionality' of the masses as an unfit basis for understanding public policy, which renders the public unable to choose between policies, forcing them instead to choose between leaders (Weber et al., 2004). As described by John Morrow, such opinion can be traced right back to the roots of democracy in ancient times, illustrated by the works of Plato and Aristotle who elevate the philosopher to an elite ruling class, acting on behalf of other citizens (Morrow, 2005). In the *Republic,* Plato justified the existence of this ruling class, by questioning the ability of many

members of society to make rational decisions and drawing a distinction between the genuine knowledge of the philosopher and the distorted opinion of other members of society. Plato suggested that democratic regimes granting complete individual liberty would be dominated by the least rational members of society. This would ultimately lead to tyranny as the financially poor use their political empowerment to plunder the rich. In a similar vein, Aristotle limits political involvement to a discrete group of citizens (distinct from the other humans that lack rational ability) and prefers aristocracy to democracy, claiming that the former will rule in the interests of all, while the latter is a collection of self-interested individuals (Morrow, 2005). In more modern times this opinion has persisted in various forms. For instance, Schumpeter (1942) illustrated how capitalist society can generate large groups, motivated around certain issues, the individuals within which may be motivated to act politically solely in relation to such issues, rather than considering a balanced view of society as a whole. Schumpeter sees the state as an objective observer, acting as both a supplier and demander, providing policy and structure to the competing demands of the public and in turn competing for their votes. Schumpeter also argues, in keeping with Plato and Aristotle, that the typical citizen is not capable of performing in the political field and "*becomes a primitive"* when he steps out of his field of interest (Schumpeter, 1942 p. 262). While this assessment of the citizen could be described as the arrogant opinion of an out-of-touch establishment on the modern media, it nevertheless resonates contemporary opinion - not least if we consider some of the polarised public debates that exist, particularly in online spaces. Of course, there is no reason to believe that members of the public are incapable of the same cognitive processes as politicians but when a citizen is not actively engaged in political processes as a matter of day-to-day activity, they may not have the time or resources to commit to analysing policy issues. So how might citizens perform when acting within their field of interest? Expert knowledge has particular political capital and is an area where the citizen has been seen to have valuable input. Various attempts at collaborative government have been made in recent years in which groups of people are chosen (or emerge from the general public) based upon reputation or expertise to contribute to policy (Noveck, 2010). However, while obvious benefits include improved governance through harnessing of specialist knowledge and the expansion of the political community to include those deemed to have high enough levels of knowledge, it does little to address the problem of the failure to engage the public at large and could even be seen as representation by non-elected individuals (experts).

The models of representation described above are a far cry from that proposed by Rousseau in his *Social Contract* (Rousseau, 1968). While Rousseau, too, recognised human failings, characterising humans as competitive and self-seeking individuals, aware of inequality and

status, he rejected the idea of government by an elite political class, believing that a citizen body was the only rightful sovereign of a political society. Rousseau presented the concept of the '*general will*' - citizens acting together for the good of society as they each have a stake in the benefits. In order to preserve the general will and protect individuals from being taken advantage of Rousseau believed that all laws must be created by the citizens and must apply equally to all citizens (unlike earlier writers he did not limit the title of citizen to a privileged few). Rousseau thus describes how rational and self-interested individuals would join a political community, adhering to laws and restrictions, while at the same time answering only to themselves. While Rousseau felt the need to explain why individuals would join a political community, he had no doubt that they could take the rational decisions required to make it work. Rousseau was not alone in this opinion and many have argued for the abilities and rights of individuals to reason for themselves. Immanuel Kant provided a similar argument in his work on metaphysics, in which he contrasted reason with instinct in humans but stated that individuals were capable of both and therefore capable of, and indeed inclined to, think critically, express "rational control" and strive for the "perfection of virtue" (2012). Kant saw the state as facilitator of reasoning in the public, curtailing instinctive, unreasoned actions and opinions, what he called "wild freedom", without constraining the individual freedom required to enable reasoning (Kant, 2012). Kant believed society evolves toward a state of ultimate contentment for all. Like Rousseau, he believed that government was essential in order to allow individuals to participate in the pursuit of such virtue (community minded action, as it would be known today) without fear of being taken advantage of. Kant later described, in his work on morality, his belief that all people should be treated as an end in themselves rather than a means to an end. His *single categorical imperative* stated that people should regard as good and moral deeds only actions that they believe should be incorporated in universal law – one should only create a law that one would not mind being bound by oneself (2012). This concept of consensual, community minded law-making contrasts sharply with the market-driven capitalist system as described by Schumpeter. Rather than a detached political class making decisions for the good of society, or for the good of the largest community within society, as Schumpeter envisages, Kant seems to be describing a state in which the citizens interact voluntarily, utilising collective reasoning to enact policies that maximise the progress of society at large, taking into account the needs of every individual.

It is worth noting at this point that, despite his reservations about the ability of the public to offer rational debate on political policy, Schumpeter certainly did not seek to withdraw politics to the realm of the elite without public participation at all. On the contrary, he recognised the rights of citizens and the importance of voting and considered it the duty of every citizen to seek

a worthy representative (1942). It follows then, that even when a citizen participates in the most basic way that democracy allows – the exercise of a vote – some form of political decision has to be made by individual members of the public. When deciding how to vote, a citizen must perform some form of rationalisation in order for the choice of representatives to be valid and worthy. Whether considering policy options in consensual government or simply deciding which representative to select, some level of rationalisation must be carried out in order to make one's participation worthwhile. Of course, neither model of rational citizen input put forth by Kant and Rousseau represents a perfect system of democracy – on the contrary, the problems associated with large-scale, inclusive collective government in a modern democracy (enabling and encouraging millions of citizens to have a direct input) are obvious. A contemporary model that is closer to the reality of modern western democracies is one of rule by representatives, but one which, crucially, is supported by rational public thought, both while voting and when considering public policy issues, be that as a way of forming political opinion or during public consultation on policy.

While several of the views discussed above relate directly to the capability or perceived deficit in the ability of citizens to achieve rationalisation of public policy issues, other scholars have championed this ability, putting forth theories of public participation in deliberative models of democracy (Arendt, 1968; Berelson et al., 1954; Delli Carpini et al., 2004; Fishkin, 1995; 2009b; Habermas, 1984; 1989; Moy and Gastil, 2006; Mutz, 2006; Searing et al., 2007; Torcal and Maldonado, 2014; Graham, 2010; Coleman and Moss, 2012; Moss and Coleman, 2013). Jürgen Habermas writes optimistically about the public's ability to engage in rational critical debate, but describes some of the social forces that might infringe on that ability. Habermas recognizes the existence of ideologies that can be used to control the social functioning of a society and describes how these ideologies must be challenged and deconstructed, allowing citizens to gain control of their opinion and beliefs and remove the political and social dogma that can be used to facilitate their domination by the ruling class (1989). It is important to note though, that when describing ways to challenge ideologies, Habermas does not seek to remove the democratic institutions that support them but rather to improve and strengthen them by empowering the citizen through facilitation of widespread critical thought. The example he used to describe this potential was the bourgeois public sphere of 18th century Europe in which groups of literary-minded citizens gathered in clubs and coffee houses and debated issues, explored them and uncovered fallacies and alternatives. He described this practice, termed "practical discourse" or "deliberation", and showed how it can be used to test the legitimacy of any norm. Of course, contemporary western society requires equality and universal freedoms that were not provided to citizens in past societies and therefore brings challenges of scale to participation of

unprecedented levels. Habermas described how, even in 18th century Europe practical discourse became impossible on the scale required to engage whole societies and was usurped by the large scale machines of mass media and communications. The bourgeois public sphere was destroyed by mass media at the very time that it should have been expanded (he admits that it was far from universal – largely rich, white men), but he remained optimistic that such practical discourse may be achieved in the future to reach enlightenment.

Modern ideologies permeate the media-dominated contemporary western societies and therefore Habermas' assertions of the need for rational thinking and decision making amongst citizens to enable democracy to function fairly persist. However, the scepticism and disengagement of citizens, as suggested above can act as a barrier to this rationality. Therefore, the challenge exists to enable and encourage the public to engage with political conversations and to help them participate rationally. One suggestion might be to "inform" citizens during the democratic process, before they contribute (for example, before voting – an idea put forth by John Stuart Mill in *On Liberty* (2014)). Of course, implementing some form of "enforced" learning is a contentious idea which would be near impossible to implement and would create barriers to participation, perhaps actually reducing engagement more than increasing the prevalence of informed opinion. More importantly, the idea that the public in general needs to be "informed" is disingenuous. The concept that knowledge is something that exists within some external entity, which must be transferred to the public in order to provide them with understanding is false. As Kant reasoned, such knowledge already exists in, and is created by, the collective opinion and experience of citizens (2012); is a product of the 'general will' described by Rousseau (1968). There need not necessarily be an institutionally mediated process for "educating" or engaging the citizen – the knowledge and information is already present in the public and, as Habermas illustrated, the formation, and eventual articulation of this collective knowledge can be aided through the acts of interaction and exchange opinion, during rational-critical debate, through which citizens can gain a comprehensive knowledge of public issues. This interaction can quite simply be conversation, exchange of ideas and viewpoints and consideration of the viewpoints of others during the development of an opinion. This cross-cutting exchange involving listening and exposure to opposing views could be argued to be the basic essentials of deliberation; the minimum level of rational-critical debate (Mutz, 2006). Indeed, Mutz argues that it is the most important part of deliberation, without which all the other deliberative factors are meaningless. Mutz showed, however, that this cross cutting debate is inversely proportional to the closeness of relationships between individuals as people tend to group along common lines of belief and widening the range of opinion present in discussion is important to improve individuals' understanding of rationales for opposing beliefs,

as well as for their own beliefs, and increasing political tolerance and constructive talk. Mutz states at the same time that this cross cutting discussion does not automatically achieve these aims and can increase conflict and polarization and lead to decreased participation.

Many scholars argue that, due to the constraints of such structured discussion, this assumption that deliberative ideals lead to greater democracy is mistaken (classic references such as Schumpeter (1942), discussed above, later examples such as Almond and Verba (1989) and Lindblom (1980) as well as the recent work by Lynn Sanders (1997) and Chantal Mouffe (2009)). Indeed, Sanders claims that the "*careful articulation of formal standards [of deliberation] is a far cry from an assessment of the probability of meeting them*" (1997 p. 348) and states that insisting upon specific deliberative methods of participation can actually quieten voices and increase inequality. Stating that the formation of political identity is essential in political participation, Mouffe argued that consensus is impossible due to the requirement of a "them" to counterbalance the "us" represented by the consensual parties (2009 p. 11). Mouffe argued that deliberative politics ignores the passions of citizens and leads to excluded identities, such as right wing extremists, that offer a haven of protest for those frustrated by the consensual majority. Mouffe suggests that agonistic politics, in contrast to deliberative politics, provides an outlet for debate between adversaries which, if properly managed, can decrease the antagonistic clashes ("debate between enemies") that these passions otherwise cause.

However, Mutz goes on the describe how sustained exposure to cross cutting debate can lead to changed behaviour and increased skills in tasks like perspective taking that help to improve political tolerance and decrease the antagonistic nature of political discussion in the long run (Mutz, 2006). She concluded that society needs to teach the practical skills of social political interaction. Indeed, commonalities exist between Mutz and the agonists: Sanders concludes that democrats should "*try to ensure that those who are usually left out of public discussions learn to speak whether their perspectives are common or not, and those that usually dominate learn to hear the perspectives of others"* (Sanders, 1997 p. 373). Encouraging wide ranging deliberation amongst citizens is one way in which we can help to minimise the polarised politics often witnessed when public political discussion takes place in our society, in which viewpoints are pitted against each other rather than considered equally by all, resulting in a lack of collaboration, consensus and ultimately a populist 'majority-rules' style of democracy.

The technological and communications revolution of the last 20 years has given rise to new methods of inter-personal communication, from email, through message boards, forums and consultations, to the contemporary digital and mobile social networks. These technological platforms can enable the assembly of quorums from across the world, facilitating very large

scale conversation which may enable the kind of discourse highlighted by Habermas to reappear amongst the public at large (see the work of Warren Sack (2000; 2001) for detailed coverage of technological mediation of very large scale conversation). Coleman and Gotze demonstrate how engaging the public in more deliberative activity can transform political involvement from *preference assertion to preference formation* (2001). Providing information and enabling very large scale conversation, exchange of views and deliberation can ultimately create more considered public political involvement. Engaging the public and getting the public to deliberate on issues can have two effects: informing the public through the exchange of ideas and knowledge and informing the legislators through exposing the experience and hidden expertise of the public. The former is a vital part of participation in a time of democratic challenge, encouraging the formation of preferences through rational consideration of diverse perspectives can help to avoid the narrower forms of preference formation that result in antagonistic political dynamics.

1.3 Public Deliberation and the Internet

As suggested above, the growth of new media technologies has facilitated a large expansion in access to information, commentary and opinion as well the ability of the public to publish opinion on the web. Such resources exist for subject matter of nearly all types and politics is no exception, with journalists, political institutions and citizens all providing news, information and opinion. Online availability of government data and parliamentary process details[1], coupled with an array of social network technologies has provided an easy and accessible platform on which the general public can explore and discuss politics**.** The link between the internet and democratic participation is well researched with a number of potential democratic enhancements being described (Bimber, 2000; Bimber, 2001; Benkler, 2006; Bohman, 2000; Castells, 2009; Boulianne, 2009; Boulianne, 2011; Bakker and de Vreese, 2011; Cho et al., 2009; Gainous and Wagner, 2011; Mossberger et al., 2007; Prior, 2007; Xenos and Moy, 2007). Of course, access to, and participation in, the digital sphere is not universal (even in advanced economies, let alone on a global scale), and those that do have access do not universally choose to participate, and fewer still participate in political activity and therefore the digital sphere does embody an element of exclusivity (see Mossberger et al. (2007) for a discussion of the extent and cost of exclusion in digital political participation). However, some of the exclusivity of the form encountered offline can be mitigated online, through the formation of counter-publics – the spaces and communities that form online because of their exclusion from other spaces

[1] Two examples of such online resources are http://www.parliament.uk/ for UK parliamentary records and https://data.gov.uk/ for government data.

(Papacharissi, 2010). The networked digital sphere can provide citizens with increased capability to participate, making it easier for citizens to get involved in politically active communities, expressing opinions to a potentially large audience - see Bimber (2000), Benkler (2006) and Castells (2009) for more on networked and digital participation. In addition, information abundance has disrupted elite dominance in the sphere of knowledge production and dissemination (Coleman, 2007 pp. 366–367); and while the digital public sphere may exist within a medium of choice, where participants can personalise their experiences, it still serves to broaden the diversity of opinion encountered by those that have access to it, while also introducing participants to like-minded others that would otherwise remain as strangers (Coleman and Blumler, 2012 pp. 144–145). The focus of this study is the methods and means of using the internet to enable, facilitate and encourage *deliberative* public political participation; from the research into digital citizenship outlined above, it is easy to identify three potential areas of democratic enhancement that are related explicitly to deliberative participation: increasing the number of voices that can be heard; better informing online individuals (potentially encouraging thoughtful contributions); increasing interactivity among participants to increase the deliberative and collaborative quality of the thoughts expressed by those individuals.

The first of these is amply demonstrated by the dramatic increase in the amount of political content being published by members of the public in online spaces. As the internet evolved from informational web pages to the interactive structures of "Web 2.0" (O'Reilly, 2007; Anderson, 2007) participatory spaces appeared online in many forms. Spaces structured as blogs, wikis, forums, chat rooms and email groups enabled participation in a variety of forms, including image and video sharing, blogging, reviews of products and services and data mashups (Blank and Reisdorf, 2012). Online participation, has itself been much debated (see Jenkins (2006) and O'Reilly (2007)) not least because participation has tended to take different forms for different purposes (business, politics, culture, education and health). Indeed, according to Lutz, et al, (2014), *political participation* online includes a range of forms such as political images and video, signing petitions, contacting representatives, writing to editors or commenting on news items or blogs. In the contemporary digital media landscape, online political participation is common; from Tweets related to political television shows to the thousands of comments that follow political articles in online newspapers, individual voice is expressed in large quantities. Already, democratic institutions have employed digital methods for harnessing online contributions as a form of public engagement through consultations and citizen feedback tools (Barnes et al., 2007). Following the lead of business, which has harvested techniques such as social media analytics very profitably, techniques such as 'semantic polling' (Anstead and O'Loughlin, 2012)

have been used to algorithmically harvest opinion from online contributions; creating forms of 'calculated publics' (Gillespie, 2014) that are used as illustrations of the public in general. The relative merits and shortcomings of these digital methods are detailed later in this chapter, but it is worth detailing some notable critiques pertaining to their use within a broader democratic process. Indeed, these methods seek only to listen; to define a 'public' and to harvest its chatter, to translate into political opinion. But much of the participation found in online spaces is not necessarily representative of public opinion in general, as these publics are constructed, by the technology, and the access to technology, required for their existence, and in the voices listened to through a particular sampling method (Gillespie, 2014). Inequalities apparent within the "digital divide" have been well documented as forces that shape the publics created within, and represented by, online participatory environments (Moreira et al., 2009; van Dijk and Hacker, 2003), and these inequalities may be social or technological, as described by Papacharissi (2002) and Mossberger et al. (2007).

From the perspective of the citizen also, the enhanced provision of voice is not as powerful an effect as it might seem. The ability to publish an opinion in an online space does not necessarily mean that opinion will be read, or even noticed, by any other citizens. In the digital sphere, this voice is not directly linked to an audience, as structures exist between the producer and potential consumers, influencing that relationship. Matthew Hindman describes how online readership is not spread equally across content, and political content online is subject to the same types of institutional control as political content in other media (2009). He described the "power laws" that govern access to content, in which popular providers dominate the market for readers in a winner-takes-all pattern, facilitated by both instruments of publishing, such as search engine algorithms, and reader behaviour such as preferences for finding content from certain known sources (Hindman, 2009). The personalised online experience can be voluntary through choices made about media consumption, structural through unequal provision of content by providers, or it can be technological through the algorithmic personalisation by a service on behalf of a citizen (Sunstein, 2001; 2008). Thus, the character of the internet allows spaces to be created that provide the opportunity to publish opinion, but the act of publishing does not equate exactly to that opinion becoming "public".

The structures and dynamics discussed above in relation to citizen contributions and voice are forces that exist across the online public sphere, shaping the experience of the user as they access the resources available to them. Therefore the second democratic enhancement enabled by the internet – the distribution of political information – is, similarly, a complex dynamic related to the structures and forces that build the infrastructure and content of the internet. As

explained by Hindman (2009), the visibility of information is subject to control by familiar media forces, and passive consumption of information may conform to these patterns; political information may be segmented and differentially distributed in the same way as citizen contributions. Moreover, the content held and consumed within mainstream digital media spaces often consists of the emergent contributions of citizens themselves, created without the direct involvement of the institution. Celebrated by scholars such as Benkler (2006) and Bruns (2008) as a form of de-centralised citizen knowledge production, creating cultural capital through projects such as Wikipedia, these citizen contributions have been described as a network of active participants that breaks down the established privileges and powers of media production. Benkler acknowledges, however, that the quality of this crowdsourced knowledge can be called into question, assigning value to the process of participation, which can improve the ability of participants to consume other, more professionally produced resources (Benkler, 2006 p. 295). Others describe how mechanisms of quality control can be built into participatory structures to improve the value of the information available (Farkas, 2015; Nicey, 2013). Andrew Keen went much further in his criticism, stating that this content, produced by the "amateur" critic or commentator, or by groups of these citizen contributors, dilutes the pool of 'official', high quality information available with resources that lack the validity, robustness or impartiality required of more official sources (2007). Nicholas Carr describes these crowdsourced resources similarly negatively, describing Wikipedia as a "pale shadow" of its commercial counterparts, but noting that because it is free, it became much more popular (Carr, 2005). Indeed, such "unofficial" sources of information have been seen to have large scale impacts on public knowledge in the case of issues such as child immunisation (Keelan et al., 2007). Even where institutions are involved in the production of online information, issues of trust can still arise. Where political institutions are involved – most notably during elections – the parties are able to mediate the outcomes of digital communication, creating messages that meet their goals, rather than engaging in discursive processes with the citizenry (Anstead and Chadwick, 2008; Gibson, 2012). However, this model of passive consumption excludes consideration of the more active participation that is possible, and in this regard the internet has enabled the expansion of access to information about political topics, including alternative spaces and sources for those that wish to search for it. Moreira et al. (2009) describe how the internet, through enabling easier and faster information gathering and searching, is increasing the prevalence of an assumed pre-requisite of political engagement – political knowledge. Millard et al. (2009) described how innovative ICT solutions are increasing public knowledge of policy issues and enabling grass roots groups to engage with policy making at a time when overall engagement and trust in formal politics is falling.

While the information consumed by the public may be influenced by the intrinsic structures and innovative designs of the World Wide Web, it cannot be assumed that the participation of citizens, in the form of communication and interaction, is controlled in the same way by the power laws and 'gatekeepers' described by Hindman (2009). Facilitation of interactions between citizens – the third of the democratic enhancements of the web – is not necessarily subject to the same forces. Public opinion formation solely through the consumption of information is likely to be influenced by institutional gatekeepers online, in the same way as is documented when it occurs through traditional media (Iyengar and Kinder, 1987; Donsbach and Traugott, 2007; Baum and Potter, 2008). However, the subsequent discussion of issues – made possible by the large scale interpersonal communication enabled, more than in any other media, by the internet – may act to curtail that effect, exposing minority views and challenging ideologies as described by Benkler (2006) and Bruns (2008). Indeed, since the work of Lazarseld in the 50's and 60's, theories have existed postulating that individuals can be influenced more by their peers than by the media (Katz and Lazarsfeld, 1955). Easily transposed to the digital sphere of bloggers and their followers, the two-step model that they espouse describes how opinion leaders can communicate messages more widely through interpersonal communication than the mass media can manage alone. Watts and Dodds (2007) extend this theory with research showing that the key influencers are only part of the effect, and in fact communities of easily-influenced individuals can perform the task of opinion formation efficiently themselves. This is clearly not, of course, a euphoric claim of a perfect new public sphere. These interactions and influences do not conform to the rational-critical exchanges of deliberative ideals. Moreover, the websites and software in which these interactions take place, and the companies and institutions that control them, exert influence on communication, and the nature of the interactions is by no means ideal. Participant-led – or "amateur" – forces, such as unstructured, poorly informed contributions, deviant contribution strategies and polarised debate, pose the same challenges to interpersonal communication as they do to information dissemination (Keen, 2007). While there have been numerous examples of deliberative spaces described in the literature (Graham, 2012; Graham et al., 2015a; Wright and Street, 2007; Van Zoonen, 2007) there have been many other studies highlighting how the interactive participation enabled in such large quantities often does not conform to cooperative, polite and public spirited standards, never mind deliberative ideals (Wilhelm, 2000; Hill and Hughes, 1998; Davis, 1999). There is no deliberative structure necessitated in contribution to mainstream digital spaces and no requirement for rational-critical conversation, as the dominant structures are developed for commercial, rather than democratic purposes. The social networks generated by online communication are similarly imperfect as a public sphere. As described by Mutz (2006),

individuals often prefer to discuss politics only with those whom they share common opinions, and the personalisation described by Sunstein (2001; 2008) with regard to voice and information is also present in the creation of networks through selective exposure to individuals as citizens shy away from confrontation (Stromer-Galley, 2006). The resultant segmentation of participants can lead to an "echo chamber effect in which citizens reaffirm already held beliefs through encountering similar opinions in others (Garrett, 2009). This "cyber-balkanisation" of online content and audience not only impacts on the enablement of voice, by filtering content out of personal agenda, but can also lead to a reduction in diversity of opinion encountered, thereby reducing the deliberative impact of citizen conversations (Kobayashi and Ikeda, 2009). Not limited to the online sphere, this reduction in diversity of exposure has been linked with detachment from real world contact during the online experience due to constant reaffirmation of the personal experience (Spyke, 1999).

However, the mutability of online structures have allowed scholars to discuss how an environment for public engagement might be created to meet specific needs, and therefore potentially to provide for deliberative and democratic participation. For instance, Mannoyer-Smith (2012) described how online spaces that were designed specifically to compensate for some of the structural inequalities found offline (including those of gender, ethnicity and class) were able to create a more welcoming environment for participants from traditionally excluded communities than is found offline. However, while designing participatory spaces in such a specific manner (discussed shortly in this chapter) is occasionally attempted, is not the norm. Such design must overcome the challenges of translating expanded voice into expanded audience; enabling evaluation mechanisms or quality control alongside the increase in information provision; expanding communities of participation to include diverse networks of participants, overcoming digital inequalities and facilitating civil and productive discussion. These challenges must be overcome to deliver democracy successfully in an online setting, but this does not mean revolutionising the machinery of modern democracy, or developing an alternative to the internet structures that have become part of our day-to-day lives. It does mean encouraging engagement and interaction between participants which incorporates the reciprocal and reflexive exchanges that characterise rational-critical debate, and providing the informational resources required to allow citizens to form preferences. In one of the seminal examples of online participation of recent years, Noveck introduced a model of collaborative government in which citizens are enabled to directly participate in rulemaking online (2010). The *peer-to-patent* system developed by Noveck and her team utilised common web 2.0 features and dynamics, such as discussion, rating and reputational economy to facilitate small group, expert deliberation over US patent applications that resulted in actual law-making. This

widely acclaimed example of e-participation exemplifies the goals of interpersonal exchange and information use during formation of opinion. It is, though, a very specific case of expert deliberation, rather than mass public engagement. There are many more possible forms of public participation that could be included in online participatory initiatives. These also provide space for voice, interaction, discussion; could be part of an online public debate about public issues. The degree to which these structures may conform to deliberative ideals is discussed in the next section. First, however, the place of participatory spaces within a democratic system is examined.

Coleman (2003) described how political communication in the digital media age should be a five-way flow of information (government-citizen, citizen-government, citizen-representative, representative-citizen, citizen-citizen). Some of these pathways are already supported on the internet: government-citizen through simple web publishing but also increasingly through mainstream digital and social media spaces; citizen-government through email consultations and web 2.0 offerings such as petitions sites and comments boards; representative-citizen through websites and email groups plus services such as *TheyWorkForYou* which report on MP activity and also increasingly through services such as *Twitter*; citizen-representative through email and also popular platforms such as *Twitter*; and citizen-citizen through a range of new platforms for discussion ranging from deliberative argument visualisation schemes to simple asynchronous forums. While not deliberative in themselves, this flow of information and interaction can provide the setting within which diverse networks can generate and spaces for deliberation can exist. However, Gurevitch et al. (2009) highlighted challenges to government brought by the new media age such as the need to digest the vastly increased number of contributions and provide feedback; simply “having many more bases to cover”. The research also explained how, though new technologies may have given the citizen many more opportunities to give comment or receive information, there is little evidence that their contribution has any impact on policy. This gap between participation and efficacy can cause citizens to become sceptical and untrusting and less likely to participate further. The challenge of integration of e-participation into policy making and the effect on the public of failure are well documented (Moreira et al., 2009; Millard et al., 2009). Macintosh described the consequences of the resultant reduced public participation in politics, illustrating not just the problem of under-representation, but also the missed opportunity of the government to capitalise the useful aspects of public participation, such as increased expertise and local knowledge (2008). Although the five-way flow of information exists through various online platforms, it consists of disparate spaces which utilise a mixture of different models, from the monitorial citizen of Schudson (1996; 1998), holding representatives to account, to the deliberative citizens,

discussing policy between themselves, without any formal structure in place to unite the concepts of deliberation, citizen-government interaction and efficacy.

Many isolated examples of successful or failed participatory initiatives exist; examples of successful public intervention such as the dropping of road pricing proposals in the UK after millions protested on the UK Prime Ministers *ePetition* website and examples with far less noticeable impact, such as the stunted experiment with mobile e-voting in the UK and Ireland (Millard et al., 2009). A predicted revolution in people-power and a democratisation of societies across the globe were hailed by many in the early days of the World Wide Web but it has since been argued that this has simply failed to occur. As many theorists have noted (see for example van Dijck (2009), and Fenton and Baressi (2011)) one explanation for this lies in the problematic elision of information with deliberative participation. However, on a smaller scale, the internet can be seen to be acting as a democratizing force, enabling collaborative law-making (Noveck, 2010), small scale deliberation (Graham, 2008) as well as a whole host of other types of participation, from e-petitions to fundraising. In fact, as Wright (2009) stated, the pessimism displayed now towards the democratising power of the internet is largely due to the overstatement of its potential in the first place by those promising a revolution. There is much to discover about the effectiveness of all of these initiatives and trends but the evidence base for such evaluation is poor (Macintosh et al., 2009). As Millard et al. (2009) showed, it is likely that the success of e-participation initiatives has been underestimated through the failure of evaluation frameworks.

Such issues are not confined to the internet, of course. The wide ranging public deliberation described above is an idea that has existed throughout the ages but that has proved elusive. Closed communities such as senates and parliaments have drawn up protocols to maximise deliberation in their processes, the wider public have been engaged in town hall meetings and the opinions of the public have been harvested through surveys and consultations. Even when carried out online, however, these methods rarely enable citizens to interact on a large scale, focussing more on opinion polling and mass input rather than a genuinely deliberative process of opinion generation. One of the reasons for this is the difficulty in facilitating the conversations necessary on such large scales to involve the public at large in deliberation. It has been widely acknowledged that the internet has given rise to the potential for very large scale conversations to take place – asynchronous conversation spaces, such as email lists and bulletin boards, allow virtually limitless numbers to participate in conversations[2]. However, recognising the potential

[2] The Guardian newspaper receives up to 65,000 comments on its message system per day (http://www.theguardian.com/commentisfree/2016/jan/31/readers-editor-on-readers-comments-below-the-line) and the Daily Mail often receives over 5000 comments per hour

for large scale conversations and identifying meaningful instances of large scale conversations are very different issues (Van Dijck, 2009; 2012; Dean, 2008). Similarly, the challenges in presenting and digesting the volume of opinion offered in such conversations are significant both in terms of analysis and in terms of the relationship between information and knowledge or deliberation. Even with widespread access to the internet and a relative mastery of online publishing, we are still not seeing a radical shift in public deliberative behaviour brought about by the internet, at least in political spaces (Bimber and Copeland, 2013; Davis, 1999; Hindman, 2009; Papacharissi, 2004; Wilhelm, 1999). For example, the difficulties involved in facilitating rationalisation of public-policy issues amongst the public were apparent in UK government initiatives from the early part of the study period, such as the *Your Freedom* and *Spending Challenge* websites which claimed to have the goal of harvesting public opinion about spending cuts and cutting bureaucracy in order to inform policy making, but in a large part collected irrational and unconsidered thoughts, extreme views and coordinated contributions from lobby groups. It has proved difficult to create public political deliberation online at large scale, and part of this difficulty has been related to a lack of understanding of the motivations, inspirations and gratifications involved in public contributions to online spaces and the structural and social forces that help to shape these. It is this specific online deliberative behaviour that this study seeks to investigate, in order to deepen understanding of it. Through investigation of the conversation that does exist online, the study attempts to identify characteristics that are useful in determining the deliberative quality of public contributions to online debates and in turn the factors that are influential in their development, so that the generation of deliberation in political spaces might be better understood. The technological factors involved in the facilitation of conversation – along with other associated social and institutional factors – are discussed later, and previous studies investigating how they relate to deliberation are reviewed. However, in order to answer such questions, we first need to consider what exactly constitutes deliberation and how it can be measured.

1.4 The Nature of Deliberation

The concept of deliberation is a subject of much debate and research and a number of factors have been cited as requirements that conversation must fulfil in order to be regarded as deliberative (Coleman and Gotze, 2001; Dryzek, 2000b; Fishkin, 2009b; Habermas, 1984; Habermas, 1989; Jensen, 2003; O'Neill, 2002; Mansbridge, 1999; Mutz, 2006; Searing et al., 2007; Schneider, 1997; Torcal and Maldonado, 2014; Graham, 2010; Young, 1997; Young, 2000).

(http://www.dailymail.co.uk/home/stats/index.html). Various forum spaces have been inhabited by hundreds of thousands (even millions for the gaia-online forum) of members and host billions of comments (http://www.thebiggestboards.com/).

Graham described the theoretical variation in the literature when comparing the deliberative criteria of Schneider (1997) - equality, diversity, reciprocity and quality - with that of Jensen (2003) - form, dialogue, openness, tone and argumentation (2008 p. 20). However, one theoretical construction common throughout the literature is that of Habermas, who laid out certain foundational structures for deliberation. When Habermas (1989) described the development of a public sphere in 17th and 18th century he stated three particular characteristics of conversation that must be present in order for it to constitute deliberation: rational-critical discussion; defined limits of scope of discussion; openness to all members of the public. He also explicitly stated the need for a disregard of status and reputation and the participation of all citizens on an equal footing.

Describing rational-critical debate, Habermas stated the need for "*problematicization of areas hitherto unquestioned*" (1989 p. 36) – discussion centred on original problems that have not yet been solved, or cannot be solved, such as the "wicked problems" of Kunz and Rittel (1970) – and the objective exploration of the issue in a constructively interactive manner. Discussing this concept, Freelon (2010) describes two necessary characteristics of the interactive discussion of such problems: first, the presence of cross-cutting discussion – the exchange of contrasting opinion and perspective amongst diverse quorums; second, a high level of argument quality - the presence of rational exchange of ideas and supporting evidence. Such debate and discussion must, by necessity, be rich in reciprocity with high levels of exchange between participants including inter-ideological questioning and response. Reflexivity is also important as an indicator that people are considering different views and information and reflecting on their own opinions in a new light (Graham, 2010).

Rational-critical debate between participants and the consideration of the opinion of others rather than simply their own are vital ingredients in deliberation, but rational critical debate is not enough unless it is taking place within a diverse (if not representative) community of participants. As Habermas stated, a deliberative space must be open to all (1989 p. 37) – deliberation between a limited number of participants may go some way towards generating informed opinion, but to realise the goal of informed voting across a society, utilising the potential scale promised by internet structures, the participants of the deliberation must represent the views found across that society – deliberation based upon a subset of viewpoints can only partially inform opinion. In direct forms of participation, a high diversity of opinion must be present with different views and opinions being expressed, as representativeness is vital for a conversation to be useful in policy making. As many recent scholars have found, society-wide engagement is certainly not automatic and care must be taken to ensure representativeness in

the participating sample (Karlsson, 2012; Panopoulou et al., 2010; Macintosh, 2008). Representativeness and rational-critical debate together still do not provide the necessary conditions for Habermasian deliberation, of course. A representative sample only results in a representative voice if all members of the sample have equality; the ability to have their voice heard as loudly as that of any other.

Deliberation should also involve a limited scope of discussion, focussed on public issues (Habermas, 1989). This limited scope provides a focus for discussion, ensuring that time is spent productively addressing the appropriate issues. However, as Coleman and Gotze (2001) stated, the scope should not be so limited that it inhibits deliberation. It is important to provide an open agenda, allowing topics to be widened to further the understanding of the opinions present. It is also essential that adequate time-scales be incorporated to allow topics to be fully explored.

The digital online conversation environment differs from that for which much of the theory of deliberation was developed – face-to-face conversation using free and open speech. This immediately contextualises Habermas' intervention in particular ways. Online discussion is characterised by the use of technology to express oneself and, while technologies which enable the human voice to be recorded and translated to electronic form are developing rapidly, this method is certainly not the normal way to contribute to online debate (especially the asynchronous variety that has been shown to have the greatest potential to engage people in the very largest scale conversations). Instead, typing text into boxes and perhaps recording preferences in online forms is much more common, methods that bring with them the associated constraints on self-expression compared to oral speech. This means that explicit or implicit rules are always in place in some form or other in an online system, be it constraints of space (limits on length of contribution), limits on time to contribute or simply the constraint of transferring an opinion from the natural verbal form to a different form. Moreover, many spaces for online debate are structured in such a way as to deliberately shape discussion, often to simplify analysis of the content provided. All of these rules and limitations affect the way that participants express their opinions and interact with each other so will have some impact on the quality of the deliberation that occurs. As illustrated by Todd Graham (2010) freedom of expression can be regarded as a fourth characterisation of deliberation. Graham illustrated how certain speech constructs such as *expressives* – elements of contributions representing "humour, emotional comments and acknowledgements" (2010 p. 28) – are important in deliberation, allowing freedom to construct speech, build social bonds and express emotion. Coleman and Gotze (2001) call for rule-based frameworks for discussion to avoid an "anarchic free-for-all". However, too much limitation of language can also be a limitation on deliberation.

These technology-led restrictions on freedom of expression highlight a key issue for this study – the relationship between context and the process of online deliberation. Conversational form is specific to the environment in which it takes place – a product of the environment in which it developed. However, the deliberative process is wider than just the eventual use of technological interfaces, and thus the individual characteristics discussed here must be taken together, as a measure of the whole deliberative process. Using the four characteristics of deliberative conversation identified above, a set of factors can be defined that can be used to evaluate the level of deliberation present in the output of these deliberative processes – the deliberative quality of online conversation:

- *Rational-critical debate,* identified by the presence of interactive exchange, including construction and deconstruction of arguments, reciprocity, reflexivity and cross-cutting, inter-ideological discussion;
- *Accessibility*, defined by openness and freedom of access, in technological and social terms, exclusion must be minimal and all voices heard equally to achieve wide representativeness;
- *Conversation focus* and scope, indicative of the how much the discussion relates to public issues, and how much participants concentrate on the topic at hand.
- *Freedom of expression,* in terms of contributor practice and dynamics within participant communities, and also with regard to any physical restrictions placed upon the participant by the platform (such as categorisation or limitation on size of contribution or moderation).

These four characteristics have resonance in this study through their manifestation within the content of participatory spaces (for example reciprocity of messages on a forum, or the number of off-topic contributions), the design and nature of the participatory spaces themselves (which may affect accessibility, or freedom of expression) and the community of users – both contributors and administrators – that participate within them (which could exert influences on all four of these characteristics). Each of these dimensions can be studied in an evaluation of deliberative quality through analysis of specific features, components and characteristics of digital participatory spaces and their communities. The relationship between the technical and social architecture of the analysis and these deliberative characteristics is introduced later, in section 1-6 and explained in the methodology chapter. First, however, the existing literature surrounding attempts to capitalise on the affordances of the digital environment to create spaces custom made for deliberative purposes is examined.

1.5 Designing for Deliberation

This study is borne from the potential of the internet to facilitate large scale conversation and allow, and encourage, citizens to interact in a constructive way during the discussion of political

topics. It investigates the relationship between online conversational behaviour and the environment in which a conversation takes place; an important part of which is the technological infrastructure that makes up that environment. One aspect of the study is how the technical platform itself can influence the behaviour of the participant, and how designers have shaped online environments in order to influence conversational practice by users.

As described above, the participatory web infiltrates all of the major sectors of the internet: business, entertainment, news and academia, to name but a few. Participative practices are equally common and range from simple individual expressions to complex, multi-participant debate. Participation occurs as engagement with brands of consumer goods, discussion of entertainment shows, amateur political punditry or citizen reporting of news and current affairs. Participation occurs alongside all the facets of everyday life and as such generates online content in unprecedented amounts. Statistics from the leading social media platforms provide an illustration of this: in May 2013 Facebook reported that there were 4.75 billion pieces of content shared daily (Facebook, 2013) and in 2014 Twitter boasted of 500 million tweets being posted every day (Twitter, 2013). While there is no shortage of spaces offering the opportunity for citizens to contribute content and interact, these spaces are not necessarily deliberative or political. Providers of these spaces compete to encourage citizens to inhabit their spaces, producing content that can be stored, distributed and ultimately monetised. The participatory consumer is a valuable asset that is courted with innovative interactive features and designs, but these designs have different goals than deliberative democratic participation. These spaces exist largely outside of the institutional spaces of politics and attract contributors seeking non-political interaction and expression. Where these spaces overlap the social dynamic can change to form a complex mixture of identity articulation and political communication (Langlois et al., 2009; Graham et al., 2015b). To design a space such as this – in which political engagement overlaps with communicative interactivity – two key requirements must be met: attracting diverse and inclusive publics to engage in political discussion and facilitating the quality of constructive, informed and interactive debate online. These aims can create a paradox: motivating people to participate often involves enflaming the passions of the contributor while ensuring constructive debate often involves suppressing those passions and encouraging rationality. It is this balancing act that the interface must perform, allowing free expression while discouraging the destructive forms of communication that have proved prominent in online communication. Potential solutions have featured in many practically-oriented studies investigating how online environments can be shaped to optimise particular deliberative practices (Barton, 2005; Schlosberg et al., 2007). This study aims to further that goal by finding evidence of system designs that encourage deliberation appropriately in different online

situations. There have been numerous attempts and studies to shape online conversation to encourage deliberation, focussing on issues such as: how to ensure fairness, accessibility and representativeness; how to harvest data in a useful way, suitable for analysis; how to facilitate the most productive, deliberative behaviour from the participants. Many of these studies have provided interesting case studies of successful generation of online deliberation, and as such, they influence the direction of this study greatly.

These studies feature a number of definitions of deliberation and various combinations of characteristics of conversation that are deemed necessary for its implementation, drawn largely from characteristics based upon the work of Habermas – similar to those listed above. Such studies often seek to translate deliberative concepts into technological functionality in order to facilitate discussion that conform to deliberative norms due to the methods of participation that are implemented. When, in 2003, Beth Noveck developed the *Unchat* system – a precursor to the peer-to-patent system discussed earlier which consisted of an online, real time (synchronous) discussion tool that enabled a global community of invited lawyers to participate in type-written (as opposed to speech) group conversations – she described deliberation as "*a function of a particular type of structured speech*" and designed the system to facilitate this (Noveck, 2003). Various *Unchat* features helped contributors to engage with relevant information during participation. "Speed bumps" were incorporated (the navigation system forced participants to be exposed to relevant information before entering a debate) to encourage participants to become informed prior to participation, summarized data and transcripts were provided to participants to help latecomers to "catch up" and, taking this a step further, a quiz was introduced before debate to expose participants to key concepts and arguments. Incorporating user profiles and authentication the system minimised anonymity in order to ensure accountability and website contributions and usage statistics were archived to ensure transparency. The designers ensured that web interfaces conformed to international standards of accessibility to reduce exclusion based upon device usage or access need in order to increase the inclusivity required for public deliberation.

Primary in this approach is a desire to create informed debate, in which participants respond to, and are inspired by, information relevant to the decision at hand. A reflective process of preference formation, argument building and decisions based on evidence is the goal. This approach has been followed in numerous projects, including the *peer-to-patent* project that followed *Unchat* with its facilitation of expert discussion (Noveck, 2010). Other approaches to information provision have also been developed in online conversation spaces. Davies et al. (2009) developed DEME – an innovative design for best practice in online asynchronous group

deliberations. This system included features such as easy access to related information and features designed to enhance collaboration, such as document centred discussion and the sharing of files and links. A more recent example of an initiative that sought to enable large scale conversation is the Deliberative Community Networks project (*OpenDCN*) of (De Cindio, 2012). *OpenDCN* supports a number of different methods of participation and of particular interest to us here is the "informed discussion" tool. This incorporates a number features that are designed to help users to incorporate relevant information into their contributions. Like the peer-to-patent and *Unchat* systems of Noveck (2003; 2010), *OpenDCN* enabled participants to provide information about the arguments that they were making, but did so in a wide array of different formats. Participants used built-in templates to supply data sets or link to external data sets, and to present them meaningfully, increasing the rationality of arguments with relevant and accurate factual claims and helping to expose participants to information that they might not have otherwise considered.

The enrichment of a debate with information is of course only the partial achievement of deliberative ideals. Other important deliberative characteristics exist that may be present or absent. The translation of preconceived definitions and characteristics of deliberative conversation into internet interface designs can introduce opportunities for specific forms of interactive discussion to develop, but designing that perfect recipe of participatory features that provides all of the different characteristics, in all of the correct places, at the correct times and in the correct quantities is a challenging, if not impossible, task. Many initiatives have sought to advance online deliberation towards these standards of deliberation but found that the difficulties in doing so lead to only partial success. For instance, Fishkin (2003) developed the "Deliberative Polling" platform that enabled real-time, small group conversations and voting about particular topics and found that, while many of the deliberative ideals were present in the conversations generated, external factors such as engaging with representative samples and the effect of pressure groups and lobbyists would always pose problems. Moreover, the success in facilitation of particular deliberation characteristics often comes at the expense of others, with the result being that particular forms of deliberative conversation are developed. Pingree (2009) argues that this problem is linked to the assumption that off-line discussion provides "the gold standard of deliberation", and states that the aim of designing online spaces to generate conversation that mimics the characteristics of deliberation that are idealised offline is not always the best policy. Indeed, he describes how doing so can mean neglecting other possibilities of online discussion that could improve deliberation. Pingree suggests that designers of online forums "should instead strive to take advantage of the unique design flexibility of the online

discussion environment" (Pingree, 2009 p. 309) to design towards deliberative ideals rather than offline characteristics.

There have been a variety of studies that have analysed or generated innovative interface designs that have aimed to maximise the enablement of specific, online forms of deliberation. Several have analysed a number of online initiatives, highlighting examples of online systems harbouring conversation of similar deliberative quality and character to offline spaces, demonstrating how interface design can be an important factor in the facilitation of deliberative qualities, but also showing how interface structures can constrain, as well as promote deliberative qualities in the conversation that they house (Schlosberg et al., 2007; Wright and Street, 2007). The various different forms of conversation interfaces that are readily apparent in day-to-day use of internet services - blogs, forums, comments boards, social networks and messenger systems to name but a few - have been combined and recombined in academic studies that sought to find a formula for deliberation. These studies provide insight into several areas of deliberative capacity that online initiatives have attempted to achieve. These will be discussed here in turn: various approaches have been developed with the aim of encouraging reciprocal and reflective exchanges between participants in an interactive discussion; different interfaces have been designed to help participants understand the full scale and content of broad and large arguments; various strategies have been invented for the control of large discussions, keeping contributions on topic, constructive and adherent to predefined rules and standards.

Interpersonal connection within conversations is a key deliberative ideal and one that online media platforms have been widely famed for facilitating. For this reason, several studies have resulted in interface designs which aim to generate interactive discussion, with participants replying or acknowledging others. Two alternative approaches to designing spaces for conversation rich in interpersonal connection are design for synchronous conversation - exchanges happen in real-time - and design for asynchronous conversation – exchanges take place intermittently, over an indeterminate time period as suits the distributed attention model of the dispersed quorum. Noveck (2003), like Fishkin (2003), was convinced of the deliberative qualities of synchronous over asynchronous deliberation, due to the time commitment required to participate fully in an asynchronous debate. Cavelier et al. (2009), in their discussion of the interactive PICOLA project, also preferred the synchronous method of deliberation, claiming that use of new technologies in carefully designed interfaces could replicate the level of deliberation of face-to-face conversations. Others have been more sceptical of real time conversation, pointing out the difficulties and exclusions associated with temporal co-presence

of participants (Tucey, 2010). Noting the scheduling difficulties of synchronous participation, the PICOLA project combined a synchronous discussion tool with asynchronous discussion areas to create a 24-hour platform for participation (Cavalier et al., 2009). Tucey (Tucey, 2010) described further weaknesses in synchronous models, such as difficulty in expressing an opinion due to speed of conversation, and suggested a similar hybrid strategy in which highly engaged groups might interact synchronously but with limits to their frequency of posting. Several studies have highlighted the importance of repeat interactions between participants and advocated breaking large groups into smaller ones (up to 24 people) and enforcing a regime of regular contact between participants – perhaps on a weekly basis – in order to help participants to get to know each other and understand their contrasting ideas, and to replicate the deliberative quality of face-to-face conversation (Tucey, 2010; Noveck, 2003; Fishkin, 2009a).

This approach clearly sacrifices some of the inclusive nature of the internet in the search for conversation quality. These synchronous systems foster deliberation around small-group based tasks but possibly ignore the potential for very large scale conversation and engagement of the masses. In reality, asynchronous debate (in the form of bulletin boards/messageboard/forum systems) has dominated internet participation. Engagement with political issues in online forum spaces is one of the much vaunted examples of civic empowerment enabled by the internet (Macintosh, 2004). Several of the systems discussed above utilised the asynchronous model to some extent. *DEME* utilised small group asynchronous exchanges, while *OpenDCN* utilised contemporary design features to facilitate large group asynchronous exchanges. The DEME system allowed a large cohort to participate over long time periods and included a variety of features to maintain interconnectivity, such as the incorporation of email. The system also included features that facilitated the formation of smaller topic-based groups within the larger overall participant community were still provided as this was seen to be important as a method of encouraging personal connections (Davies et al., 2009). These small group capabilities occur within the large group setting allowed by asynchronous online environments and serve as a means of allowing individuals to participate in small parts of a large project that interest them, but the researchers acknowledge familiar problems related to the realisation of some characteristics of deliberative ideals. By utilising the small group features the representative nature of the discussions generated is brought into question, something that the researchers, and the participant community, responded to with careful group formation processes that sought to avoid barriers to participation and the resultant reduction in democratic quality. The *OpenDCN* system also included features to optimise interactivity between participants, but the designers took a different approach, utilising design, rather than participant grouping, and formatting and presenting conversation structures such as chains of message exchanges

together, rather than breaking up the overall cohort. Asynchronous contributions were organised in such a way that individuals and their arguments could be easily located within the overall discussion using more modern features such as listed posts with nested replies grouped into interactive chains that helped participants to visualise arguments, identify authors and find appropriate locations for their own contributions (De Cindio, 2012).

The examples discussed above illustrate how interface and platform design has been utilised in various ways to encourage conversation that conforms to one or more of the deliberative ideals identified earlier. The *Unchat* system of Noveck (2003), with which this examination of the literature began, sought to utilise interface features to enable participants to contribute and interact. It sought to protect freedom of speech and avoid censorship within conversations, but it also incorporated systems of participant identification and moderation as the designers believed that this would facilitate productive conversation. The inclusion of these features illustrates the requirements felt by the designer to respond to the agency commanded by the individual human participants in online conversations, and also that of communities and networks of participants. The interface design of the examples discussed above provide tools for the participants, but these tools are not omnipotent in the development of conversation. Human agency impacts the development of conversation in two ways. Firstly, participants maintain agency over their actions and are able to shape their own contributions and control their own behaviour; indeed, scholars have illustrated how appropriation of a technology by users, after the design phase, can shape the outcomes of usage of technology in the same way that the design can (Dix, 2007; Mackay and Gillespie, 1992; Williams, 1974). Secondly, administrators retain the ability to intervene in the processes through which conversation emerges, influencing the result, such that, as Wright and Street (2007) found, a technology may produce different effects upon dialogue depending on the policies employed to shape it. This human agency consists, in the form of participant decisions, as behaviour that is beyond, or contrary to the expected and acceptable models of participation imagined by the designers of a space, and, in the form of administrator action, as techniques to counter this problematic behaviour. The balance and relationship between these two forms – or the social contract between contributors and administrators (De Cindio, 2012) – is a vital dimension of the success of deliberative spaces, facilitating accountability and trust between all parties in the community inhabiting the space. In open, online spaces it is all too often the case that uncontrolled contribution to conversations fails to provide high levels of conformance to many of the deliberative ideals, particularly rationality and interactivity (Sobieraj and Berry, 2011), due to difficulties such as high volumes of contribution or aggressive interactions (Wright, 2006; 2009). Responding to this problem requires "*social as well as technological approaches*" (Schuler, 2009

p. 300) and the agency exhibited by administrators in order to address this balance may be manifest as direct intervention, designed into spaces in the form of moderation or facilitation, or authentication systems that limit anonymity or permit pseudonymity.

Authentication methods vary in form: strong methods, such as those used by banks and institutions may use forms of verification such as postal confirmation of address; weaker methods may require just email confirmation and may allow the use of semi-anonymity through pseudonyms. Therefore, interface design can afford complete anonymity during participation, absolute onymity in participation through hard authentication, or semi-anonymity through pseudonymity, with individuals identifiable as an online persona, but one that is not linked to "real", offline identity. Furthermore, the methods of expressing this identity vary and combine, including textual labels and names, avatars and other images and in-depth profiles. These methods often overlap as they are implemented in different ways. For example, pseudonymity can easily be anonymity when users can have multiple accounts, or share or hijack names, but procedures exist to allow a presence online that is identifiable by a pseudonym, but tied to a real identity in the system back end. Thus, the participatory benefits of hidden "real" or offline identities – e.g. anonymity – can be combined with the benefits afforded by accountable identities (Ford and Strauss, 2008). Approaches to identity management have been used in various ways in different online situations, with diverse effects. Bernstein et al. describe a spectrum of anonymity that is present in recent digital media environments – Facebook insisting on real names, MySpace and Usenet allowing anonymous commenting, and various models in between including the pseudonyms of Slashdot which allow users to protect their real identity while building up an online profile to use in the space (2011 p. 51). Research has shown that these authentication models can have a real effect on participation. Many have argued that anonymity is detrimental to productive online community participation due to the lack of accountability, integrity, trust and cooperation that is otherwise provided by the use of real names and stable pseudonyms (Hiltz et al., 1986; Kilner and Hoadley, 2005; Millen and Patterson, 2003; Rains, 2007). Others, however, have argued that anonymous spaces can actually have positive impacts on participation by enabling those who do not feel that they can speak up in other environments (Grudin, 2002; Kling et al., 1999; Lampe and Resnick, 2004). In online environments these effects are not mutually exclusive, of course. In a study of the popular website 4chan, Bernstein et al. described how anti-social behaviour thrived in a very popular discussion thread in which 90% of participants contributed anonymously (2011). However, the researchers also observed that this anonymity allowed participants to discuss sensitive topics with more confidence. Furthermore, while some social bonds were missing due to the anonymity, others were maintained through alternative methods such as the inclusion of slang

in messages, which was used to indicate pre-existing knowledge and experience of novel communication techniques and therefore status within the community (Bernstein et al., 2011) .

Goffman's theory of the presented self (1959) helps to explain why identity - and therefore anonymity and pseudonymity - are important concepts during conversation as the "public self" is acted out through social interaction. The performance of identity extends beyond textual contributions to conversations and can take different forms, utilising different resources and media. User profiles and pictures create online identities alongside the content of any contributions, and as Lee, Spears and de Groot (2001) showed, ensuring visual anonymity can remove a bias in group formation. The profiles and contributions of a user are therefore all part of an identity performance which can have an effect on participation, through the social bonding that occurs through identity, rather than conversation content alone. Indeed, this performance will shape contribution to conversations as an individual constructs the identity that they wish to present, conforming to or challenging identity-related concepts such as social acceptance amongst peers. Chen and Berger (2013) describe how, in online settings, these social forces can be related to the type of identity requirements present within a space, noting that: "Social acceptance concerns should be less salient in … anonymous settings since there is no public 'self' that the individual has to manage" (2013 p. 582). Chen and Berger's observations are important in this study, which seeks to understand how cross cutting exchanges and diverse arguments may be fostered and experienced online, as they suggest that when social acceptance is less of a pressure, such as during conversation in online spaces which allow anonymous participation, people are able to have conversations about controversial topics more successfully. Anonymous participation may be important, therefore, in political conversation, allowing participants to explore difficult issues without the pressure of identity maintenance.

Within deliberative participatory initiatives like those discussed above, issues of identity, anonymity and participation are drawn into even sharper focus. Scholars have linked some of the problems identified within contributions to deliberative spaces directly to the concepts of authentication and anonymity, describing how perceived anonymity can remove some of the moral and social cues that otherwise shape speech (Wright, 2006 p. 553) and release the contributor from responsibility for their words (Coleman and Moss, 2012 p. 8). Stable and reliable identities are important in online deliberation as they allow participants to keep track of each other as they interact and exchange opinion and information, maintaining relationships and strengthening trust. Coleman and Moss describe how accurate identities are important for the maintenance of Habermasian deliberative ideals, as they allow participants to recognise, find and contact each other and fully understand the quorum present at any particular moment,

particularly important in asynchronous conversations, occurring over an extended period of time (Coleman and Moss, 2012 p. 8).

The spectrum of authentication described by Bernstein et al. (2011) is clearly an important factor that needs to be taken into account in a study of online political conversation. While authentication methods may help to provide the accountability that is required of a deliberative space, the trade-off is in the introduction of barriers to entry to conversations. Designed as methods to increase the deliberative quality of conversation by modifying or excluding contributions that do not meet the specific deliberative ideals of an initiative, these techniques can have clear consequences on democratic participation through potential exclusion and curtailment of voice. As described by Fiorella de Cindio, the level of authentication present in a system should be relative to the duties being performed in an online space. For instance: "unverified identities are enough for writing a comment in a blog, whereas strong authentication is required for participating in a deliberative consultation" (De Cindio, 2012).

Like authentication, moderation and facilitation play a key part in the control of online discussion in most spaces and many of the systems described in this chapter utilise moderation strategies. Indeed, many scholars have described the positive impact of moderation on deliberation amongst online participants despite the democratic risks implicit within it (Coleman and Gotze, 2001; Noveck, 2003; Wright, 2006; Wright, 2009; Tucey, 2010). Scott Wright (2009) acknowledged the problems created by poorly designed or implemented moderation strategies - highlighting the problems that the latter can bring, particularly for governmental platforms where the issue of censorship may be raised - and described the requirement to distinguish legitimate from illegitimate moderation. However, Wright also described "*the necessity of moderation*" in the fostering of deliberative conversation when describing how moderation, and indeed facilitation, can be vital in turning the uncontrolled expression of free speech into more focussed and productive discourse (Wright, 2009 p. 234). Wright stated that moderation was justified in online spaces, despite the risks to freedom of expression that it posed, as the anonymity and physical separation allowed by the specific environment of the internet causes behaviour that requires moderation. He described two models of moderation: content moderation and interactive moderation. In the former, content is moderated against pre-defined criteria before being published, sometimes by humans and sometimes by automated software programs. In the latter the moderator acts as a facilitator, providing feedback and resources to contributors and directing the conversation in productive ways. Such practices are common in discussion spaces across the web, with positive effect. For example, a recent study of participatory spaces in which journalists became involved in the discussion that their work

generates showed that the presence of an “official” or qualified voice in the debate succeeded in making conversation more civil (Lewis et al., 2014).

Debates such as this about the role of moderation and facilitation in online participation are reflected in the various different concepts of moderation and facilitation have been incorporated into deliberative systems. Beth Noveck (2010) acknowledged the democratic risks posed to freedom of expression by moderation and facilitation, but also described the improved conversation brought about by the use of such practices in systems such as *Unchat* and *peer-to-patent* through community learning about participation and deliberation. To maximise the suitability of these systems to the task they were designed for, they utilised flexible models of facilitation in which moderators can be elected and deposed by the community and give private or public feedback to participants. For this purpose the system was designed to be configurable, enabling the users to adapt it to their need, with a role-based permissions system created to reflect the communities present. Similarly the DEME system featured moderation as well as also built in tutorials that were used to encourage directed discussion (Davies et al., 2009). Douglas Schuler (2009) introduced a different form of structured moderation in his deliberative system, *E-Liberate*: a tool for online civic deliberation. This system was built around the use of *Roberts Rules of Order* – “*a set of directives that designated an orderly process for equitable decision making in face-to-face meetings*“. *Roberts Rules of Order* are used by many organisations and, in the US at least, the directives are legally mandated for use by governments. The directives involve the “typing” of messages into discrete groups – a practice common in conversation mapping and analysis and one that makes discourse particularly suitable for computer processing. The structuring of discourse in this way allows the system to facilitate conversations by enforcing the rules and only allowing legal “moves” such as posing and responding to questions. Schuler admits that this is not always popular with users and built in an “auto pilot” feature that allowed conversation to move more freely if users deemed that the facilitation was impeding conversation (Schuler, 2009 p. 299). Schuler also addressed the issue of ascertaining who is online at any particular time. Asynchronous conversations are often assumed to be inclusive but at any particular moment it is hard to tell whether a quorum is present or not. Schuler states that solving these issues will take “social as well as technological approaches” such as windows of time where commenting can take place or comment quotas for participants. *Roberts Rules of Order* is not the only framework for structuring collaborative or deliberative debate; and in Shanks and Dahlstrom (2009) describe the *Parliament* system which can use an external set of rules to facilitate an online discussion. Using a specification language the user can describe new rule sets that meet their particular needs helping to ensure that useful discussion is not constrained by limitations in software structure.

These methods of moderation and facilitation may be most useful when the scale of the conversation is at its greatest and yet the human cost of moderating conversation successfully can be one of the limiting factors in generating productive conversation of large scale. Many of the studies above, extol the virtues of very large conversation, where the net is cast wide and contributions sought from all, but often end up with more limited conversations in small groups which may be less representative, or exclusive. In the *peer-to-patent* system, Noveck (2010) created a system where the public could contribute to institutional decision making, building on many of the deliberative features of her earlier work. However, in this system, expert opinion was valued most highly and barriers of entry are high with participants needing to build up a reputation before their voice is heard loudly. The system engaged expert opinion to create an open government initiative in which anyone who "knows what they are talking about" can contribute. This collaborative approach can be a direct route for the public to affect rule-making, but it is less participatory and representative, and less well suited for the wider purposes of deliberation, including preference formation. For more inclusive and larger scale interactive discussion to occur, some of the principles of moderation described above have been utilised in a more structural way, with scholars attempting to utilise the potential of interface design to help to create more automated techniques of moderation.

The design decisions that created the nested structure of messages and replies in the *OpenDCN* system discussed above aimed to optimise interactivity between participants by organising contributions in such a way that individuals and their contributions could be easily located within the overall discussion. The nested posts and replies helped participants to identify authors and find appropriate locations for their own contributions. The social rating features, such as "likes" and "recommends" helped to organise the content further. Several scholars have documented the positive effects of ratings systems in discussion spaces, such as the motivating effect of feedback on a contribution, and the filtering and efficient attention allocation that they enable, something especially important within spaces where polarised and aggressive participation is common (Cheshire and Antin, 2008; Noveck, 2010; Preece and Shneiderman, 2009; Semaan et al., 2015). These two particular design features helped contributors to find popular content and identify interactive threads and exchanges, but can also lead to duplicated or lost content as parts of the discussion are hidden or ignored. While such features aid participants to consume or contribute content, they do not reflect the quality of reasoning behind the contributions, nor do they help users to find specific content within the debate, and can even lead to social influence bias as positive ratings can lead participants to rate a contribution based upon popularity, rather than merit (Iandoli et al., 2014; Buckingham Shum et al., 2014; Klein, 2012; Muchnik et al., 2013). Coleman and Blumler (2009) wrote that presentation of the problem to

the public is of paramount importance in order to encourage thoughtful and informed contributions from a wide variety of participant groups, and it is this challenge of structural presentation that numerous scholars have tackled. A common theme amongst such projects are the participatory techniques of Argument Visualisation (AV) – an approach which combines methods to aid the presentation of the problem to be discussed with methods to aid interactive contribution and methods of automated moderation. AV approaches include the structuring of information and presentation of issues and information to the public in a problem-based way, plus the shaping of user input into forms designed to solve pre-defined issues without necessarily limiting the level of public engagement encouraged. AV is a technique that allows content of conversation to be displayed in an easy to understand way, so that the different strands of ideas, claims, rebuttals, supporting evidence and other features of argumentative discussion can be identified and understood. Macintosh (2008) wrote that AV tools can help to solve the problem of information presentation, drawing the distinction between information and knowledge and describing how the latter should be presented to maximise participant understanding, and therefore informed debate, and also increase the user experience and encourage wider and more involved engagement. She wrote that traditional internet forums are not good enough, despite their deliberative possibilities, because they cannot support the presentation of information required to ensure participants are debating in an informed manner and more complex argument visualisation platforms are required. Macintosh recognised the importance of building deliberative capacity into AV solutions, stating that AV platforms must be designed to present the knowledge represented in contributions but at the same time facilitate characteristics such as: "*access to and analysis of factual information*"; "*preference formation*" and "preference expression"; as well as "*community building*".

The roots of AV exist in electronic collaborative theory which goes back as far over 40 years with the creation of Issue Based Information Systems (IBIS) to support political decision processes (Kunz and Rittel, 1970) and later gIBIS, an enhancement of the IBIS idea using a hypertext interface to increase usability (Conklin and Begeman, 1988). Subsequent iterations of this concept, including computer supported collaborative argumentation (CSCA) or computer supported argument visualisation (CSAV) have been shown to have potential to be utilised to provide graphical representations of arguments to enable better deliberation (Macintosh, 2008). Visually representing and connecting the concepts contained within argumentative conversations helps to address the problem of knowledge representation and management and illustrates the potential of technology to provide platforms for successful visualisation of knowledge and argument in public participation decision making and planning systems (Iandoli et al., 2014). AV has been used in a number of innovative public-participation and policy-related

initiatives including the development of a range of tools, from *Compendium*, a "hypermedia and sense-making" tool for desktop computers used to structure and represent contents of public planning meetings which can be used to inform web consultations (Selvin et al., 2001; Okada et al., 2008) to *DebateGraph.org*, the global online AV system which has been used in a number of governmental and third sector engagement with the public and at the time of writing is used in over 100 countries (Baldwin and Price, 2008; DebateGraph, 2015). The potential for machine-sorting and presentation of complex structures of argumentation is clear, but for general public deliberation, methods must be incorporated to allow the individual to find content and contributors of specific interest, and to express their preferences interactively.

However, the presentation of argument is not the main focus of this study – it is the generation of deliberative conversation in the first place, and AV techniques have been utilised for this purpose as well. Systems have been designed with interactive features in mind; one such example is the *Decision Structure* of Pingree (2009) which utilises some of the visual representation design features discussed earlier, but allows contributions to be made directly into this interface within specific structures – message types that relate to particular argumentative concepts - to allow deliberation within a problem-based AV structure. The system also incorporates various Web 2.0 features such as ratings and filters with the aim of creating a trust-based reputational system of sense-making within the conversations. The participation structure is imposed on users, who must choose a category of message for their contribution when composing it. The structure is "*more specific than the mere reply relationships found in existing forums*" and is configurable by an administrator to fit a particular environment. Potential types include "*problem*", "*solution*" and "*cause*" and contributions of these types can build up a conversation structure as discussion occurs. For instance, problems can have causes or solutions proposed and reasons added to back them up. Any number of such problems, causes, solutions or reasons can be added but crucially, the users can vote for or against each, building up a picture of valued contributions which can be presented in ranked order. This user-created argument visualisation seems to present a real opportunity for harnessing mass contributions and building interactive, problem-based conversations. Further approaches to information analysis and presentation may be applied in order to aid participant engagement with the material. For example, recent research aimed to help users to identify particular areas of an argument that are underdeveloped and which could benefit from the attention of a contributor (Iandoli et al., 2014), while others have sought to use complex machine learning and artificial intelligence techniques to further evaluate argument structure, investigating contributor behaviour, social networks and types of contribution (McLaren et al., 2010; Wegerif et al., 2010; Scheuer et al., 2010; Scheuer et al., 2014).

These experimental approaches in the field of argument visualisation focus on specific definitions of deliberation, privileging interactivity and rationality over some other deliberative ideals such as freedom of expression and community building. The technologically-oriented approach solves some of the problems of mass conversation but introduce others, and designers have often generated mixed models of design and moderation to tackle problems. One such example is the *Deliberatorium* system developed by Mark Klein (2011) and colleagues at MIT for large scale online argumentation. The team developed *Deliboratorium* as a tool to harvest large scale discussion in a tight, argument-structured way, based upon the IBIS argumentation formalism. Allowing free choice of topic the *Deliboratorium* system need not serve only policy-based discussion but it does enforce a problem-solution-argument model to create an easy to analyse argument structure as well as encouraging contributors to look for related and contrasting ideas and to encounter opposing arguments before contributing. Like Pingree's DSD, the *Deliboratorium* design enforces typing of messages (issue, idea, pro, con) by the contributor prior to submitting and also prohibits replication and insists upon posts being placed in a logically sound part of the argument map. The team acknowledge the challenge of "*attention allocation*" and designed the system to help users to find areas of interest within large argument maps and find the appropriate place to add their views and expertise. With this in mind the developers included several popular web 2.0 solutions such as ratings systems, watchlists and personalisation through the use of personal homepages. Each of these facilities comes with its own risks to democracy and deliberation, the hyper-segmentation of personalisation and the challenge to inclusiveness of profile based models, but they serve as a method of navigating the large map, enabling contributors to home in on areas of interest, making the large scale of the conversation less of a hindrance to participation. However, in practice the system requires human moderation, as well as structural control, in order to ensure posts are structured, categorised and placed correctly and are of good quality. The moderation is not silent, however, as moderators have a "*part education and part quality control*" role and can communicate with contributors to help them to produce acceptable posts. Furthermore version histories, of the type found in popular wiki software, are kept so that editorial control can be maintained as a defence against subversive actions of contributors such as the changing of other contributors' arguments. Klein states that one moderator is required for each twenty contributors an effort level "*much lower than those needed to harvest, post-hoc, discussions hosted by such conventional social computing tools as web forums*". The system was tested on groups numbering in the hundreds in which participants were somewhat prepared for use of such a system (participants were largely information management students). In much larger conversations, the problems of moderation at scale may still exist, despite the innovative

structure, and thus the translation to use of such a system with the wider public may be problematic. AV – as demonstrated by the *Deliboratorium* - are an exceptional concept in large scale conversation with tremendous potential to allow large scale participation within argumentative processes. However, they are designed to create a very specific form of deliberation that is not necessarily recognisable as the collection of ideal characteristics described above. Klein defines deliberation as "*exploring and converging on problem solutions rather than just… conversing*", and as such the end goals of collaboration and solution-finding marginalise some of the other concepts intrinsic to wide, inclusive public participation in deliberation, such as community formation and freedom of expression. AV tools allow complex arguments to be presented in understandable forms and help to control participation, encouraging constructive contribution in a collaborative process of argument building. However, the characteristics of deliberation described above require more than presentation of argumentation, and include requirements such as the forms of expression and interpersonal interaction that enable bonding between participants, in order to encourage reciprocity and reflection. Structures to facilitate concepts such as these are often rare in AV systems as the clarity of argument presentation is deemed paramount.

Design, be it of interface characteristics or platform features such as moderation, has been used in these examples in attempts to manipulate participation in several ways; moderation is used to influence quality of contribution; content categorisation and argument visualisation are used to structure contributions in a digestible and analysable way; social and personal features such as ratings or bookmarking can be used to order the mass of data provided and provide access points to participants. Some spaces are designed with interactive features to encourage users to be interactive and to discourage, or disadvantage certain behaviours that are deemed to be less adherent to deliberative ideals. Others acknowledge the human agency of participants and the social shaping of technological use and include techniques to control or shape this, such as moderation or facilitation. Sometimes these efforts result in innovative and unusual spaces for participation, spaces in which the user finds experiences that are different from those elsewhere. Sometimes the spaces are designed to take advantage of features of mainstream social and participatory platforms that were deemed to be particularly productive. In this way the interface features and structures that become familiar to, and perhaps expected by, large new media-saturated sections of the public can be incorporated, so that the interface is immediately recognisable and usable by many of its intended users. The designers of the *DEME* system discussed earlier stressed the importance of incorporating current practice into systems to aid participation and highlighted how the early design of the system limited participation due to a confusing interface. This problem was solved by a redesign, utilising newer technologies

that had arrived during the project time span (Davies et al., 2009). This example was used as an illustration of the importance of designing the system codebase for incremental improvement – the internet is a fast moving environment and systems must be adaptable to current expectations of the modern user.

The nested structure of interconnected contributions and replies that was described above as a feature of the *OpenDCN* system is a common interface of modern participatory platforms, commonly observed in newspaper comments sections and social networks. The designers sought to utilise the popular features, familiar to participants, in their system to capitalise on the interactive behaviour observed in social media spaces. But this adoption of mainstream interface characteristics can have effects on participation beyond the deliberative ideals that it is assumed to promote. *OpenDCN* also utilised other web 2.0 features commonly found on modern social networks, such as social ratings features that allow contributors to express an opinion, or show support to the opinion of another contributor by 'liking' a post and thus increasing the rating of that post. The interface therefore facilitates both "weak" and "strong" forms of participation with text contributions being accompanied by ratings features that allow users to express their opinion without writing a comment, providing an easier way to participate, potentially increasing levels of participation and interaction while simultaneously risking a reduction in the quantity of more content-rich contributions by providing an easier, less well articulated form of participation (Buckingham Shum et al., 2014).

These 'weak' and 'strong' forms of participation reflect the variation in participant preferences for contribution method and gives an insight into the choices that the participant makes outside of the interface structure. Citizens may choose to participate or not, and may choose different forms of participation. Pingree described three problems in deliberation that should be the subject of attempts to solve them through design of online systems. First he addressed the "*Problem of Scale*", stating that large group deliberation often suffers from problems of coherence and full reception, problems largely mitigated by the written nature of online asynchronous conversations. In these environments "*the problem of scale manifests as a difficulty in keeping up with all messages being sent*" (Pingree, 2009 p. 310). Secondly, Pingree describes the "*Problem of Memory and Mental Organisation"*, in which the limitations of human memory impede deliberation, requiring design that assists human memory (Pingree, 2009 p. 311). The examples above describe how Pingree, and others, have responded to these problems through the technological design of spaces. Interface features and other platform characteristics have been used to help the participant to perceive large amounts of content, or to find specific points in the interactive discussion in which they can enter and contribute. However, Pingree

describes a third problem, the problem of "*Conflict between Organisation and Democratic Legitimacy*", which relates to concerns that lie beyond the interface of any particular space (Pingree, 2009 p. 311). These concerns relate to issues of power, change and efficacy and of the relationship between individuals, communities, organisations and institutions. Although considered somewhat in the discussion of moderation and facilitation and its effect on democracy, above, these concerns must be addressed in a much wider context.

Beyond the narrow focus of the interface design, the participatory environment of any space can be defined in wider terms. De Cindio (2012) describes the importance during development of an online deliberative space of three areas of consideration: the social grouping (the gemeinschaft dimension); the social contract between developers, administrators and contributors alike (the gesellschaft dimension); and the technology dimension. In the examples of innovative designs above, the importance of the last of these is acknowledged (and to an extent, the second) – through the technological functionality of the tool chosen to facilitate deliberation, and the rules and control structures employed through moderation of deliberative spaces. Next the first and second of these dimensions are examined, through a discussion of factors external to the interface design, such as the community of participants present in a space and the social connections between them, and the institutional linkage of a space and the effect of that on user motivation and goals.

All of the initiatives discussed above have achieved varying levels of success and have had varying effects on the deliberative quality of the conversations generated. Design choices have had apparent effects on particular deliberative characteristics of conversation, while leaving others unchanged or even reducing some. It is therefore hard to derive any overall design ideals for generating online deliberation. Moreover, any specific interface or platform design may perform differently in different situations on the internet. Karlsson (2010) analysed 28 different discussion forums in which participants discussed particular aspects of EU policy. Although each forum was housed within the same platform, utilising the same design, Karlsson measured significantly different levels of deliberative behaviour (measured by discussion posts per participant) between forums, indicating that in different discussion, or different discussion topics make participants were more or less likely to contribute regardless of the technical infrastructure. Different discussions involve a different quorum with different opinions present, expressed in different ways. Karlsson's evidence showed that the highest proportions of deliberative content occurred in the forums with the highest levels of overall engagement. However, as Mutz showed, it cannot be assumed that deliberation occurs simply within conversation that participants find interesting (Mutz, 2006), but perhaps an important

characteristic of deliberative conversation is user engagement. This could be related to discussion topic, but also several other factors, such as the community of participants taking part, or the expected outcomes of the conversation. As discussed earlier, the internet is far from a single space with a certain set of rules and a single user group with set behaviours or goals. Conversations exist sometimes as a result of design, with spaces created and marketed for specific deliberative purposes, such as consultations in institutional spaces. But very often conversation occurs in other spaces, as a result of participants encountering each other, either deliberately or incidentally in a plethora of online spaces. In order to isolate any characteristics of design that are related to deliberative quality, one must first analyse the social context of the environment in which the conversation takes place, in order to redefine the particular deliberative deficits or strengths of a space; the online niche must be understood before the requirements for deliberation can be ascertained. This process involves the consideration of different determinants of deliberative quality, related to characteristics of the niche, such as community and purpose. Several key studies have identified some well-defined determinants of online deliberative behaviour.

One such determinant is the user community that is active in each particular online environment. Just as in the offline, 'real' world, people often form communities and choose to interact with particular groups, rather than with groups that are representative of society at large. For instance, some may seek out deliberation, while others might prefer to talk to likeminded people and prefer environments where they are not challenged. Some may seek out confrontation, though studies suggest that most shy away from it (McPherson et al., 2001; Stromer-Galley, 2006; Nahon and Hemsley, 2014). Political conversation may occur in spaces designed and marketed specifically to generate it, but also arises in entirely different spaces, as tangential or incidental exchanges within communities formed for other reasons (Graham, 2008). Deen Freelon suggests a strategy which takes into account the "disparate online discussion cultures" of different communities (2010 p. 1173). He describes how concentrating solely on deliberative quality when designing a platform can be counter-productive, decreasing participation due to the exposure of a participant to opposing views that is necessary in true deliberation, demonstrating the need to look beyond single democratic ideals and look for necessary trade-offs between ideals and customs. There have been a number of studies focussing on the different types of online public spheres present on cyberspace and the different forms of participation that occur within them (Dahlberg, 2001a; Dahlgren, 2005; Freelon, 2011; Jensen, 2003; Papacharissi, 2004; Pickard, 2008). For example, Dahlgren identified five "sectors of online public sphere": e-government, advocacy/activist, civic, parapolitical and journalistic (2005 pp. 152–153); Pickard identified three categories of "internet-based grassroots action":

partisan, pluralist democratic and radical participatory (2008 p. 640). However, Freelon describes a lack of consistent analytical criteria, and the lack of a suitable framework for assessing deliberative quality present in these articles, respectively (2010 p. 1175). He describes an alternative model that improves on previous studies in three ways: allows a broadened scope of evaluation, encompassing more than just deliberation; specifies categories of communication rather than sponsorship or institutional linkage; allows the connection of empirical results to political theory (Freelon, 2010 p. 1177). The framework proposed by Freelon builds on the three distinct models of democracy identified by Dahlberg (2001a). First, the liberal individualist model, which is characterised by self-actualisation and self-expression, prioritised above the communication of the collective opinion (Freelon suggests communication will be primarily one-way in this model, though rebuttal of opposing views may occur). Second, the communitarian model, categorised by the reinforcement of existing community ties and creation of new ones and built around identity characteristics, shared interests or ideology (Freelon suggests that interaction will be common in this model, as a form of collective identity construction). Finally the deliberative model, characterised as a community of individuals seeking to identify, test and defend the best arguments. These three categories of course cannot be accurate descriptors of all online conversations and they overlap, with deliberative, individualist or communitarian behaviours appearing in spaces that are predominantly adherent to other categorisations. This framework, with its overlapping models allows, Freelon says, “more precise conclusions such as ‘communitarian with some deliberative aspect’” rather than simply “more or less deliberative” (Freelon, 2010 p. 1178). Freelon illustrates how these different communities behave differently on the web and shows how his three-model framework can be applied to current areas of online political communication research through analysis of non-deliberative political conversation as well as deliberation.

Within these models, conversation can be shaped by community dynamics involving a more personal typology of contributors. Individuals can exert an influence, through their rate, volume and content of contribution. Researchers have provided much evidence that within communities there are particularly active participants that contribute more to the conversation than the majority (Albrecht, 2006; Dahlberg, 2001a; 2001b; Kies, 2010; Oldenburg, 1999; Panyametheekul, 2011; Tucey, 2010; Wright, 2006). Such forms of domination could be seen to challenge Habermas’ principles of freedom of expression by reducing the relative access to a conversation for non-dominant users. However, Graham and Wright (2014), explicate this effect, describing two different variables of equality. Firstly, they discuss equality of access, which is not inherently adversely affected by inequality in volume of posting but which could be threatened should that level of domination get too high. Therefore, they state that volume of

contributions should not be ignored when assessing impact on discursive equality (2014 p. 626). Secondly, they discuss equality of participation, which relates to the nature of participation by these dominant characters, and the potential for infringement of the abilities of others to express themselves. Therefore, they say, assessing the nature of participation is important, and researchers must analyse quantitative contribution and discursive practices (2014 p. 627). Graham and Wright put forward a model of three types of *super-participants* (participants contributing more than the norm) that are not mutually exclusive – the super-poster (expressing quantitative dominance), the agenda-setters (a more qualitative form that influences others) and the facilitators (a formal role of control, such as a moderator) (2014 p. 628). Their analysis identifies a small but significant proportion of super-posters in forums, and described their special place in the development of conversation. However, rather than finding that these dominant participants infringed upon the access of others and negatively influenced the conversation through reduction of discursive equality, they found that these participants were actually improving the debate. This impact was not simply a function of volume of contributions; rather the super posters were acting as a positive influence on the conversation overall, including "helping others, replying to debates, summarising longer threads for new user, being empathetic towards others problems and engaging in largely rational critical debate" (2014 p. 639). These actions map directly to some of the critical characteristics of deliberative conversation described above, and thus an understanding of the roles that participants play within a community is also important in investigating the deliberation that occurs there, with regard to both the quantitative and qualitative nature of any domination.

A second determinant of deliberative quality can be the institutional linkage of the space in which participants are making their contribution. Scott Wright (2012c) describes political institutions as political parties and government when discussing the relationship between online deliberation and political change, while Freelon widens this definition when discussing deliberation on a wider scale, describing institutional sponsorship of participatory spaces as pertaining to "governments, advocacy groups or news organisations" (2010 p. 1175), and also civic institutions, such as membership-based community organisations (2010 p. 1185). Describing news media as a political institution, Tim Cook expands the definition further, stressing the inclusion of organisations, which he defines as institutions if they embody a separate political actor, and in which a discrete form of politics exists (2006 p. 161). Utilising this definition of the institution as an organisation providing a source of politics and a vehicle of centralised power, where an institution is at the centre of a community (or a decentralisation of power, when an institution serves a devolved purpose, in a devolved community), institutionally linked spaces can be identified in different forms. They can be directly created by and linked to

political institutions such as parties and government, at a local or national level, and the goals of the space can represent this linkage. Spaces can be designed and created by politically affiliated groups – not policy makers, but bodies that seek to be active in the political arena. Spaces can be linked to organisational, localised institutions – spaces in which employees might discuss work-related matters, or professional individuals might discuss their shared practice. In this study, therefore, institutional linkage describes the relationship between a participatory space and an institution such as government or political party, a professional body, or a workplace; essentially a linkage with a body that holds some form of political power relevant to the participants of the space. This institutional linkage of a participatory space is prescient in this study as a participants may behave differently when contributing to a government consultation than when contributing to a political discussion in a chat room or an independent forum. Habermas drew the distinction between public discussion – discussion that is autonomous from institutions in which as many people express opinion as receive it, effective and immediate reply is permissible and opinion can readily lead to action - and mass discussion - in which fewer express than receive opinion, organised communication impedes discussion, authorities control action created by opinion and institutions penetrate the mass, reducing autonomy (Barton, 2005). These two forms do not map directly to a dichotomy between institutionally linked spaces and those that are not, but differences in institutional linkage will affect the perception that people have about certain platforms. Part of this effect will be related to trust – trust in an institution to allow free participation and expression, and trust in an institution to listen to, even act upon the contributions made by participants. It is easy to see how participants will be motivated to contribute when they feel that it will lead to efficacy and easy to understand why they might refrain, contribute in less deliberative or abusive ways, or choose to participate in alternative spaces if they feel frustrated by a lack of such impact. In fact, many such alternative, deliberately autonomous spaces for discussion exist, developing as a result of a general desire to converse, or as methods of attempted civic mobilisation. Wright (2012b) in his study of discussion in internet "*third spaces*" – "online discussion spaces with a primarily non-political focus, but where political talk emerges within conversations" (2012b), such as the popular online forums of *YouTube* (Van Zoonen, 2007), and those that accompanied the channel four television show, *Wife Swap* (Graham, 2008; 2012) – showed how people choose to discuss politics in platforms in which they feel comfortable, not necessarily in "official" space. These citizens are not discussing politics in order to change policy, but rather for the sake of deliberation itself. Indeed, such discussion can emerge from initially non-political talk in non-political spaces, as citizens, comfortable in their role as participant in these informal spaces add civic issues and concerns into their contributions (Graham et al., 2015b). It is exactly this type of deliberation

that could be valuable in trying to engage citizens informally with politics to help them make rational decisions when necessary, by allowing citizens to construct their political preferences and identities while in contact with a relatively diverse range of viewpoints and perspectives. Exchanges in these third spaces seek not to influence policy makers, but may in some way help to shape public opinion – as illustrated by Coleman et al. (2011) in their study of anti-war protesters that sought to influence their fellow citizens. Not all citizens are comfortable participating in this way, of course; as Jackson et al. say, perhaps only a "brave minority" (2013 p. 352). When it does happen, this kind of citizen-focussed deliberative behaviour stands in sharp contrast to that seen by many participants of institutionally linked spaces, such as the aforementioned *Your Freedom* and *Spending Challenge* initiatives. Therefore, this study aimed to provide insight into this willingness to participate in non-political spaces, to ask whether (and why) participants are more or less likely to deliberate constructively in institutionally linked spaces than in "third" spaces, and whether this has an impact on the design of a successful institutional deliberative initiative.

1.6 Pragmatic Approach to Deliberation

The examples and evidence covered so far are part of a rich debate about the place for public deliberation in our democracy and the potential of online platforms for facilitation of deliberative conversation. The discussion started with its contextualisation within the specific social and political environment of post-financial crisis UK, in which the coalition government led the public into a period of austerity. This was a challenging period in political terms and disenchantment was common among the public. Perhaps at times such as this various ideals of democracy are examined and contrasted with the status quo, as people seek to bring about change. But an element of pragmatism is needed too, in order to meet the very real democratic needs that arise. In challenging times, consideration of contrasting perspectives and the understanding of wide and diverse experiences and opinions is perhaps at its most critical. Crucial to this understanding is the participation by a numerous and diverse cohort of citizens. The formal definition of deliberation discussed earlier, often held up as the ideal to which online political conversation should be evaluated against, is not universally accepted as the only, or even the most productive practice of political conversation. Indeed, it has been strongly argued that consensual public deliberation cannot succeed and may even limit democratic participation if these supposed deliberative ideals are maintained at the expense of the voices of those that cannot meet them (Mouffe, 2009; Sanders, 1997). The insistence that political conversation conforms to such structures may decrease participation through undermining the convictions of individuals or exposing them to uncomfortable discursive environments (Freelon, 2010; Mutz, 2006; Mouffe, 2009). However, as Mutz explained, it is vital that citizens are exposed to

opposing opinion and learn to discuss issues in a constructive manner (Mutz, 2006). Even Sanders (1997), in a paper titled *Against Deliberation*, argued that the agonistic approach being championed was a means of encouraging constructive political debate from opposing viewpoints, avoiding the antagonistic alternative, in order to "*make sure that everyone participates and is effectively represented and taken seriously in discussions*" (Sanders, 1997 p. 369). In order to move beyond the practice of simple statement of preference to a one of preference formation through rational-critical debate, shown to be important by Coleman and Gotze (2001), citizens must consider different viewpoints, evidence and experiences and reflect upon them in order to generate an informed opinion. Therefore this study will utilise a looser definition of "deliberation" than some, which prioritises interpersonal exchange of opinion, including cross-cutting exchanges that consist of input from opposing viewpoints, in order to broaden the diversity of opinion that participants are exposed to.

The existence of interpersonal exchange alone cannot provide an adequate indication of the deliberative value of the conversation to the quorum and an examination is also required of the level of engagement of individuals in this interactive behaviour and the relevance of interpersonal exchanges to the political topic being discussed. Conversations dominated by a minority of interactive participants may be, in terms of the wider community, relatively less interactive, particularly if members of the quorum are excluded from exchange in some way (Panyametheekul, 2011). *Equality of access* to active participation in the conversation is thus another key characteristic to be investigated in this study. Access to the service in terms of membership requirements and processes, access to the conversation in terms of moderation practices and intra-quorum dynamics and freedom of participants to express themselves as they wish are all important parts of this characteristic. A weak *discussion focus* can also lead to interactive exchanges that do not carry the desired level of value in terms of exposure to relevant opinion for the purposes of preference formation, so the proportion of off-topic exchanges is another characteristic analysed in the study. In summary, the characteristics of deliberative quality utilised in this study are:

- *connectedness* – interpersonal interaction, which may include the exchange of opinion, reciprocity and reflexivity, indicative of rational critical debate;
- *cross cutting exchange* – the exposure to alternative opinion deemed so necessary by scholars;
- *equality of voice* – open access to the space, including the presence of beneficial forms of quantitative and qualitative domination;
- *focussed discussion* – concentration on issues of civic or public importance.

As demonstrated within the studies discussed above, small scale deliberation can take place on specialist platforms and deliberation occurs to varying degrees within particular asynchronous forums. As shown by Scott Wright, Dan Jackson and Todd Graham (Graham, 2008; Graham et al., 2015a; Wright, 2012b), there are communities in cyberspace that are willing to discuss politics and in a number of online niches this discussion has many characteristics of deliberation. However, it has proved much more difficult to successfully translate that specifically defined deliberative behaviour to wider public spaces for engagement and deliberation on a very large scale. The challenge remains to harness perhaps the greatest strength of the internet - the ability to connect and promote interaction between large, national and even global communities - for deliberative political engagement. Increasingly, numerous web platforms offer commenting and discussion services that prove to be wide-reaching and popular and sometimes even deliberative. Some of this deliberative conversation occurs accidentally (Graham, 2012) some occurs despite interface characteristics that seem at first glance to limit it - for example the deliberation identified within the character-limited contributions of Twitter by Thimm et al. (2014) and Upadhyay (2014). While this deliberative conversation is democratically positive in its own right, a challenge remains to engage these communities or practices in politically-active ways and in institutionally linked spaces. These deliberative digital niches form through complex interactions between the social, political and technological dimensions, and it is unclear exactly what makes these spaces successful, let alone how to transfer that success to integrated, deliberative political participation platforms. This study set out to investigate how these deliberative niches form in online space, analysing a set of case studies of online conversation spaces that fitted into different niches, defined by two dimensions of social and political characteristics: different levels of institutional linkage and different democratic models:

- *Institutional linkage* (connection with government, parties and other organisations, journalistic spaces, alternative, independent and “third spaces”);
- *Communities* of contributors and practices and democratic models (e.g. groups of a political persuasion, special interest groups, and more representative groups such as respondents to national campaigns).

Much of the literature about online political participation has focussed on similar interactive spaces, including blogs (Wright, 2008), wikis (Ford, 2012) and forums (Graham, 2012; Graham et al., 2015a; Wright, 2012b) or on social media platforms (Boyd and Ellison, 2007; Beer, 2008). Typically, online civic or political participation has been studied through participatory services that are designed to house a form of action, such as facilitating contact with representatives or civic bodies (Cantijoch et al., 2015), or signing petitions (Lee and Hsieh, 2013; Sheppard, 2015;

Wright, 2012a; 2015). This study will focus on particular participatory structures, the categories of design that are most specifically orientated towards conversation and comment on political issues. These categories include the community *forums* that exist solely to house interactive discussion, and the *comments systems* or message boards that are added to many spaces to allow wider contribution to news stories and other content items. Interfaces of contemporary institutional spaces conformed largely to these two categories of design in the study period, as detailed in the next chapter. Finally, contemporary digital media spaces, specifically *social networks* and microblogging platforms were included, to acknowledge the large and growing presence of political discussion, and political institutions, in these spaces as they become ever more ubiquitous in the day-to-day activities of our society. Through this investigation into the interplay between interactive deliberative characteristics of conversation, institutional linkage of discussion spaces, contributor communities and categories of interface design, this study aimed to uncover patterns in the production of reciprocal and diverse conversations, and gain understanding of the factors that help to generate the conditions necessary for productive political discussion in specific niches within online participatory spaces.

1.7 Investigating Online Conversation

As described above, this study aimed to investigate the form of emergent political conversation on the web in general, as well as the constructed conversation on specific institutional spaces. It responded, therefore, to some of the numerous criticisms made of the study of online political conversation, and online political participation in general, made in recent years. Studies often focus on creating spaces for particular forms – and topics – of conversation, or focus on single spaces or specific behaviours. Casteltrione (2015) described the different modes of participation and the different internet practices that are required of this type of study and decried the lack of such diversity in the literature. The study of online participation has often privileged government initiatives and spaces, instead of looking in alternative spaces (Casteltrione, 2015; Wright, 2012c; Graham et al., 2015a; Freelon, 2011) and is often focussed on new trends and innovations in the field – such as blogs, Facebook and Twitter - marginalising much of the broader political communication practice in the wider media ecology (Wright, 2012c; Gurevitch et al., 2009). Too often, studies provide a brief snapshot of online behaviour and content – often at unrepresentative times, such as during election campaigns when political communication morphs into specific patterns (Stromer-Galley, 2006) - instead of providing longitudinal studies (Lutz et al., 2014). Too often studies aimed to analyse only one type of practice or content, utilising narrow methodologies, privileging quantitative or qualitative, and thus removing consideration of wider and deeper understanding that could be gained from a more mixed methods approach (Lutz et al., 2014).

This study sought to analyse a much wider sample from across the spectrum of online space, representing, at least to an extent, emergent public practice. However, such an aim contained three implicit challenges, necessitated by the diverse and distributed nature of the potential research data: finding the data amongst the millions of spaces and billions of contributions utilised and generated each day; harvesting the data in all the different forms and from all the different structures in which it exists; and finally analysing the data, on a very large scale, in all its different forms, with regard to each of the different variables to be studied, while at the same time gaining a deep understanding of the human interaction taking place. These challenges have been tackled previously, of course, in a variety of research environments.

Various studies have attempted evaluate the information that is found online about a particular topic, and have needed, therefore, to cast the net as wide as possible in their efforts to generate a sample of websites to analyse. The tools utilised to do this have often been those that already exist within the internet environment for the purposes of finding information. For example, Lin and Jeffres (2001) created a list of 422 websites from across the media landscape, in order to carry out a content comparison, by consulting media specific search engines and website indexes. Similar approaches have been carried out in the field of medicine, in projects seeking to evaluate quality of information about medical conditions. Investigating information about multiple sclerosis, Harland and Bath (2007) carried out searches using the name of the condition, in Google and Yahoo search engines, generating a list of over 100 websites that had to be refined by selection of examples that were ranked most highly in the search engine results. Focussing on concussion, Ahmed et al. (2012) utilised a “four-stage methodological sampling technique” in which websites were identified initially using the Google search engine to provide a data set that was supplemented using industry and expert knowledge. A simple search for the medical condition was carried out on each of the English language-specific versions of Google, and the first 10 results from each were included in the study. Others have shaped the sample by searching for specific lists of websites, for example, searching for the biggest businesses in China and the US for a comparison of corporate websites in the two countries before finding the websites of the companies using search tools (Pan and Xu, 2009). Other approaches have involved ‘snowball sampling’, in which initial webpages are selected and then other websites are selected using the hyperlinks that exist within the seed pages, so that a network of pages and connected content can be identified (Laine et al., 2011). These studies illustrate how different approaches have been taken in the sampling of the massive data set that is the internet, but also how commonalities exist through the use of pre-existing tools and structures for searching the web. The Google search engine is by far the most commonly used search tool in the UK, used in nearly 90% of web searches by UK users during the 12 months from July 2013

to July 2014 (StatCounter, 2014; Riches, 2014). Google provides search results ordered according to its bespoke algorithm which uses metrics such as incoming hyperlinks and social network presence and user behaviour (click-through rates), amongst many other factors, to measure popularity, and therefore relevance, in a search (Schwartz, 2014). Therefore, using Google as an experimental tool is fraught with problems due to a lack of technological transparency that can affect information visibility and economic forces of the Google business model that lead to self-serving presentation of data (Rieder and Sire, 2014) and even subservience to political regimes (Jiang, 2014). It is well known that Google employs personalisation to search results, using the search history and other browser statistics (as well as user data if a searcher is logged in to their Google account) to create search results that are tailored to an individual and therefore vary between different people (Horling and Kulick, 2009; Sullivan, 2009), including the generation of implicit searches – searches that the user does not even carry out, but that Google predicts that they will want to see included in results (Fiorelli, 2013). Nonetheless, some of the intricacies of the Google algorithm, often derided for various forms of media bias, actually make the search engine appropriate for use as an experimental tool in some cases. For instance, it favours popularity over content (Diaz, 2008), something that is in fact desirable when a researcher is looking for examples of political conversation that the citizen may find themselves. In its position as the dominant search engine in the UK, Google and its algorithms construct a "shop window" through which citizens' interface with information communicative spaces, providing the "ontological security" that the citizen needs to make sense of the internet (Sanz and Stančík, 2014). While many citizens will have their own shortcuts and mental maps of the web, Google gives the impartial researcher the most authentic view from outside of these exclusive groups.

The data held within these samples of web sites is generally present within disparate structures and unsuitable for any straightforward processing. The approaches taken in the processing and analysis of the data in the above studies involved text analysis and manual coding by teams of humans (Ahmed et al., 2012; Lin and Jeffres, 2001; Pan and Xu, 2009; Harland and Bath, 2007), automated categorisation using programming and scripting languages (Laine et al., 2011) and "screen scraping" – the automated process of identifying and copying content from a web page into another structure, typically a database (Laine et al., 2011). Clearly, developing a methodology for sampling, and also for collecting data, in all its forms, from across the web – is a key challenge to the study of emergent conversation online. Thus, one aim of this study was to produce a tool for harvesting specific conversation data from across the web, capable of working within a sampling methodology that is appropriate for representing popular online practices of the study period. This tool, open source and available for use by others, is one of

the outputs of the study, complementing the knowledge generated through the investigation of the research questions.

The text analysis and coding of the studies discussed above are common approaches used in studies to understand content and draw conclusions from it about the process that led to its creation and its significance to content found elsewhere. Such approaches are, however, limited in the scale at which they can operate, a problematic fact in the context of a study seeking to understand data sets as large as those described above, drawn from across the web. In the last ten years, computer-driven methods for dealing with data sets of this scale have been developed and have been described as a solution to the sampling and analysis problems of studies involving very large data sets. Collectively described as "Big Data" methods, these approaches deal with "large-volume, complex, growing data sets with multiple, autonomous sources" (Wu et al., 2014); data sets which are "so large and complex that they become awkward to work with using standard statistical software" (Snijders et al., 2012). In increasingly connected and digital societies, data sets relating to human communication, relationships, consumption and many other facets of life are becoming ever more common and also ever more accessible through digital methods. Indeed, in the most triumphal of these assertions, Chris Anderson, editor-in-chief of *Wired* magazine, declared that "every theory of human behaviour" can now be usurped by new methods, because "the numbers speak for themselves" (Anderson, 2008). These "Big Data" approaches have been used in countless studies and projects in commercial, medical and sociological contexts (Mayer-Schönberger and Cukier, 2013; Ruppert et al., 2013; Lovelace et al., 2016; Wu et al., 2014) and do indeed allow great insight into huge data sets, highlighting patterns and trends that are difficult to see at a lesser scale of analysis, even within the social sciences (Thelwall et al., 2011; Savage and Burrows, 2009). These methods can be used to repurpose the digital objects and structures of the web, using them not just as data but also as method (Rogers, 2013), an approach that is particularly appropriate for the study of online conversation on a large scale.

Of course, such methods, carried out by algorithms on machines, lack the human understanding and translation of traditional methodologies, and are therefore limited in the level of understanding that they can produce of subjects as innately human as political communication. While sentiment of messages can be estimated to an extent (Thelwall et al., 2011) the richer nuances of emotion and communication are not so easily understood by machines. The rhetoric of Anderson, and others, above, have been strongly challenged within the social sciences, with critics describing the shortcomings of 'big data' methods (Baym, 2013; Boyd and Crawford, 2012; Gitelman and Jackson, 2013; Manovich, 2011). Nancy Baym, in particular, points out some of

the vagaries and imprecision of digital methods, stating that 'Now, more than ever, we need qualitative sensibilities and methods to help us see what numbers cannot' (2013). In order to take advantage of the power of these big data methods, analysing large quantities of data and investigating trends on a macro scale, but at the same time generating an understanding of the fine detail of human interaction, methodologies must be devised that unite the large-scale, quantitative big data approaches with the smaller scale, deeper qualitative approaches. In order to understand interpersonal human communication, within multiple, very large networks a methodology must be designed that incorporates mixed and varied approaches, working at different scales. This study aimed to bridge the gap between the small scale, qualitative methods of investigation of many of the studies discussed in this literature review, and the large scale, data-centric, algorithmic methods of big data studies. It sets out a new example of a mixed methods or *quali-quanti* approach that allows the economies and expansion of scale enabled by computer-supported quantitative methods to be combined with the depth of knowledge and real-world translation of qualitative methods (Bazeley, 2004; MacMillan and Koenig, 2004; Roberts and Wilson, 2002). Similar to the *ethno-mining* approach put forth by Aipperspach et al. (2006) and the hybrid approach described by Lewis et al (2013), the method uses iterations of analysis, but features within these iterations techniques specifically customised to the study of conversation. This quali-quanti methodology utilises big data methods but at the same time seeks understanding of the nuances of human interactions; seeking to translate the deeper understanding of the latter to the global scale of the former. In this way, this study contributes to the debate around data and metrics, their place in the social sciences and the remaining role of qualitative methods (Clough et al., 2015; Kitchin and Lauriault, 2014; Kitchin, 2014; Manovich, 2011; Van Dijck, 2014), but also investigates particular affordances that can be of use within this type of approach. Conforming to the "Sequential Explanatory" design strategy of Cresswell (2003) this approach involves the initial collection and analysis of quantitative data followed by a qualitative phase that allows the initial findings to be explained and interpreted. In an iterative process, the qualitative research is targeted at samples within the quantitative analysis of the overall data set, allowing validation, but also deeper understanding, of overall trends and observations at the macro level. The mixture of research methods is broad, including big data and algorithmic approaches, network analysis and argument mapping, text analysis, surveys and interviews.

This approach is attractive in the context of my research because it allows for the complexities of deliberative democracy and participation as described earlier alongside a wider mapping which locates these debates within a much broader digital environment. The approach is novel, and for this reason the study evaluates it and presents the results as an appraisal of a method

for researchers of the future. Therefore, not only the nature of conversation and the practices present in contemporary online structures and spaces are the subject of this analysis, but the process of investigating these things, too.

1.8 Summary and Direction

It is clear from the review of the literature above that the internet holds great potential for the facilitation of large scale participation, in the form of personal expression and interpersonal exchange, and that this exchange has an important role in a healthy and functioning democracy. In light of the context of the study, in which a large proportion of the public are utilising web 2.0 facilities to express themselves, often in political ways, it was appropriate to study a wide range of emergent conversation and expression from across the online public sphere. In order to achieve this, a mixture of methods was necessary. “Big data” methods were necessary to harvest and understand some of the patterns occurring at a macro scale and more traditional, quantitative and qualitative methods were required to develop in depth understanding of the human interaction involved. In order to combine these two approaches in a way that utilises the investigation at scale and in depth, a unique and contemporary methodology was devised to initially develop macro-level patterns which can be used as direction in an iterative and increasingly qualitative methodological structure. Indeed, it was apparent from very early in the study that existing data gathering tools, services and methods were insufficient for the task of harvesting online conversation data, due to its existence in a variety of different formats and within a variety of different structures. For this reason a bespoke tool was created to harvest the data, and also to exist as a resource for future researchers of online conversation. While I go into depth in the following chapter with regard to the specific methods and rationales, it is worth noting here the range of methods utilized not least because they demonstrate a mixture of qualitative and quantitative and at the same time a mixture of bespoke and established methods. It is this particular configuration of methods that makes this project unique in and of itself, and a useful and timely intervention into wider debates around the politics of methods that are currently circulating (Clough et al., 2015; Kitchin and Lauriault, 2014; Kitchin, 2014; Van Dijck, 2014; Gehl, 2014).

Taking into account the large scale and multivariate context, which matches the large scale phenomenon of online participation and conversation, it was also clear that in the first instance, a pragmatic approach to defining deliberation needed to be taken. The approach used in this study assigns preference to interpersonal connectivity and cross cutting exchange as indicators of deliberation, including also freedom and equality of expression and discussion focus. These four metrics, which are themselves complexly arrived at and negotiated, provide a framework

on which to compare the content of conversation in terms of a specific definition of deliberative quality.

A further layer to the methodology relates to the variety of factors that have been shown as potential influences on deliberative behaviour. In response to this, my study analyses interface design, institutional linkage and contributor group characteristics: Institutional linkage can be categorised readily, as can interface design when the dominant forms of conversational interfaces are examined. Contributor group characteristics is a more subjective variable, however, and while the models and categories of Freelon (2010) and Dahlgren (2005) respectively will provide initial direction, this variable will be evaluated in the later, qualitative iterations of analysis.

The methodology that was directed from this research, with its mixture of methods and approaches and iterative, investigatory structure and bespoke harvesting and analysis tools is described in detail in the next chapter.

2 Methodology

The preceding chapter outlined much of the recent literature covering the field of online deliberative democracy. Drawing together discussion about the nature of deliberation and its place within democracies, online behaviour, group formation and interaction, and the impact of interface design on deliberative quality of online conversation, the chapter detailed different approaches to studying the concept of deliberation and different contexts that exist for deliberative initiatives to be created within. It outlined different approaches to the design of such spaces that aim to facilitate, enable or encourage specific behaviours and it mapped these behaviours to specific definitions and practices of deliberation. The chapter concluded with two assertions. Firstly, that spaces for conversation online exist as niches within an ecology in which technological design is only one influential factor of deliberative quality of conversation, alongside other factors such as institutional linkage and the community dynamics of the participants. Secondly, that a specific definition of deliberative quality, focussing on connectedness and exchange of varied, cross-cutting opinion, can be utilised in a pragmatic approach to investigating how conversation spaces that exist as part of the modern digital media landscape might enable diverse interaction between citizens during the discussion of politics and the resultant preference formation.

This study was designed, therefore, to investigate these factors and through their combination, the dynamics that influence this particular definition of deliberative quality in online public political discussion. The study sought to develop an understanding of how deliberative conversation develops in online spaces, answering questions such as the relative importance of the different factors outlined above, and variation of these findings in different online niches. For example, the question of whether participants behave differently in institutional spaces, or whether particular online spaces can be designed in specific ways in order to encourage and facilitate public deliberation of politics in different contexts.

The aims of the study outlined here were formalised into the following research questions, which are designed to isolate specific influential factors of deliberative quality discussed above before recombining them, to investigate their impact together on the deliberative process:

1. *(To what extent) can interface design influence the quality of online public political deliberation?*

   The study set out to investigate how the structural environment of the web pages and software in which contributions to conversations are made is related to the nature of the conversation that it houses. The many studies and initiatives highlighted in the literature

review of this paper describe how attempts have been made to design spaces that enable and encourage deliberative discussion, with varying degrees of success. In response to this, my approach looked at discussion that has happened in spaces and interfaces that exist within the online sphere – those designed specifically with deliberation in mind and those that aren't – and investigated the conversational dynamics within each to uncover patterns and influences that could be attributed to interface design choices.

2. *To what extent does institutional linkage influence the quality of online public political deliberation?*

   The literature review describes how efforts have been made to utilise the internet for the purpose of mass participation in political process, such as policy making. Scholars have discussed the importance of deliberation within the process of public participation in political processes to encourage informed preference formation as well as expression. However, participation within spaces linked to institutions of power can be categorised separately to other online conversation due to the implied opportunity for efficacy. Given this, my project investigated the conversational practices that occurred within institutionally linked spaces and compared it to that within other categories of space to see whether the connection with institutions of power affected the behaviour of participants.

3. *To what extent can online community membership and user group characteristics influence the quality of online public political deliberation?*

   Deliberation is an interpersonal process in which ideas are shared between participants in a conversation and the mixture of opinions present within this network of participants may exert an influence over the way that conversation is structured (Bohman, 2000). Cohorts with widely varied perspectives and those with more homogenous views may interact very differently and outcomes from exchanges could vary from conflict to consensus. Common interests and ideologies, offline relationships and local ties may help or hinder conversation between participants. This study looked at the social networks present within conversations that have occurred in a variety of online spaces, characterising communities and mapping the conversation dynamics of each, so that they could be compared in order to investigate the relationship between community ties and practices and deliberative quality.

4. *Which types of system design are more or less appropriate for different communities, different subject matters and platforms with different levels of institutional linkage?*

Given the range of factors investigated above – interface design category, institutional linkage and community dynamics – it is possible that different combinations of these categories will create spaces online where specific conditions exist and particular behaviours can be observed. This study sought to uncover examples of practice within these online niches and to understand how the different factors interact in different combinations. Through examining the techniques apparent in the creation of different niches and the behaviours that they house, the study aimed to generate suggestions for particular designs for specific online niches that would help to encourage interactive, deliberative conversational practices.

This chapter details the methodology created and implemented to investigate these research questions. As suggested above, the variety of influences on conversational behaviour inherent in this study required that a range of research methods be utilised to study them in detail. A wide range of case studies were selected and analysed using both quantitative and qualitative methods. The specially designed methodology provided the specificity and depth necessary to analyse human behaviour within particular unique niches on the web, alongside the ability to generalise across the high number of data points within each niche. It forms a new example of a *mixed methods* or *quali-quanti* approach; a methodology which, as discussed earlier, allows the economies and expansion of scale allowed by computer-supported quantitative methods to be combined with the depth of knowledge and real-world translation of qualitative methods (Bazeley, 2004; MacMillan and Koenig, 2004; Roberts and Wilson, 2002). Entire conversations, consisting of hundreds, thousands and occasionally tens of thousands of contributions were harvested and analysed in bulk, without the need for sampling and extrapolation. However, each niche, each online situation or context discovered during the study, was embodied by numerous conversations involving unique communities and places, so the theoretical extrapolation of the dynamics seen within individual conversations to global, universal scale required the more interpretive approach delivered through qualitative methods.

The harvesting of the very large data sets used in the study required innovative techniques, such as custom software production and database design, and bespoke algorithms were required for analysis of the very large data sets, in order to generate an understanding of the structures of conversation and interaction present. These were utilised alongside more conventional methods such as interviews and surveys, text analysis and coding in order to provide meaning to the structures that were uncovered; adding richer understanding of the human considerations contained within. The resulting analysis, carried out in an inductive manner in which patterns and observations were discovered and tested iteratively in order to generate

unpredictable findings, formed an innovative and bespoke framework for algorithmic investigation into human behaviour. Based upon subjective judgements informed by qualitative research, the software-enabled methods allowed the observations to be speculatively up-scaled and tested on wider populations through quantitative means.

This novel approach is an attempt to bridge the gap between the small scale, qualitative methods of investigation of many of the studies featured in the literature review, and the large scale, data-centric, algorithmic methods of big data studies that have entered the debate more recently (Gitelman and Jackson, 2013; Boyd and Crawford, 2012; Baym, 2013; Manovich, 2011; Anderson, 2008); it seeks to translate the deeper understanding of the prior to the global scale of the latter. In this goal it is ambitious and experimental and thus provides an opportunity to investigate one more research question; an appraisal of the method itself:

5. *How effective are automated methods of analysis – the algorithmic, or big data approach – in analysing online conversational behaviour? Can the quali-quanti method bridge the gap between the technological and the social?*

This chapter describes in detail the methods used to provide this unique insight into technologically mediated human behaviour and to answer the questions posed in the study. The chapter will first cover the design of the multivariate study, then discuss the selection of case studies and the methods of data harvesting, before detailing the analytical process including the qualitative and quantitative combination and the experimentation used to test some of the outcomes. Finally, a discussion of the ethical considerations taken into account during this collection, storage and analysis of public political contributions is included.

2.1 Multivariate study

In *The Craft of Inquiry* Robert Alford (1998) described how three different paradigms of inquiry – historical, interpretive and multivariate - can be used to investigate research problems and the nature of online public deliberation as a research topic could lend itself to any of the three. The historical paradigm could be used to investigate how developments in the online environment over the last ten years have affected the behaviour of individuals online. For example: how have regional and national broadband take-up rates helped to develop online public behaviour and participation? How have developments in technology and design of online environments affected the behaviour of participants? However, while a historical exploration of technological causation of online behaviour may well be valid, there are many other determinants of behaviour besides technology and it could be argued that determinants such as general political attitudes and opinions in society at large would be a far greater influence on behaviour during

political discussion and participation. Clearly, political discourse, both off- and on-line could vary widely from other discourse for completely non-technical reasons. The interpretational paradigm may be used to investigate the way that participants' behaviour may be influenced, indeed, controlled by their perceptions and intentions, possibly in subconscious ways. People use institutionalised or accepted norms to convey meaning when interacting – particularly when interacting over political matters where ideologies clash – that are a result of the particular place and time within society in which they exist. For example, what makes people believe that they should interact in a particular way? Do communities with competing ideologies (such as Democrats or Republicans in the US) feel that they should attack their adversaries during discourse as a result of conditioning processes implicit in membership of such groups? Would they behave differently in different situations?

The previous chapter described how the public deliberation upon political issues that is the subject of this study can be situated within particular geographical and temporal boundaries - a particular historical point. As described earlier, the conversations studied here took place within a post-crisis political environment, in which coalition government presided over a programme of austerity; a moment also, when online communication had become a widespread social norm in which the internet gave rise to the potential for very large scale conversation. This study also sought to inform contemporary media and communication practice with understanding about how public political preference formation through cross cutting debate might best be encouraged. Therefore, the contemporary environment and immediate practical aims of the study lent themselves to the multivariate paradigm offered by Alford (1998 p. 38), in which the different influential factors could be isolated or recombined for analysis. Segregation of the components of online public conversation into variables allowed empirical analysis of deliberative quality, relative to the combination of variables involved. As discussed in the previous chapter, factors such as interface design decisions present in different spaces, particular characteristics of the participant community or the level of linkage of a space to political institutions can be seen as variables which might have an impact on the deliberative quality of contributions in any given space. While the theoretical research question of a multivariate analysis – "*To what extent can interface design, institutional linkage and community dynamics influence the quality of online public political deliberation*?" – presupposed the historical paradigm, analysing the contemporary without reference to the path of historical development to the present, a background historical narrative was used to frame the contemporary investigation. The multivariate framework also presupposed the interpretive paradigm somewhat, assuming an objective reality of deliberative quality, online environment and society at large. However a background presence of interpretive inquiry was incorporated

through the consideration of the influence of user group characteristics and local cultural norms. This interpretive presence has specific methodological resonance in the quali-quanti design, through the incorporation of the qualitative approaches included to give interpretive meaning to the metrics and statistics through both the analysis of content and the research with human participants.

In order to answer the research questions it was necessary to consider three groups of variables, drawn from the literature discussed in the previous chapter. A summary of these variables can be seen in Table 2-1, below.

1) Indicators of deliberative quality	1 - Connectedness 2 – Cross-cutting exchange 3 – Focussed discussion 4 – Equality of voice
2) Cultural factors	1 - Institutional linkage 2 - User group characteristics
3) Interface design	1 - Forum 2 - Message board 3 - Social network

Table 2-1: The variables of the multivariate study

The first group shown in Table 2-1 are the variables that can be used as indicators of the specific form of deliberative quality used in this study. As discussed in the previous chapter, this study investigated particular characteristics of deliberation, in particular interpersonal exchange of opinion and reflection on this opinion in a process of opinion formation. Rational-critical debate, an essential component of the Habermasian model of deliberation encompasses this through the existence of *connected* reciprocal, reflexive and specifically *cross-cutting* conversation in which different viewpoints are exchanged, considered and contrasted. These characteristics of conversation were identified within the data – quantitatively, through their structural presentation within web pages (for example as replies or quotations) and also qualitatively, through content analysis of harvested data, as described later in sections 2-3 and 2-4 – and were used as variables that indicated the presence of rational-critical debate. As Habermas stated, deliberative conversation should also be focussed, to an extent, on the civic issue at hand. Focus, then – the inverse of the level of off-topic digressions and sub conversations measured within

conversation – was also used as an indicator of deliberative quality. Of course, a focussed, rational-critical debate between members of exclusive groups cannot meet deliberative ideals and therefore an appraisal of the openness, equality and accessibility of a space and the freedom of expression afforded within each space must be included in the analysis. This *equality of voice* is partly determined through technological factors involving interface accessibility, partly determined by the rules and regulations of a space that govern membership or ability to contribute and partly determined by the dynamics of a conversation itself, such as domination by individuals, bullying, or isolation of contributors. Similarly *discursive freedom* – the level to which contributors are able to make their feelings and opinions clear – may be determined by factors such as the design of technical interface used to make contributions (how long can contributions be, which characters and words are allowed, whether images are allowed and other such components of expression), the moderation policies and terms and conditions of the site (which contributions are allowed to persist within the conversation) and community dynamics that control which behaviours and contribution techniques are tolerated by the participants present. These three characteristics of access – access to the service itself, the interface, and the conversation (or community of contributors) – were also used as variables that were indicative of deliberative quality of conversation. The nature of the four variables of this group is dependent upon several dimensions, such as the structural presence of conversational features, the contextual meaning of the features and the human communication and agency held within. For this reason, the variables are interrogated using the range of different methods, as described later in this chapter.

The second group of variables were those that embody the cultural factors that are analysed in the study. The first of these variables was the level of institutional linkage of each conversational space. As discussed in the preceding chapter, institutional linkage is defined in this study as the relationship between a participatory space and an institution such as government or political party, a professional body, or a workplace; essentially a linkage with a body that holds some form of political power relevant to the participants of the space, following examination of the work of Wright (2012c), Freelon (2010) and Cook (2006). Alternative spaces also exist around organisations, such as news media and journalistic resources, where policy and politics are communicated to the public, but also discussed by the public, without regard for the internal politics of the organisation, and thus these spaces are not deemed institutionally linked. Similar spaces also exist in other areas, such as within special interest group platforms or within platforms built for other purposes, but within which political conversation is generated. Three levels of institutional linkage were used as variables that may affect the deliberative quality of a space – institutional (referring to political institutions); organisational (referring to local, or

professional institutions, not directly governmental) and other spaces. These different categories of spaces are often frequented by members of particular communities, but the characteristics of these communities do not always relate directly to the institutional linkage of the space. While ideological groupings may converge on particular spaces, some are populated by individuals that are brought together by a non-political connection – a shared hobby, for instance – while others are frequented by disparate groups in which the only shared quality may be the desire to contribute in some way. As discussed in the previous chapter, these characteristics can be described in different ways, incorporating concerns such as the motivations of contributors (possibly related to institutional linkage and the purpose of a space), ideological groupings (possibly determined by accessibility factors) or the models of democratic participation (Dahlberg, 2001a; Dahlgren, 2005; Freelon, 2011; Jensen, 2003; Papacharissi, 2004).

Finally the third group – the variables of interface design – were incorporated, including the three categories of design that are most specifically orientated towards conversation and comment on political issues as discussed in the previous chapter. The selection of case studies is described in detail later in this chapter, but the resultant examples of spaces studied fell into three general interface categories: the comments or message board interfaces of spaces provided alongside (or underneath) published information, such as news articles or consultations, that allow contributors to participate by making comments on a message board; the multi-threaded forums of spaces that exist to facilitate community discussion about a range of topics; the social media interfaces on which digital content is shared and created and through which contributions by users, usually in the form of comments, are further distributed throughout networks of friends or followers. Within these broad categories other design features are often present and vary across the web. Message boards may be simple lists of comments, ordered chronologically, or there may be social features, allowing participants to connect through formal reply structures or through quotations of previous posts. These interactions are often visually represented in the interface, through labelling, colouring or positional formatting such as nesting of replies beneath posts in a form of threading. Present in varying degrees across the categories these social and connective features are variables investigated for their effect on deliberative quality. Contributions are not always made through insert of textual content – in many spaces rating (or “liking”) systems allow users to display a preference, lend support, or discredit other contributions without expressing themselves in words. Such features are another variable to be investigated. These variables exist within spaces in which contributors may be completely anonymous, linked to an alias, or identifiable by a social profile and this difference was also investigated for an effect on deliberative behaviour, through

categorisation of spaces based upon the visibility and traceability of the identity of contributors. The combinations of characteristics within each category was noted and included in the analysis.

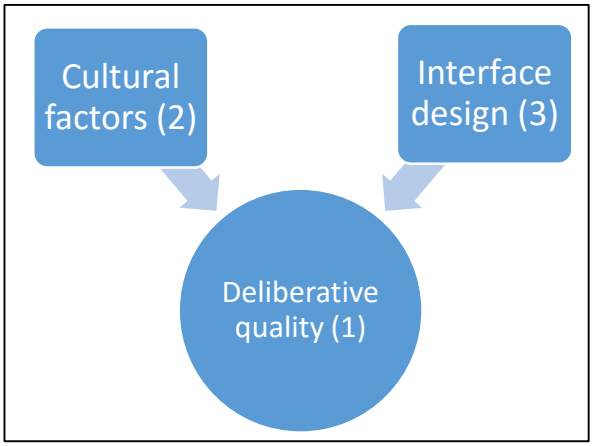

Figure 2-1: Independent variables influencing deliberative quality

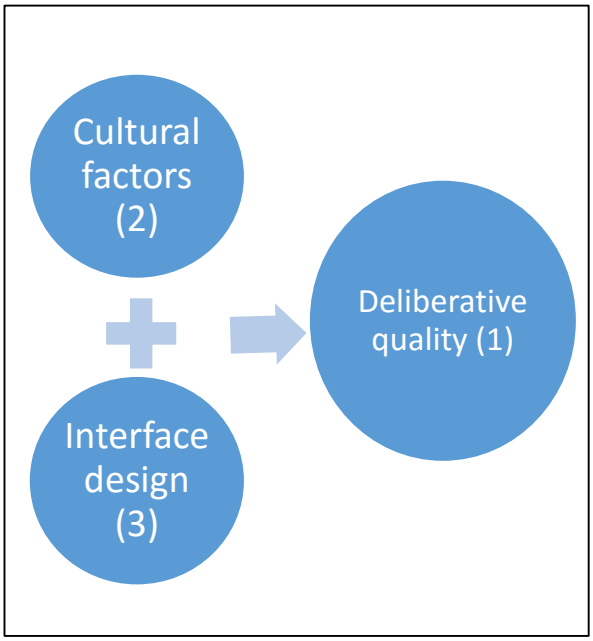

Figure 2-2: Interaction between variables may affect deliberative quality

The variables in groups 2 and 3 above could be utilised as independent variables determining the value of the dependent variable, deliberative quality (which is defined by the group 1 variables), as shown in Figure 2-1, with cultural factors and interface design each exerting an influence upon the indicators of deliberative quality, without interaction. However, these factors are unlikely to be completely independent and separate. For instance, utilising a particular platform may have a different effect on deliberative quality in one space than another, depending upon the user community inhabiting each space, or the subject matter being discussed. In such a scenario, if the design is assumed to exert influence on deliberative quality (perhaps enforcing structure or decreasing discursive freedom), when used to solicit public participants in a government consultation it might possibly lead to a marked increase in deliberative quality (perhaps because the contributions would otherwise lack discipline and etiquette and benefit from the imposed structure) whereas when used to provide a discussion platform for an ideology-based online community it might lead to decreased deliberative quality (perhaps because the otherwise reflexive and reciprocal participants might have their discursive freedom curtailed by the structure). Furthermore, a community of regular contributors, who are familiar with each other, may overcome limitations placed by interface design through an innovative vocabulary of shared practices, whereas a community of occasional and disparate contributors may never build this capability. Thus the impact of the variables on deliberative quality is cumulative (as shown in Figure 2-2).

That these factors may be inter-related makes the collection of supporting or negating evidence more complicated. The methodology used in this study was designed to test the effect of interface design as an independent variable as well as investigating whether the cultural factors are also influential determinants of deliberative quality, making the whole set inter-related variables. Using the three groups of variables, a multivariate analytical framework was initially employed to investigate the factors as independent variables, in which the indicators in (1) are used to evaluate the dependent variable of deliberative quality of participant contributions in case study online spaces - first conforming to each of the categories of design in (3) and then subject to each of the cultural factors in (2). Additionally, by identifying case studies with multiple combinations of variables the cumulative effect of the factors were also investigated.

However, the methodology is not a straightforward quantitative one based upon multivariate statistics. Any group of case studies identified for use in this study cannot be broadly representative of the categories to which it has been assigned – it is impossible to say that a sample represents *all* forums on the internet, or *all* third spaces – and it cannot, therefore, be assumed that the values being investigated conform to any particular "normal" distribution. Moreover, the case studies cannot be defined succinctly within these predefined categories alone and so challenges to comparison are amplified, as each participatory space exists in its own particular niche on the internet. For instance, comparing a local government consultation system with the customer discussions section of an non-institutionally linked e-commerce site – both forum based designs with broad user groups discussing politics – fails to take into account slight differences such as those in design or duration since launch or in the specific type of political subject matter and in particular the goals of both the designers and the participants. This inherent variation means that statistical generalisation across categories is problematic. In response, a mixed methodology, introduced in the previous chapter, was devised to investigate each of the research questions in order, combining the findings from analysis of one group of variables with the next, to progressively "drill down" into the finer detail required to test each one. Moreover, each research question was investigated in increasing degrees of complexity, utilising increasingly qualitative methods, with an iterative process gradually building in the constituent parts of each stage.

To help the process the research questions were translated into a set of hypotheses which could be tested, giving focus to the investigation of the research questions. These hypotheses combined the deliberative characteristics that were to be used as indicators of quality in conversation, described above, with the different variables to be investigated: interface design

categories, institutional linkage and community characteristics. These hypotheses were as follows:

1. Forum interfaces help to improve deliberative quality by allowing social interaction and discursive freedom but limit rational-critical debate due to constraints in presentation of arguments and allow a wide discussion scope including off-topic conversation.
2. Comments systems limit connected and cross cutting conversation more than other categories due to constraints in presentation of arguments and limited interaction between participants.
3. Conversation within social network systems has reduced deliberative potential due to the perceived requirement of the space to maintain a public personal identity.
4. Reputation based sorting mechanisms and rating/liking systems, negatively impact on deliberative quality by allowing participants to contribute in a minimal way, without the need to form an argument or reflect on opposing views.
5. Forums generate more highly connected and cross cutting conversation in non-polarised "third spaces", but suffer from aggressive contributions, flaming, in more polarized debate such as that in policy specific, institutionally linked spaces.
6. Comments systems encourage very little deliberation around political topics in institutionally-linked spaces, but can be used to deliberate in more conducive, collegiate environments.
7. The most connected debate will occur in the most exclusive spaces; which will be detrimental to the level of cross cutting exchanges.

The investigative process started with examination of the first research question: "*To what extent can interface design influence quality of online public political deliberation?*" which maps across the first six hypotheses, most specifically to the first four, which deal with the different technical designs of spaces. To answer this question it was necessary to examine a broad range of examples of general political discussion online, analysing the deliberative quality of the contributions present in each and identifying any barriers or catalysts to deliberative conversation as well as platform design features that limited or enhanced the effect of these. The question was investigated preliminarily, using the category of interface design as an independent variable, by testing hypotheses 1-4 using a broad range of case studies from different categories of space across the internet. The large range of platforms required for this analysis was then broken down repeatedly along two different axes, relating to the subsequent

second and third research questions and their associated variable sets: the effect of institutional linkage and user group characteristics. Thus, any patterns observed relating to interface design and deliberative quality in the initial analysis, which were subject to any errors of generalisation arising from the use of a sample to represent the wide and diverse online environment, were revisited and revalidated within each particular online niche in order to improve the accuracy of the findings and to investigate dependency between the variables. The fourth research question and the related hypotheses (5, 6 and 7) were tested sequentially in the same way and patterns particular to a given niche were identified.

This deductive method of examination of variables sequentially allowed initial examination of some of the hypotheses, however, the nature of the variables was such that the design of the analysis required attention to be paid to two problematic characteristics. First, the level of contextual interpretation required to fully understand the form and development of human communication. Second, the representativeness of the case studies to wider dynamics of conversation online. Conversations harvested from each particular niche were actually individual cases rather than representative samples – one ecommerce platform and community is not the same as another, nor is one institutionally linked space, with its linked community of interested citizens necessarily comparable to another; at least not through the translation of quantitative statistical values from one case to another. These two problematic characteristics were accounted for in the methodology through two characteristics of its own – a mixed-method approach to analysis and an inductive stage of case study selection and data gathering.

The first of these characteristics is the iterative, *quali-quanti* structure of the methodology, in which the case studies were not just analysed through calculation and comparison of the type of metrics that can be used to measure the deliberative quality of contributions (such as the number of conversational links between participants, or proportions of contributions from each participant, as discussed later) but also through the social and personal forces that shaped communities and contributor behaviours. The *quali-quanti* nature of the methodology was an implicit part of the iterative structure of analysis. The initial quantitative iterations, starting with the large data sets and wide scope of the automated generation of metrics by the algorithms of the project website, were followed by further, increasingly qualitative stages of increasing specificity. The initial headline statistics were used to direct further qualitative research in later iterations, including analysis of any patterns and embellishment, validation or rejection of initial findings through a mixture of manual and automated methods, repeated through multiple iterations that gradually decrease in scope and increase the depth of analysis of case studies through increasing use of the qualitative. In this way it was possible to discover why particular

communities and contributors behaved in the way that they did in a particular space. This approach provides insight into human motivation and reasoning that is often transferable across spaces and designs, highlighting the human decisions that are made in response to the factors being investigated – the design of the space being used, the institutions that are linked to the conversation and the user groups, communities and audiences that each contributor is interacting with. Throughout this procedure multiple layers of hypotheses were generated and evaluated, extrapolated and tested again, until an overall comprehension of the deliberative quality of case studies could be arrived at. In this way the study falls between the realms of positivist *Big Data* studies, where the numbers supposedly speak for themselves and the sample disappears into the mass of the population (Anderson, 2008), and the interpretive, small scale qualitative, where analysis of non-representative samples sheds light on some particular situations. In the approach featured here, the quantitative analysis of large volumes of data is utilised to analyse in entirety very large individual conversations within very specific niches; but this approach cannot stand on its own as anything other than a measurement of that single conversation. To draw conclusions across wider environments the findings must be contextualised, validated and supported by further qualitative analysis to situate that individual case within the wider landscape of online conversation. The *quali-quanti* approach is echoed throughout the analytical process through constant reinforcement (or reappraisal) of quantitative findings. For instance, where a conversation is found to have a low level of interactivity (few replies to, or quotations of previous posters) based upon analysis of the web structures embodied by the contributions (hyperlinks, hashtags, usernames and various HTML structures), subsequent text analysis of samples of contributions within the conversation was carried out to test the validity of the algorithmically generated initial findings. Sometimes this subsequent analysis was done through further quantitative methods (e.g. manual coding to identify and measure alternative methods of interpersonal connections between participants) and sometimes in more qualitative methods (such as subjective coding about the purpose and intent of different posts). In much the same way, iterative interrogation of the other variables of the study, along with qualitative and quantitative analysis, advanced the investigation beyond determining the presence of the indicators of deliberative quality, to the examination of the relationship between the variables. This process culminated in the qualitative analysis of specific case studies and the contextualisation of findings through in-depth interviews with important platform stakeholders. The precise methods of analysis of the other variables is discussed next.

The second characteristic of the methodology to be discussed is the presence of deductive and inductive stages of investigation. The initial stages of this multivariate analysis required the assembly of case studies that fit into the constructed matrix of variables – interface design,

institutional linkage and community dynamics. This deductive approach allowed the hypotheses to be tested – but only within the confines of the chosen environment, which consists of a carefully excised fragment of the internet in its entirety. As described earlier, scholars have been critical of this approach, in which constructed samples, created in order to represent particular features, are examined for the presence of those features. This was particularly challenging in relation to the democratic models used to categorise community dynamics present within each space (Freelon, 2010), as these categorisations were necessarily subjective – case studies were categorised by the researcher and selected by the researcher to fit the methodology. To overcome this criticism two measures were taken, first to deal with the subjective determination of a variable to be analysed and one to increase the inductive nature of the case study selections. In the first measure, the variable of user group characteristics was analysed in the final iterations of the analysis described above. In this way, this analysis could be done in a completely qualitative way, with in-depth research using interviews adding knowledge about this final variable to the patterns already discovered in relation to the other variables in earlier iterations. The democratic models were used as factors in some of the automated analysis, but these observations were used only to inform and direct this later, qualitative stage of analysis. In the second measure, a selection of case studies was generated that was more representative of the range of online political talk present in the UK within the study period during a second stage of investigation, in which some of the most popular examples of citizen conversation were identified using a more inductive approach. This sample of websites and applications represented those that were popular with the public as spaces for political conversation, the sampling thus being conducted based upon the choices of the public about where they want to discuss politics, rather than the choices of the researcher about which spaces best fit any methodology. Using the same *quali-quanti* analytical processes as the deductive phase, the behavioural dynamics of some of the UKs most vibrant and participant-rich public political conversations online were examined, in order to shed light on the validity of findings from stage 1 within the citizen-chosen spaces of stage 2.

The combination of these mixed sampling and analytical methods – the deductive and the inductive, large and small scale, qualitative and quantitative – allowed insight to be generated into the behaviours and motivations present within large volumes of conversation data, within a diverse range of case studies of public political conversational in online spaces, testing the hypotheses and research questions in real-life, as well as carefully constructed experimental environments. The selection of these case studies, through inductive and deductive processes, is discussed next.

2.2 Case Studies

2.2.1 Background and rationale

This study took place between 2010 and 2015, starting a few months after a general election in the UK had brought a new government to power. As described at the start of this thesis, this study took place against a backdrop of falling trust and satisfaction in politicians and the financial crash of 2008 the Labour government had been replaced with a Conservative-Liberal Democrat coalition which chose to deal with economic crisis through a period of public austerity. With tough decisions to make and a need to get public opinion on the side of the coalition, various attempts to involve the public in decision making were launched in 2010-11. Websites such as the *Spending Challenge*, which aimed to find the most popular ways to cut public spending, and *Your Freedom*, which had a similar goal for cutting rules and regulations were established in attempt to find out what public opinion was, what the public found unpalatable (or less so) and perhaps in an attempt at helping the public to feel listened to and even empowered. Of course, political discussion was not limited to government-run initiatives. Outside of these institutional spaces, the categorisation of content as 'political' becomes less obvious. The academic debates surrounding the nature of the political are broad and varied. Sometimes these focus on specific political structures and functions, such as political parties, representatives and law-making, or news and journalism, and at other times they incorporate wider concepts within society, such as civic life, communities and citizenship – see Hay, (2002; 2007) for examples of classic definitions of the political, and Mansbridge (1999), Papacharissi, (2010) and Wright (2012c) for examples and discussion of definitions that are popular in the discussion of new, digital public spheres. As described by Wright, political conversation online often emerges from non-political spaces and non-political talk (Wright, 2012), and in this study political talk was sought from a wide range of spaces. The content therefore lends itself towards the broad definitions of the political offered by Mansbridge (1999), which include content that relates to society in general and leads to reflection by others. However, as described in the chapters above, the study is contextualised by discussion of interactive and cross-cutting conversation as an important part of informed participation in formal political activities, such as voting. The content analysed within this study therefore consisted of contributions related in some way to institutions of power, policy and governance on which citizens may develop opinions that inform their political activity and thus conformed to a slightly narrower definition of political than that provided by Mansbridge, incorporating more traditional elements, such as public policy and governmental responsibility. This broad, but policy- and institution-related definition of politics was reflected in the search terms used to find content. For example, one case study to be discussed shortly consisted of data harvested through a search for names of political leaders and parties, and

traditional political topics such immigration, the economy and tax. Therefore, in this study, the focus used during data discovery and collection was on explicitly political conversation, albeit conversation that occurred in diverse spaces, often not linked to any formal political institutions, and in which politics was not often not the main topic of discussion. As evidenced by the case studies described in this section, across the internet citizens were discussing politics; they were airing their views about the scale of public service cuts as well as the distribution of these and the level of equality and fairness that they represented. Newspaper websites, local or special interest forums, social networks and political blogs all provided space for contributions from the public and the public provided comment. The form of these conversations varied across spaces; some were very interactive, others less so; some involved citizens with views from across the political spectrum, others were more siloed.

By 2014, most of the institutionally linked spaces for policy-related conversation had disappeared (*Spending Challenge* and *Your Freedom* lasted only a few months) but the political conversation had not. By this time, however, new topics of discussion had arrived, including constitutional challenges in the form of debates about UK membership of the EU and a referendum in Scotland over independence from the UK. Just 12 months out from the next UK general election, speculation over the next government, the role of newcomers UKIP and the political direction of the main parties was widespread and conversations persisted concerning the social and economic ramifications of government policies. These conversations were not centred on institutional places but were spread across the internet, in the spaces of choice of individual citizens and communities.

When assembling the case studies for this research, two approaches were taken: one deductive and one inductive. The two resultant sets of case studies mapped roughly onto the two periods of interest mentioned above and formed two stages of investigation. In stage 1 the deductive approach involved finding case studies that revolved around the discussion of policies and proposals in 2010-11, within online platforms which fitted into the three categories of interface design (discussed earlier) and included some examples that were linked to political institutions, such as government consultations, some in journalistic spaces and some citizen-generated discussion in other, “third” spaces. In stage 2 the inductive approach - which was carried out during the second period of interest - involved finding and harvesting a sample of discussions that were generated on the internet at large in response to political occurrences such as the TV debates about EU membership and Scottish independence and then analysing these discussions to find emergent trends.

2.2.2 Stage 1

In the first data collection period during 2010-11 a number of websites were chosen and archived ready for processing. These websites included several central government participatory initiatives, at a local and national level, as well as other institutional consultations - some public, others large-scale intra-organisational consultations. In addition, various news media websites where public participation such as commenting was enabled on content relating to policy, and "third spaces" elsewhere online, not linked to news sites or institutions but where citizens had still chosen to discuss policy-related topics (Graham, 2008). This was not a selection designed to generate inferential findings that relate to internet users in general, but rather these case studies were carefully selected to represent the different categories of interface design and institutional linkage required to test the first four hypotheses of the study. Examples of message boards, forums and social networks were required, and these case studies also needed to encompass both institutionally linked and non-institutionally linked spaces. Furthermore, the later analysis into user group characteristics placed further importance on diversity of the sample, so a wide range of case studies was required.

Both the *Spending Challenge* and *Your Freedom* sites were closed to interactive comment within months of opening, with the interface replaced by a simple idea submission form. This early indication of attempted institutional control over the conversational dynamics of a space is important – it illustrates the interplay between human, institutional and technological actors in these spaces that this study is designed to investigate. Here, interface design is changed by an institution in order to try to shape the participation of citizens. The data submitted by citizens to these sites was not made easily accessible to the public; while summary data was published by the government for the both sites containing lists of ideas submitted along with responses about resultant policy, the public discussion was not included. However, snapshots of these sites were taken and archived, and these were used to provide case studies. A snapshot of the *Spending Challenge* site was taken in July 2010 and from this the contributions made to the ten most commented on submissions were selected and harvested, each conversation consisting of between 50 and 180 contributions. A snapshot of the *Your Freedom* website was taken in August 2010. Within this site there were three different categories for users to submit ideas to – "Restoring civil liberties", "Repealing unnecessary laws" and "Cutting business and third sector regulations" – and from each of these the top three most commented on submissions were selected and the discussion harvested, giving a set of nine data sets, each consisting of conversations with between 190 and 880 contributions. Both of these websites were designed using the *Dialogue* tool – online software for public engagement, designed by *Delib* (www.delib.net) - and consisted of a simple message board without facilities for formal

interpersonal exchange, such as reply or quote options. The sites allowed contributors to write a comment and/or to just rate the initial idea without supplying any further text input.

The data set that was made available containing all of the ideas submitted to the *Your Freedom* website has been used to create a new website - *GovYou* (www.govyou.co.uk), described on the UK government data portal as:

> *"A complete mirror of all the ideas submitted to the original Your Freedom website. All idea's [sic] include their original tags and as well as correct author attribution. The App also includes a comprehensive search function, related idea listings, commenting functionality, as well as the ability for users to add new ideas"* (Wilding, 2012).

This site and dataset provides an interesting opportunity to study policy related discussion as it enables the continuation of submission of ideas, each accompanied by a message board containing comments supplied by the public as well as a rating facility, similar to the original site, but the website is no longer run by the government. Some of the most commented on topics were selected and harvested as a case study.

Other institutionally linked examples from 2011 have also been included, such as the *Red Tape Challenge* - "designed to promote open discussion of ways in which the aims of existing regulation can be fulfilled in the least burdensome way possible" (Cabinet Office, 2014) – and the Scottish e-petitions website which, unlike the UK version, allowed citizens to comment on and discuss petitions, as well as signing them. Like the *GovYou* site, both of these initiatives incorporated user submission of ideas or petition subjects with accompanying message boards for comments. The *Red Tape Challenge* incorporated social interactivity by enabling users to formally reply to previous comments, creating a somewhat threaded, rudimentary discussion forum. It also encouraged contributors to share their posts via Twitter or Facebook, though this action did not change the discussion on the website directly. A snapshot of the *Red Tape Challenge* web site was taken in late 2011 and all conversations present that had a significant number of comments - a total of 44 conversations with between 18 and 541 comments each - were selected and harvested. The Scottish e-Petition website also incorporated social interaction through a quotation feature, enabling users to highlight a previous contribution in their comment, though this did not cause any threading of the list-based message board. A snapshot of the Scottish e-Petitions website was taken in August 2011 and all of the conversations from 2011 with more than one comment attached were selected and harvested – a total of 12 conversations with between 3 and 40 comments attached.

There were also small scale online consultations were launched in 2007 by *Department for Communities and Local Government*, harvesting a small number of comments from citizens related to a number of policy areas. These continued through 2011 and all of the active 2011 threads were harvested in their entirety for use in the study – consisting of 3 conversations with a total of 80 contributions. The consultations were created with a simple forum design with different topics represented by threads in the forum. The forum allowed simple replies to be created formally, though these were presented in the same vertical list of comments as any other post in the thread, albeit with a label indicating that the message was a reply to a previous post. In another government example, the *Department for Energy and Climate Change* maintained a blog and posted about policy on a regular basis during the study period, providing space for citizens to comment beneath each blog post. All of the comments on blog posts from June and July 2011 (where there were at least 5 comments) were selected and harvested – a total of 5 conversations with between 5 and 25 comments each. This initiative, too, was designed in message board format; with space provided after the blog post for contributors to supply their thoughts in a list below. The site included formal reply functionality and nested these replies visually to create rudimentary threading.

This selection of institutionally linked case studies, which utilise different categories of interface design, enable the interrogation of the research questions and hypotheses by providing the necessary combinations of variables. These governmental spaces required augmentation with case studies from the other categories of space, including the "organisational" category of institutional linkage. One such example of organisational policy-related discussion in 2011 was the *Police Review* - a website launched in 2011 for police officers and staff to discuss aspects of proposed pay and conditions changes in the wake of the Winsor review (Home Office, 2013). This website was similar in structure and purpose to the government platforms discussed above, with discussion contained within message boards, each centred around seven key themes of the review. Targeted exclusively for police staff, to provide a way of feeding back sentiment and ideas about planned changes, the site was, nonetheless, public. This case study has been included to provide a policy-based, institutionally linked, but non-governmental discussion space, populated by a specific community of interested citizens. A snapshot of the website was taken in August 2011 and the entire conversation present in all seven themes was harvested for analysis. The website interface allowed contributors to add text comments, which were presented in chronological order under each section heading. There was no formal social feature provided, though contributors were encouraged to share the comment on Facebook, Twitter or Digg social networking services.

Discussion also occurred away from the institutionally linked spaces and case studies were harvested from these categories of space, too. At a local level websites such as *LeedsForum* provided space for discussion centred on particular, urban geographical locations. Covering a wide range of topics, discussion in these local spaces often converged on directly comparable topics to those at the national or European scale, such as immigration, tax, benefits and other government policy issues. Designed as a threaded forum there are no formal social or ratings features in this website; contributors reply to a thread and the comment appears at the bottom of the list. These spaces, not institutionally linked and populated by citizens with just a geographical tie between them, are an interesting alternative to the formal political consultations and were included as case studies. From the month of June in 2011, the ten most commented on threads – consisting of between 15 and 79 contributions each – were selected and harvested. Similarly, other special interest groups, linked by non-geographical ties such as common hobbies, jobs or other topics of interest, used online spaces to discuss political topics. Sports enthusiasts, motorists and other interest-linked communities often discussed political topics in spaces that use a threaded, socially linked forum-based design. Two examples of such spaces were included in the study – *pistonheads.co.uk*, a website for motoring enthusiasts and *UKClimbing.com* a space created by an outdoor sports equipment company and frequented by the nation's rock climbing community. At the time of harvesting in 2011 the *UKClimbing* forum featured formal reply and quotation structures, without any threading or nesting of conversations based upon social interaction. The forum has themed threads for different topics, including the "Off Belay" thread - the place for non-climbing related talk on the forum. For this study, all of the conversations relating to political topics, present in between April and July 2011 in the "Off Belay" thread were selected and harvested. In the case of the *Pistonheads* site – all of the conversations from 2011 that were judged to be politics-related (based upon searches within the forum for names of political leaders and parties, and non-motoring topics such immigration, economy, tax) were selected and harvested. The *Pistonheads* forum has a simpler list structure without any rating features or formal reply structures, but it does have a feature that allows quotations of previous posts to be formally included in contributions. The *UKClimbing* and *Pistonheads* forums were sampled retrospectively, after being identified in stage 2 of the data collection process, and were included to provide an example of how political policy was being discussed during the stage 1 period in non-institutionally linked spaces, by user communities formed without any formal political affiliation. Scholars have shown that citizens also discussed politics in so-called online "third spaces", spaces that exist within a platform designed for some other purpose (Graham, 2008). This investigation examined as a case study the customer forums on the retail website *Amazon.co.uk*. Originally designed as a space for

consumers to discuss products, the Amazon forum has grown and includes sub-sections, including the "Politics" forum. This example provided a case study of a large community of UK contributors without any connection other than an enthusiasm for discussion about political topics using a platform designed for commercial feedback to trade opinion. The forum uses a chronological list to display contributions, but also includes formal reply structures in the form of labels on posts as well as a rating system in which users can mark posts as "useful to the discussion". Visitors can report posts to moderators and can also "ignore" particular users, hiding them from their view of the discussion. The top 4 discussions in a search for threads from 2011 were harvested, each consisting of between 24 and 68 messages. These local spaces – in both the literal and virtual senses – provided the alternative context to the institutionally linked spaces, in that they provided citizen-mediated and motivated spaces, where discussion occurred outside of official structures and outside of the mainstream media.

The mainstream media are, of course, a key part of public conversations and the journalistic spaces online have provided many spaces for discussion over the study period. News websites such as the *theguardian.com* and *dailymail.co.uk* have vibrant message boards where interesting communities of users discuss topical political subjects that have featured in news stories on the websites. The *Guardian* website commenting system has evolved gradually over the years but in 2011 it consisted of a chronological list of contributions with no formal reply feature. It did include quotation functionality, as well as a "recommend" feature that allowed users to show support for a contribution, without writing anything themselves. The *Daily Mail* forum was similar with non-social (no formal replies or quotes), chronological layout and a rating system, but this forum allowed visitors to rate posts up or down. It also allowed visitors to view the contributions in order of most or least recent, or by highest or lowest rating. Of course, not only news organisations provide space for political discussion online. Other media organisations provide political discussion space to citizens, too, sometimes specifically for the purpose of encouraging and enabling productive political discussion. The top 10 political blogs in the UK from 2011 (Total Politics, 2011) were examined and most offered participatory opportunities for their user communities. Two of these were politically affiliated: the *Labour List* website and the *Conservative Home* website. The *Labour List* website was one of these most popular blogs and contained public discussion on message boards below most of the stories on the site. These message boards have since changed in design, but in 2011 they featured threaded replies, no rating system, and, unusually for the time, allowed editing of posts. Ten of the most popular *Labour List* blog posts (in terms of number of comments) from July 2011 were selected and the comments harvested. The *Conservative Home* website was similarly popular and offered commenting opportunities to its users as well. The comments feature of this blog has changed

over the years, implementing commenting using the popular *Disqus* system (another commercial discussion platform, comparable to the *Dialogue* system described earlier). In 2011 the system offered a straightforward, non-social message board, without ratings features, underneath its website posts. Ten of the most popular posts from this blog from June 2011 were selected and the comments harvested. Two more political blogs were also selected from the list and included in the study – *Guido Fawkes* blog (www.order-order.com) and *PoliticalBetting.com*. Six of the most commented-on stories from July 2011 were selected and harvested from the *Guido Fawkes* blog, each consisting of between 30 and 270 contributions. The commenting system design on this blog was bespoke, featuring threaded replies but no ratings features. The political betting system did not provide a formal reply feature, but featured a quotation system in its message board. 10 of the most commented on stories from June and July 2011 were selected and harvested from this blog.

Several of the top 10 political blogs of 2011 had also built up a presence on social media, or *Facebook* in particular, and for a few, it is that platform where discussion of their content was taking place. These social media spaces provide the methodology with important case studies, as they represent a contrast to the custom made interfaces of the websites of organisations themselves by shifting the conversation to a different platform, complete with different interface, different rules, and different implications in terms of audience for participants. In 2011 Facebook was the largest source of general UK citizen contribution available, with an estimated 30 million active users in the UK. However, the centres of political voice were not as strong on Facebook – of the 10 most popular political blogs in the UK, only 6 were active on Facebook in 2011 and the amount of citizen involvement was lower than on some the blogs themselves. One blog – *Political Scrapbook* – had a moderate amount of discussion on its Facebook page, so the most popular discussions from June-September 2011, containing between 11 and 20 contributions each – were selected and harvested. One Facebook page that did not suffer from a lack of contributions from the public was that of the Prime Minister's office - 10 Downing Street. This Facebook page generated hundreds of public comments each time it posted content. The three largest conversations of July 2011 were selected and harvested from the page. These case studies had all of the design characteristics of the Facebook platform of the time – in 2011 this consisted of chronologically ordered posts appearing under a story, with a like button. The username of the contributor is shown, and the activity is reported on the user's individual profile in the news feed.

The wide range of conversations harvested centred on a variety of political stories of the day – the News International/Rupert Murdoch phone hacking scandal, UK debt and deficit, tax

avoidance, war in Libya, immigration and racism, a terrorist attack in Norway, plus topics of interest to the special interest groups, like tax on diesel. Forums, message boards and social networks are represented, as are institutionally linked spaces, journalistic spaces, third spaces and others, linked to an organisation or affiliated to a political party. A variety of conversational structures are built into the designs of the interfaces present, including different types of reply features, quotation features and rating systems. A summary of the case studies of stage 1 is shown in Table 2-2, below:

	CASE STUDY	STRUCTURE	DESIGN FEATURES	SPACE
1	Spending Challenge	Comments	List	Gov
2	YourFreedom	Comments	List	Gov
3	GovYou	Comments	List	Other
4	Red Tape Challenge	Comments	Threaded replies	Gov
5	Scottish e-Petitions	Comments	Quotations	Gov
6	DECC	Comments	Threaded replies	Gov
7	DCLG	Forum	Labelled replies	Gov
8	Police Review	Comments	List	Org
9	Leeds Forum	Forum	List	Third
10	Amazon	Forum	Labelled replies, ratings	Third
11	UK Climbing*	Forum	Quotations, labelled replies	Third
12	Pistonheads*	Forum	Quotations	Third
13	Guardian (2011)	Comments	Quotations, ratings	Journ.
14	Daily Mail (2011)	Comments	Rating (+order by)	Journ.
15	Guido Fawkes	Comments	List	Journ.
16	PoliticalBetting	Comments	Quotation	Journ.
17	ConservativeHome	Comments	List	Affil.
18	LabourList	Comments	Threaded replies	Affil.
19	Political Scrapbook	SocialNetwork	Facebook like	Journ.
20	10 Downing Street	SocialNetwork	Facebook like	Gov

Table 2-2: The stage one case studies. *These were added retrospectively, after stage 2 was completed ('Journ' = journalistic space, 'Affil' = party affiliated space).

2.2.3 Stage 2

In the later period of the study in 2014 the pattern of political consultation online had changed. The forum and comments based systems disappeared and consultations began to be more one

directional, with email or form-based submissions replacing interactive, conversation-based submissions. However, although examples were few and far between, some institutions turned to another potentially interactive space for citizen feedback and input – *Twitter.* The *Red Tape Challenge* turned to *Twitter* as a means of harvesting citizen ideas, but received comparatively few responses. A more successful example came from the Nursing and Midwifery Council (NMC), which launched "*Twitter conversations*" in which citizens could send questions and other messages, including replies, to the council and to each other using a hash tag to identify the conversation. Centred on changes to national processes within healthcare, leading political figures in the field of healthcare were involved in the conversation, providing interested citizens with a way to talk to these figures and acting as a catalyst for generation of discussion between citizens as well. This approach had moderate success – the conversations featured hundreds of contributions from the public. This data set provides an interesting comparison with the *Police Review* of stage 1, with a community of interested citizens interacting with an institution over working conditions, but this time via Twitter, rather than a website forum. Media services have commonly used this format as well, for instance when BBC Radio 4 used a live "*Tweet-in*" to generate questions for the Chief Executive of the NHS when he appeared on a show in 2014, another case study used in stage 2. The contributions generated by the NMC and Radio 4 initiatives were harvested and analysed as two further case studies of institutionally-linked or journalistic attempts to engage with the public, this time using *Twitter* as a platform (shown in Table 2-3, below). To distinguish these from the stage 1 case studies, and the inductively sampled case studies detailed below, these case studies were labelled "group 3":

	CASE STUDY	STRUCTURE	DESIGN FEATURES	SPACE
21	Nursing and Midwifery Council (NMC)	Twitter	Retweets and mentions	Org (public)
22	BBC Radio 4 "AskNHS"	Twitter	Retweets and mentions	Journ (public)

Table 2-3: The institutionally linked case studies of stage two (labelled "group 3" to distinguish from other case studies)

This observed change in the relative prevalence of particular types of spaces and interfaces has particular relevance in this quali-quanti study, as it underlines the social context of the communication being measured. The long term study does not sample from a constant population, but rather from a dynamic, fluid, environment that is constantly evolving due to social forces. The methodology requires the flexibility and scope to investigate these social phenomena, as well as the statistical patterns that manifest upon them.

Despite this reduction in formal online consultation spaces and institutionally-linked spaces for political input, citizens continued to discuss politics online, with conversations distributed across the web. Two political events in 2014 generated an enormous amount of discussion online. The first was the local and European elections in the UK, which were accompanied by TV debates between the leaders of two key parties: Nigel Farage, leader of the anti-EU UK Independence Party (UKIP) and Nick Clegg, leader of the pro-EU Liberal Democrat Party. The second was the referendum in Scotland about potential independence from the UK. Studying this discussion, dispersed and organically generated online, involved devising a strategy for finding and harvesting a sample of UK discussions from across the web.

It was necessary in Stage 2, therefore, to utilise an inductive approach in which case studies were identified and catalogued, then analysed. The patterns and metrics generated for these case studies could then be compared and combined to generate larger patterns and groupings, forming the iterative process of analysis described earlier. As in stage 1, the process was not inferential – the sample selection was not random and the sample was not meant to be representative of online conversation in general, as the study is not seeking to infer conclusions at that level.

2.2.4 Inductive sampling using the Google search engine:

In addition to the institutionally linked case studies described above, the stage two data collection also included case studies that represented the emergent conversation that developed as citizens responded to political events. A purposive sampling strategy was utilised to identify sample conversations using the Google search engine. This search was carefully designed to ensure suitability utilising popular Internet sampling techniques, similar to previous comparative studies of web sites (Harland and Bath, 2007; Lin and Jeffres, 2001; Pan and Xu, 2009; Ahmed et al., 2012). The sampling was stratified: many conversations were harvested with those that fitted the multivariate analysis selected to make up the sample. However, this cannot be thought of as stratified *random* sampling as the data set was constructed through the generation and introduction of the search terms by the researcher and by the rules of the Google search engine itself, as discussed earlier (Schwartz, 2014; Rieder and Sire, 2014; Jiang, 2014; Horling and Kulick, 2009; Sullivan, 2009; Fiorelli, 2013; Diaz, 2008). In order to remove some of the more pernicious (from a research perspective) features of the Google search, such as those features that make search results differ between citizens – personalisation based upon browser history, search history and other user-specific search results – various actions were taken to control the Google search algorithm as far as was possible. Using the chrome web browser and its built-in search bar (as opposed to the Google web page and search box) the search process

can be controlled to a greater degree. Google accounts can be set to not use personalised results, even when the user is logged in, and when logged out the user history within the browser can be deleted and/or discounted (Graziano, 2013; SEOSite, 2014). In this methodology the first step was to ensure that there was no Google account active and logged in within the browser. Next, the web history and cookies were deleted from the browser. Finally, three parameters were added to the URL in the browser after the search had been carried out: "*pws=0*"; "*filter=0*"; and "*hl=all*". The first of these instructs Google to turn off personalised search, the second turns off Google's "relevance filter" which removes similar pages from results and the third makes sure that the search results are not filtered by any language that might be used in the page (Smarty, 2010)**.** The conversations listed in Table 2-4 and Table 2-5, below, were identified, then, using carefully constructed search strings, designed to identify conversation surrounding the Scottish Referendum leaders' debate:

	CASE STUDY	**STRUCTURE**	**SPACE**
23	Guardian (2014)	Comments	Journ
24	Daily Mail (2014)	Comments	Journ
25	Scotsman	Comments	Journ
26	Daily Express	Comments	Journ
27	Newsnet Scotland	Comments	Journ
28	Conservative Home (2014)	Forum	Affil
29	Lib Dem Voice	Forum	Affil
30	Youtube	Comments	Media
31	YouGov	Comments	Journ
32	Facebook (BuzzFeed)	Comments	Journ

Table 2-4: The stage two case studies inductively collected in relation to the Scottish independence referendum TV debates ('Journ' = journalistic space, 'Affil' = party affiliated space)

	CASE STUDY	**STRUCTURE**	**SPACE**
33	AVForums	Forum	Third
34	PistonHeads (2014)	Forum	Third
35	UKClimbing (2014)	Forum	Third
36	Urban75	Forum	Third
37	NationStates	Forum	Third
38	David Icke	Forum	Journ

39	Guardian (2014)	Comments	Journ
40	Daily Mail (2014)	Comments	Journ
41	Scotsman	Comments	Journ
42	Daily Express	Comments	Journ
43	Telegraph	Comments	Journ
44	Sky News	Comments	Journ
45	Financial Times	Comments	Journ
46	Politics.ie	Comments	Journ
47	Croydon Guardian	Comments	Journ
48	Telegraph & Argus	Comments	Journ
49	New Statesman	Comments	Journ
50	Spectator blog	Comments	Journ
51	YouGov	Comments	Journ
52	Politics.co.uk	Comments	Journ
53	Buzzfeed	Comments	Journ
54	Vice.com	Comments	Journ
55	Lbc.co.uk	Comments	Journ
56	Conservative Home (2014)	Comments	Affil
57	Labour List (2014)	Comments	Affil
58	Lib Dem Voice	Comments	Affil
59	UKIP Daily	Comments	Affil
60	Roger Helmer MEP blog	Comments	Gov
61	Open Europe blog	Comments	Citizen
62	Tall Bloke blog	Comments	Citizen
63	Autonomous Mind blog	Comments	Citizen
64	Youtube	Comments	Media
65	Facebook (UKIP)	Comments	Gov

Table 2-5: The stage two case studies inductively collected in relation to the EU parliament election TV debates ('Journ' = journalistic space, 'Affil' = party affiliated space)

These case studies illustrate the range of media spaces in which conversation took place in response to the TV debates. Consisting largely of news media, blogs and social media, these case studies represent the spaces of choice of UK citizens for emergent political discussion online. Constructed somewhat by the Google algorithms that carried out the search (minimised though

this effect was by the search technique employed) this sample of case studies is necessarily exclusive; it cannot be described as an exhaustive list of spaces of conversation. But it does contain those that would be most easily found by a citizen searching for conversation space, and certainly represents a broad sample of the conversation spaces that were populated by thousands of UK citizens.

2.2.5 Harvesting conversations on Twitter

The TV debates that sparked the online discussion in newspaper comments sections and consumer forums also sparked debate on the microblogging platform, *Twitter*. As seen in the cases of the *Nursing & Midwifery Council* and *BBC Radio 4*, Twitter had, by 2014, been seen to be a useful and popular method of public engagement. Indeed, the media companies hosting the TV leaders' debates during the Scottish referendum campaign sought to engage the public in the debate using Twitter, publicising hash tags and incorporating existing hash tags into the discussion. Two hash tags were prevalent during the debate - *#bbcindyref* and the pre-existing one, *#indyref*. There was of course a large number of contributions on Twitter that did not use these hash tags so a broader strategy for identifying relevant contributions needed to be designed. The search used took into account other useful terms, such as the account names for the leaders taking part. Using these hash tags and other search terms it was possible to harvest tweets in real time during the TV debate – in fact, tweets were collected over a four hour period starting one hour before the debate. In this way contributions were identified and harvested that formed part of the organised media effort to generate conversation, part of the public response to this, and also wider public engagement, generated in response to the issue at the exact time of the debates.

Two other Twitter data sets were also collected – one from several days after the debate, over a two hour period and one from 8-10am on the morning after the result was announced. These case studies allowed analysis of the discussion that was occurring on Twitter, or at least that captured by the search terms, without the direct stimulation of a televised debate.

	CASE STUDY	STRUCTURE	DESIGN FEATURES	SPACE
66	Scottish Ref TV debate	Twitter	Retweets and mentions	Mixed
67	Scottish Referendum	Twitter	Retweets and mentions	Mixed
68	Scottish Ref result	Twitter	Retweets and mentions	Mixed

Table 2-6: The stage three case studies collected from Twitter

2.2.6 Summary

In total there were 270 conversations sampled, within 68 case studies taken from 57 different platforms, made up of nearly 140,000 individual contributions. Case studies from 2011 and 2014 provide insight into spaces set up by political institutions to encourage citizen discussion of policies, spaces setup for the interested citizen to contribute in specifically designed spaces that are free from political institutions, and spaces that existed for other purposes in which interested citizens have chosen to participate in political expression or discussion of some sort. There are examples of several different categories of design, primarily message boards, forums and social networks, with further combinations of specific design features present in each category. Different user groups populate each space, presumably with somewhat unique characteristics of opinion, behaviour and motivation. All of the variables of the methodology are represented in these case studies, some by very large data sets and some by smaller ones. The task to compare and contrast these different spaces, and to tease out any relationships between the variables and the deliberative quality of the discussion therein, was a complicated one. Even though a great deal of quantitative data was harvested and analysed through somewhat quantitative means, these can only actually be valid for qualitative investigation, not representative of the whole population of online conversations, but as independent case studies that shed light on particular characteristics and behaviours of particular niches. This is a key part of the *quali-quanti* concept: utilisation of quantitative methods to describe and analyse entire data sets of very large scale conversations, within a qualitative framework that investigates the place of this data set, and its generated metrics, in the social environment, in order to provide understanding of its true nature, beyond the generalised and constructed view created by algorithmic processing. That analysis will be discussed later, in section 2-4. The next section will outline how all of these data sets, identified through the processes outlined above, were harvested and stored.

2.3 Harvesting data

2.3.1 The Conversation Scraper

The content of online discussion is almost always held and presented within HTML code. While video and audio resources exist, the predominant form of conversation on the internet is text content held within the structures of a web page. These structures are primarily constructed using Hypertext Mark-up Language (HTML) - a vocabulary which, as is alluded to in the name, is used to mark sections of content, categorising each as a specific type of content, such as a paragraph, a heading, or any other type of content, including containers that can hold multiple other elements. The content of a page is thus contained within a hierarchy of HTML code

elements, assembled by the device or browser into a tree structure (known as the Document Object Model, or DOM) that represents the document to be displayed to the user. In order to present the messages that compose conversations coherently within a web page, different message components, such as titles, usernames and content, are held within different code segments in order to facilitate appropriate visual presentation of each component. Furthermore, the use of presentational attributes within HTML elements, such as the styles and class names associated with Cascading Style Sheets (CSS) - supplementary data files used to apply visual styles to web pages - often mean that HTML elements, styled with CSS to give a distinct appearance can be identified by unique combinations of HTML and CSS code. Therefore, finding these different sections of code within the overall HTML document can enable a researcher to isolate individual components of a conversation. By examining these code structures one can identify markers – segments of identifiable code – that are common to each type of conversational structure. For instance, particular element types are commonly used to hold individual messages, and a collection of other elements are nested within these to hold the different parts of the message. Specific code sequences usually denote the start and end of each message component and these can be used as keyword identifiers that correspond to particular discussion entities within platforms (such as forum starting points, individual message start and end points, reply sections, quote sections and other discussion entities). These unique keyword snippets, once identified, can be used to automate the harvesting of conversation data, using text parsing programs which traverse the tree structure of HTML elements within a document, identify the HTML structures that hold the target elements, read the content of the element and import it into a web-hosted database over the internet. In this way large numbers of conversations and contributions can be harvested into the database in a short amount of time. The data points collected are, of course, the technologically mediated structures of which the conversations comprise, and the finer-grain elements of human communication that exist within are not as easily contained in such discrete structures. However, this approach enables the initial, quantitative, “big data” iteration of the methodology to be performed, with the deeper understanding being generated in subsequent iterations, described later in this chapter, in which the data is examined more closely.

Many technologies are available with which to create a parsing program. The common web scripting language PHP, for example, allows individual web pages to be retrieved as text files (using the cURL library, for instance) which can be analysed using the native file handling and string processing functions of the PHP language. However, several “screen scraping” applications already exist to enable the researcher to automate the process of finding and harvesting content within a web page. These applications are often web-based and run within

the web browser, framing the page within a container, where the underlying code can be examined. Such applications exist for the creation of news feeds and data sources for a number of purposes, but not to provide customisable automated access to conversation-specific data structures. Recognising this opportunity, a tool was created for this project to harvest just such data. Using the open source *Firefox* web browser from the Mozilla Foundation as a basis for web page display and framing, a "sidebar" add-on was created – named the *Conversation Scraper* – to give the user an additional interface panel through which to interact with the web page. Mozilla add-ons allow a developer to utilise the bespoke "XUL" mark-up language to add new functionality to the web browser through the creation of additional user panels and settings, available to the end user through the extensions to the normal browser interface. These additional interfaces can utilise the JavaScript programming language to interact with the underlying code of any web page loaded into the browser window. In this way the browser, with the *Conversation Scraper* add-on installed, can be used to load a webpage that contains conversation data, making it available for processing by the JavaScript code of the add-on, which can access and traverse the DOM, process the underlying code and interact with the visual display of content. The *Conversation Scraper* allows the user to visually identify parts of the web page as particular conversational components and, at the click of a button determine and store the underlying code. JavaScript code libraries used in the tool – in particular the open source *jQuery* library - utilise the DOM to quickly determine the HTML code that is used to encapsulate a piece of selected content (McCormick and De Volder, 2004) and the *Conversation Scraper* capitalises on this by copying this code to a form in the add-on interface, where it can be viewed and edited. The tool also adds custom CSS attributes, defined in associated style sheets, to the selected element to add visual cues, such as background colours and borders, to the page, showing clearly which content sections are held within the selected element types within the page. For example, if a contributor username is selected in a web page by the researcher, the containing element will be identified and highlighted - as will all other instances of the identified keyword sequence in the page, highlighting all instances of contributor usernames and giving the researcher a clear signal that the correct element type has been identified. The researcher can thus determine the unique code for specific elements within any particular web page, and with a little fine tuning by the user a detailed profile can be built for that page - or for a whole website that uses the same design consistently, so that conversation components can be easily identified upon future visits to the website. See Figure 2-3, below, for a screenshot of the tool in action. In the image the toolbar can be seen on the left of the browser window and the web page containing a message board discussion from one case study – *theguardian.com* – on the

right. Within the message board various components are highlighted by the tool and the text strings of the HTML markers are visible in the boxes of the side bar.

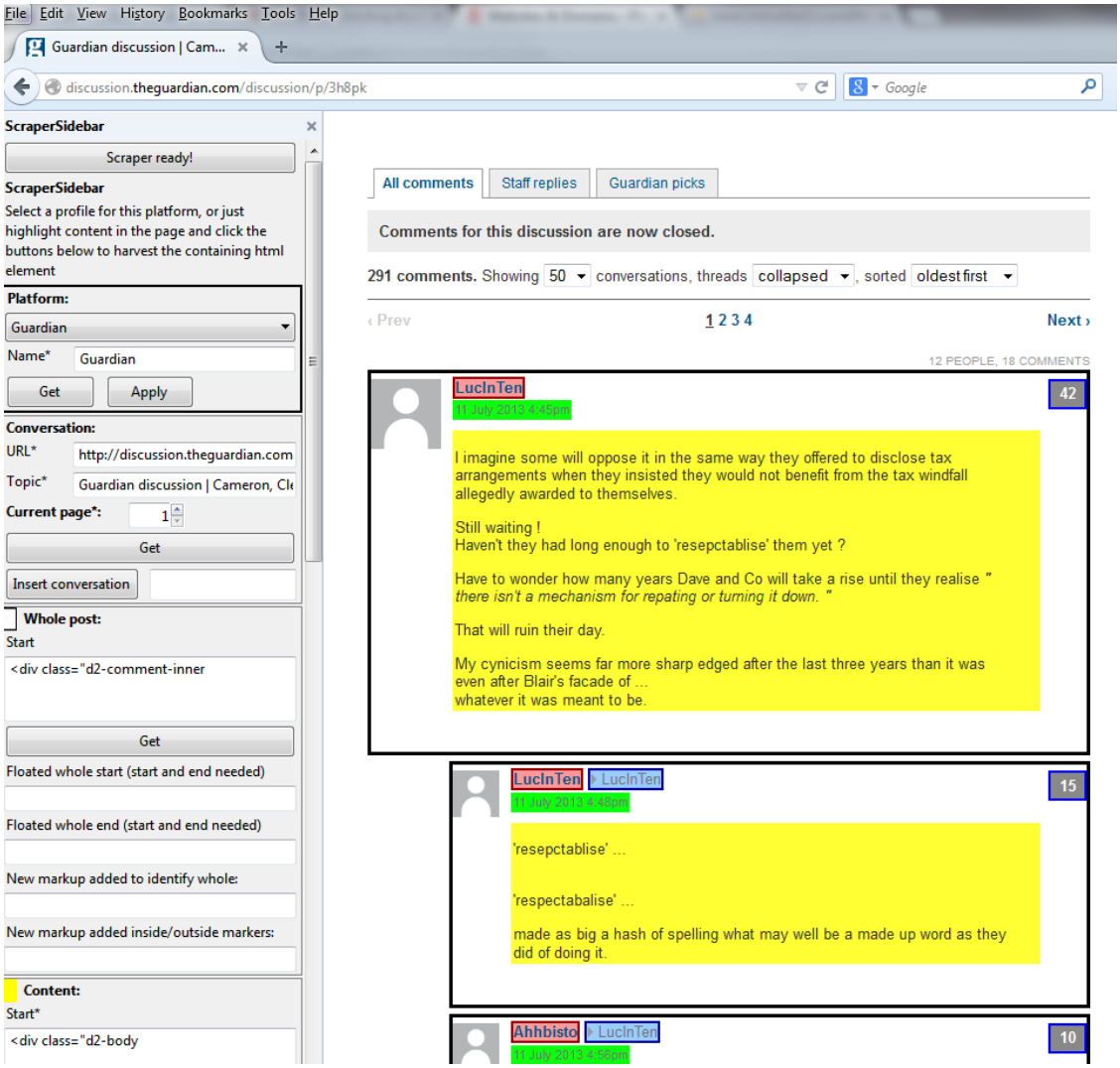

Figure 2-3: A screenshot of the Conversation Scraper in action. The borders and colours around the message components show how the tool has identified the different components

Using the *Conversation Scraper*, profiles were created for the websites of the selected case studies (with the exclusion of some of the Twitter case studies, the harvesting process for which will be discussed shortly). These profiles, stored within the project database as groups of text strings that identify conversational elements in each case study website, allowed the rapid harvesting of very large conversations from each space. Once each profile had been created any conversation appearing within one of the websites profiled could be processed quickly and easily by simply selecting the profile from a drop-down menu. For each conversation, the title and address of the containing web page is also automatically harvested by the *Conversation Scraper*, along with the profile chosen by the researcher, so that the new conversation entry, with all of its identifying information can be inserted into the database at the click of a button, with the ID

of this new database record returned to the tool so that it can be associated with all of the conversational structures that are to follow during harvesting of the content itself. In this way, whole pages of content can be harvested in seconds and multi-page conversations can be quickly and easily clicked through and harvested in entirety.

The *Conversation Scraper* exchanges information with the project database through AJAX (Asynchronous JavaScript and XML) requests. Originally created to allow web pages to update dynamically, without a page refresh, by requesting new data from a web server, AJAX enables JavaScript programs to send and receive requests over the internet. The conversational data identified within a web page is packaged up into an AJAX call and sent to the web server where it is processed using a server side scripting language (in this case a PHP page) and inserted into the database. A confirmation (or error) message, including any custom data such as the new database ID of an inserted record, is then sent back to the originating script in the *Conversation Scraper* which acts on it accordingly.

So, the process of harvesting a conversation using this tool has four parts. First, the appropriate profile is selected from the drop down list (or a new profile is created) and any conversational components are highlighted in the web page. Second, the details of the conversation can be recorded – the web address, the subject matter and the name of the profile being used to identify the components. These details are added to the database at the push of a button and a conversation ID, representing the new database record, is returned to the tool. Third, the tool works its way through the DOM of the web page, finding each instance of the HTML element identified by the researcher as that holding a message within the conversation. For each of these elements, the tool searches the elements nested within, finding those identified as containing other types of conversational content within each message. The content of each of these elements is isolated and packaged up within one long text string; the process repeated for each message in the conversation until the whole page of content is contained in one pre-processed text string that can be sent off to the web server via AJAX. Finally, the PHP page on the project web server receives the request and the associated data, processes the text string, picking apart the messages and their component parts and inserting them to the database, before sending back a confirmation message that is displayed in the *Conversation Scraper* interface. Thus, when any conversation on a web page is encountered by the user, it can be quickly and easily harvested to the database.

The tool identifies whole individual messages (or contributions) and submits each as a single row in a database table. In the process it splits the message content into the following conceptual

components, where available, and inserts them into the different fields of the contributions table in the database:

- Conversation ID
- Username
- Date/time
- Message title/subject
- Message body/content
- Message/username replied to
- Message/username quoted
- Rating status

The usernames are encrypted using a one-way encryption algorithm before being inserted into the database in order to make the contributions anonymous, while maintaining a unique value for each, keeping messages from each author identifiable as a group, something that is important in the analysis of the data. Further fields exist within the database but they are not populated yet. Fields identifying qualities such as “cross cutting exchange”, for instance, are not filled until the analysis stage of the investigation, which is described in the next section.

The design of the tool was not without its difficulties. The techniques and the content involved often generated errors in the early stages due to browser security policies (such as cross-site-scripting rules to prevent domain hijacking) and Internet Service Provider (ISP) content controls. The use of a browser add-on, rather than an in-page approach, restricted the solution to use within the Mozilla Firefox browser, but circumnavigated the cross site scripting protections (these are not applied to JavaScript running in a device, external to the web page). Further controls had to be built into the code itself to overcome content controls – web requests and responses sent to the database that contained certain sensitive words (even those found within publically available web pages) were blocked by the ISP and these had to be identified and substituted in a way that allowed the request to pass through the content controls of the ISP, but left the content in such a state to allow full analysis of it by the researcher at a later stage. Furthermore, online conversation is presented in many different ways and the HTML structures for particular components vary greatly. For instance, replies can be nested or threaded, or can be listed with just a label to identify them. Because of this variety a number of different options were built into the *Conversation Scraper*, to allow the researcher to try different approaches to create profiles. While increasing the complexity of use of the tool, this increased the flexibility also and greatly expanded the range of websites that could be sampled in this way. Designing the tool in this way has enabled the creation of a robust and reliable resource for internet

researchers to harvest sample online conversations. While initially built to transfer data from these samples straight into the project database via AJAX requests, the tool has been modified to harvest data and make it available as a comma separated file (CSV) download – making it much more useful for other researchers to harvest their own samples and to own and control their data without relying upon the services of this project. The *Conversation Scraper* can therefore be shared online, as an open source tool for any interested academics to experiment with.

2.3.2 The Twitter samples

Most of the case studies were harvested using the *Conversation Scraper*, as detailed above, but the one platform for which that technique was not appropriate was Twitter. Although Twitter is an online service and does have a web page interface, the large scale nature of Twitter conversations and the disparate communities that can contribute to them meant that the contributions were not usually held within one web page. For some small scale conversations, searches performed in the Twitter website interface provide a comprehensive enough view of the data to allow analysis using the *Conversation Scraper*, but for larger conversations this is not possible as the sheer volume of messages do not fit into the web page view and Twitter does not provide a paged layout to accommodate excess content. However, there are numerous other ways for the service to be accessed including methods to harvest data from Twitter, some of which are commonly employed by internet researchers. A plethora of mobile apps and desktop applications allow Twitter data to be generated and viewed through the application programming interface (API) of the Twitter service. An API is a set of tools, protocols and other resources that allow software developers to interact with an existing service or resource. Using APIs, developers can create tools specifically designed to utilise data from these services, and many such tools exist for interacting with Twitter data, ranging from large scale, commercial data centres, to small scale academic examples of analysis tools. Just as in the case of the *Conversation Scraper*, discussed above, the data retrieved through the Twitter API is technologically mediated, but similarly fits into the overall structure of the methodology by providing the large scale data sets utilised in the initial iteration. Two separate approaches were implemented in this study, for the two different types of Twitter samples used – the collection of mass public contributions surrounding significant public political events (in this case the leaders' debates on TV, and the Scottish independence referendum) using a large commercial tool, and the collection of more focussed, smaller scale conversation centred on particular institutions (in this case the *Nursing & Midwifery Council* and *BBC Radio 4*) which was carried out using a more bespoke technique.

2.3.2.1 Harvesting mass Twitter data

The Twitter API can be accessed for free, with samples of Tweets available to be harvested in response to searches sent to its database. The API, known as the *public API*, is appropriate for certain studies, where the researcher has the programming skills available to implement a custom search tool, or where a study fits the parameters of specific tools that have been built previously by others. However, the public Twitter API is rate limited – when utilising a free API account a user is allowed to make a certain number of requests to the Twitter servers in a given time frame (at the time of this study it was 350 per hour), which sets a ceiling to the maximum number of tweets that can be harvested. Furthermore, the tweets are harvested from a fragmented sample of the whole Twitter data set. Receiving up to 500 million tweets per day in 2013 (Krikorian, 2013) the massive distributed Twitter database is difficult to surface in entirety at any one time. Only large, commercial organisations, prepared to pay a large licence fee are able to get access at this level, known in the industry as access to the Twitter "*Firehose*". Given that the goals of this study were to harvest entire public conversations, rather than samples of them, the public API was not suitable for this task. Instead, data was harvested using DataSift, a commercial online social media data service with access to the Twitter Firehose[3], which enabled the harvest of very large data sets in their entirety.

Datasift allowed a researcher to generate complex keyword queries, utilising all of the different fields present in the Twitter data set (this includes usernames and user profile data, retweet and mention usernames and many other fields, in addition to the text content of the tweet itself) in order to harvest Tweets in real time - that is, capturing Tweets that are posted while the search is running. For that reason, conversations have to be predicted, and the search set up and scheduled to run at an appropriate time. This is problematic for emergent conversation related to unscheduled events, but is more appropriate for events such as the televised leaders' debates, which occur at a set time, during (and after) which searches can be designed to run. The searches can be created to use logical operators to create search clauses that combine different keywords and data fields, to harvest tailored results, such as "*retrieve content from tweets about topic X, written by users in timezone Y, excluding the word Z*". These queries can be built in a graphical interface or using the bespoke query language called *CDSL*. For example, searching for tweets related to the EU election leaders' debate could use the query:

[3] The Datasift service is available at: http://datasift.com. At the time of this study, a researcher could harvest hundreds of thousands of tweets from Datasift for around $20 (paid on a per-tweet basis), and there was no limit to the number of tweets that could be harvested. The service has since been closed to individual subscribers and instead offered to resellers – typically data analytics companies – who provide the services in various forms to researchers at a significantly higher cost.

```
twitter.text contains_any "clegg,farage"
```

Such a query would search for either “clegg” or “farage” in the content of a tweet. Much more complex queries could be designed up to utilise different combinations of keywords, such as the one used to find tweets about the Scottish independence referendum. This query used lots of terms in combination with the name of the pro-union campaign leader, Alistair Darling, as such a common term can be found in many unrelated tweets:

```
twitter.text contains_any
"#nothanks,#youyesyet,#yesscot,#hopenotfear,#voteno,#scotdecides
,#scotlanddecides,@togetherdarling,#indyref,#scotlanddecides,sal
mond"
OR
twitter.text contains_all "currency,darling"
OR
twitter.text contains_all "euro,darling"
OR
twitter.text contains_all "nhs,darling"
OR
twitter.text contains_all "debate,darling"
OR
twitter.text contains_all "westminster,darling"
OR
twitter.text contains_all "economy,darling"
OR
twitter.text contains_all "snp,darling"
OR
twitter.text contains_all "independen,darling"

OR
twitter.text contains_all "scotland,darling"
```

Similar queries were built for the case studies based upon public conversation on Twitter about the referendum and EU elections. In the Datasift service, these queries work by harvesting Tweets in real time, recording them as they are contributed by the user. For that reason the conversation must be predicted and the queries written in advance, ready for recording during the event. In the case of TV debates, and referendum results, it was predictable that conversations would occur roughly within particular temporal bounds. Data sets were harvested over four-hour periods encompassing the TV debates, and shorter periods afterwards, leading up to the result of the referendum. While this technique could not be said to encompass a conversation in absolute entirety – participants may choose to continue the discussion for days

following an event – it could represent the entire conversation as it happened in that time period. Inevitably, however, a few contributors will be excluded as they will write messages that do not utilise the terms from the query, but prior testing and research when designing the keyword list minimised this as far as possible by including the most likely words in the filters.

The queries designed in Datasift produced datasets containing tens of thousands of tweets and these were made available for download from the Datasift website as CSV files. These files included all of the fields of the Twitter data set, with each tweet represented by one line of text in the file, and with each data field present in each line, separated by commas. In order to import these data sets into the project database, in comparable structure to the other data sets already harvested, a bespoke PHP script was written on the project web site that uploaded the CSV files, created a conversation record in the database along with a unique ID value and then used that ID value to insert each tweet, along with the relevant fields from the Twitter data set (retweeted usernames and mentioned usernames as quotes and replies, number of "favourites" as ratings) to insert one contribution record per tweet. In this way, very large public conversations taking place on Twitter could be harvested to the database where they could be analysed in the same way as all of the other case studies.

2.3.2.2 Harvesting targeted campaigns on Twitter

Datasift was a very effective tool for harvesting conversations in real time on Twitter, but in many cases conversations cannot be predicted and need to be identified and harvested in retrospect. Datasift, and other services, do maintain stored caches of tweets for historical analysis but these are only accessible at a very high financial price. The potential limits to access that this cost entails has obvious methodological implications for retrospective data collection, as it reduces the universality of the data source. Retrospective harvesting and analysis of social media data on a very large scale is subject to complex commercial and technological constraints that impact on the viability and representativeness of methodologies; a point that is discussed later in this thesis, in chapter 6. Fortunately the case studies that needed to be harvested retrospectively from Twitter in this investigation were of a much smaller size than those harvested in real time and alternative techniques were available that did not cost money. Smaller conversations were identified using the Twitter advanced search facility, available freely on the web. The BBC Radio 4 "Tweet-in" about the NHS identified tweets used in the conversation using a hash tag, #asknhsengland, which was publicised on the radio show and its website. The *Nursing & Midwifery Council* "Twitter chats" did likewise with the hash tags "#newcode" and "#revalidation" to identify the tweets belonging to the conversations, and also made use of the Twitter handle @nmcnews. These terms were entered into the Twitter

advanced search facility and the results were displayed in the Twitter website interface. Using the *Conversation Scraper*, described earlier, a profile for the Twitter website was created and the tweets were harvested in the same manner as the content of any of the other website case studies. However, the larger case studies were problematic in this regard, requiring too much computer memory to be loaded within the browser window (possibly due to the dynamic, "lazy loading" design of Twitter[4]). In these cases an alternative approach was taken, using the free service, *Storify.com.* Storify uses public APIs to combine content from different social networks and publishing sources to allow users to build "stories" of current events through their presence on these platforms. Stories were created using the search terms above and limiting to the Twitter platform alone, so that tweets from the target timeframe were loaded into the Storify service and saved, making it easier to import the data into the project database.

Once these case study conversations had been harvested using each of these approaches a platform for analysis of the data had to be constructed. Various different analytical approaches had to be combined in order to interrogate the data in such a way as to generate the metrics of deliberative quality discussed in previous chapters, and also to contextualise this quantitative analysis in the social and technological niches in which they are situated. Social network analysis and argument mapping, as well as numerous other mathematical processes was performed on data, as well as more qualitative examination of the content and social interactions. This analytical process is described next.

2.4 Analytical methodology

Once a significant number of conversations had been harvested a platform for analysis of the data had to be constructed. The analysis featured a number of iterations and each of these introduced more qualitative techniques as they built on the findings of the previous, more quantitative iteration, developing deeper understanding. Within these iterations the different variables were analysed sequentially: deliberative quality (the analysis of which was done in various stages); interface characteristics; institutional linkage; and finally the qualitative examination of user group characteristics. The first type of analysis to be carried out in the initial iteration was the quantitative investigation of deliberative quality; the automated calculation of the connectedness metric (which related to interactivity or reciprocity) and quantitative domination metric (related to equality of voice) for each conversation that are described in the next section. The metrics generated in this initial, automated iteration of analysis related to the

[4] A methodological consideration for screen-scraping approaches such as the Conversation Scraper, exists due to techniques like 'lazy loading' ensuring that initial page loads only containing parts of the whole data set. See http://martinfowler.com/eaaCatalog/lazyLoad.html for an explanation of lazy loading

formal interactions and dynamics afforded by the interfaces that contributors were using. For instance, replies were identified if the interface presented content formally as a reply (i.e. using HTML elements to present a reply structure to the viewer). These metrics were used to look for preliminary patterns in the data at a large scale. The whole data set was thus analysed quickly in order to find any apparent patterns, such as initial indicators of particularly interactive conversations that stood out from the rest, or patterns across the data that might be investigated. Not only did this provide starting points for further stages of analysis, it also provided a starting point for an appraisal of the automated method itself.

This initial stage of analysis was followed by secondary investigation, focussing on the headline figures generated by the automated processes. The automated measurements of the conversations, dependent upon the characteristics of the data that was reported by the technical interface, provide a description of each conversation which could be compared to that derived from more qualitative methods in later iterations of analysis. The initial findings were revalidated using deeper investigation, such as manual coding of messages for alternative forms of target structures and dynamics (for instance informal methods of indicating that a message is a reply, outside of the formal interface structure), and identification of more complex and nuanced structures such as off-topic contributions and cross cutting exchange. This stage of the analysis spanned several iterations, with successive sets of findings investigated more deeply until a reliable picture of deliberative quality was drawn and the automated method fully evaluated.

At this stage, with metrics related to deliberative quality assigned to different spaces, the effect of the variables that make up this multivariate study could be investigated in relation to each other. The institutional linkage of the spaces was already assigned during the selection process, as were simple categorisations of design features of the interfaces used in each space. Deeper analysis was done to fine tune these categorisations with appraisals of the technical features present, the rules and moderation strategies, and the accessibility levels of each space ascertained. Likewise the user group characteristics of the community of contributors of each space was investigated, with factors such as ideological affiliations, special interests, geographical ties and conversational behaviours taken into account. With these variables defined and allocated, the values of deliberative quality could be analysed yet again, cross referencing with the additional variables and building up a picture of patterns within and across the niches generated from these categorisations. Finally, the harvested data, associated metrics, and stage two findings were embellished with interview and survey data that sought to deepen understanding of the conversation dynamics at play in some of the spaces by contextualising

these findings in the surrounding narrative and social conditions of the online niches in which the conversations were occurring.

The various stages of analysis are described in detail in the next section. First, the approach taken to calculate initial metrics is examined, then the process of re-evaluating these metrics through closer inspection, coding and network analysis. Next, examination of the user group characteristics of each space is discussed, followed by the process of visualising, grouping and comparing different spaces to identify online niches, and finally the process of augmenting the findings with qualitative data from in-depth interviews.

2.4.1 Analysing data for deliberative quality

Various different analytical approaches were combined in order to interrogate the data in such a way as to generate the metrics of deliberative quality discussed in previous chapters. Social network analysis and argument mapping, as well as numerous other mathematical processes were performed on each conversational data set, as well as more qualitative examination of the content and social interactions. This analytical process is described next.

As described in the preceding section, during the accumulation of the data set the building blocks of social interactions and arguments within conversations were identified through the process of creating profiles of the HTML structures holding them within the interface of each space. The automated process of data collection therefore generated a basic illustration of semantic value of conversational components present in the data; at least, the semantic value that was present within the technological layer. This semantic information was used to generate metrics quantifying deliberative features of the conversation and to create social network maps that represented the interpersonal connections between participants in the conversation and argument maps that represented the topics and concepts present within the contributions. For instance, connections were drawn between usernames of message authors and usernames of the previous contributors that they quote or to whom they reply. These were then translated into the nodes (usernames) and edges (connections – replies or quotes) of a social network. Metrics were calculated to illustrate the level of "connectedness" of a conversation – what proportion of the messages are socially linked – or the level of domination (in strictly quantitative terms) of a conversation by particular members. These quantitative analyses were carried out automatically, through application of algorithms and software that carry out the mathematical work silently as the researcher views the data. In this study a website was created with the dual purpose of presenting the data harvested by the *Conversation Scraper* browser plugin (described above) and at the same time analysing the data and presenting the results. The project website - found at http://chrisbirchall.me.uk/deliberation/ - presents an overview

of the data harvested, along with the associated metrics. See Figure 2-4, below, for an illustration of the site (or visit the site yourself!).

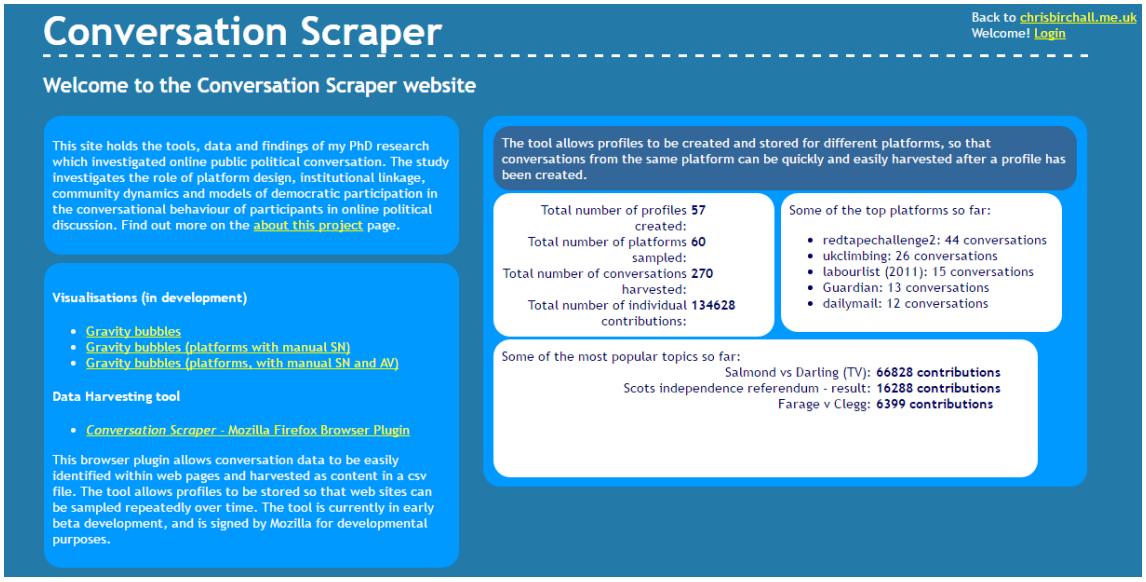

Figure 2-4: A screenshot of the *Conversation Scraper* website

The website automatically created the quantitative metrics and social networks used to help determine the initial values of deliberative quality which featured in the early iterations of analysis. Complex algorithms process the data on the web server, creating social network representations for each conversation in the form of GraphML (an open source standard for network representation) exports which can be viewed and processed in common network analysis software. The nodes and edges present within these networks were then used to generate metrics such as connectedness and qualitative domination. As can be seen in Figure 2-5, below, conversations are presented on the website along with a number of these headline statistics.

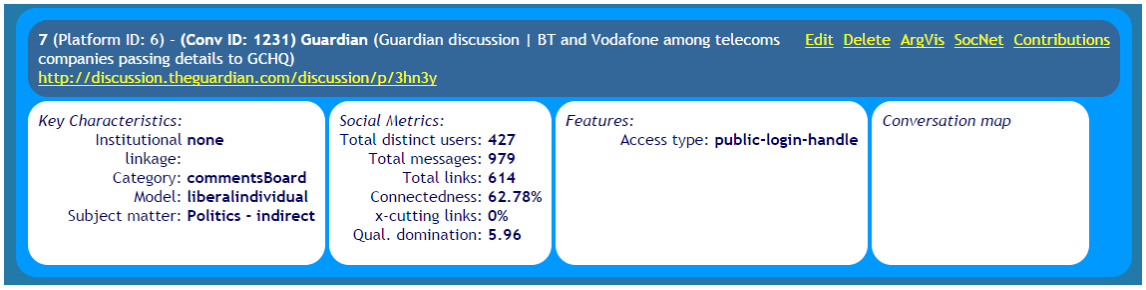

Figure 2-5: An individual conversation as displayed on the *Conversation Scraper* website

The screenshot in Figure 2-5 shows the automated metrics generated by the algorithms present in the website programming, but it also shows other metrics that are not as easy to generate automatically. Metrics such as the number of cross cutting exchanges require a level of understanding of the language used in order to evaluate the opinions present and determine if

opposing views are being encountered. All of the factors described in the previous chapter as important in determining the deliberative quality of a conversation require a similar level of intelligent consideration in order to determine the level of each present within a conversation and so different approaches were taken throughout the iterative structure of the analysis. The deliberative factors and the associated considerations are discussed in turn below.

2.4.1.1 Connectedness

The initial figures of 'connectedness' generated by the website gave a preliminary estimation of the relative level of interpersonal exchanges present within different conversations. The proportion of contributions present in the form of social interactions, or connections – replies and quotations – as defined by the interfaces on which they were made was represented by this indicator in order to develop a measurement of the interactive and reciprocal nature of the discussion.

These figures were created using a simple calculation of the percentage of the contributions within a conversation that were identified in the website as containing a social interaction in the form of a quote or a reply. Though usually falling between 0 and 100, this value was, on occasion, above 100 where conversations contained a high number of contributions that contained numerous such interactions, perhaps quoting several users within a reply to one prior message. If every message (after the initial message) was constructed as a reply or utilised a quotation of a previous contributor, a score of 100 would be achieved. If all messages are independent expressions, without an explicit social connection, a score of 0 would be achieved. Scores greater than 100 can be achieved if enough messages have multiple connections within them. In this way the score can give an indication of how saturated the discussion is with interpersonal, or social, exchanges. The simple equation used to calculate this number in this initial step is as follows:

$$\frac{c}{(m - 1)}$$

where c represents the number of connections present in a conversation and m the number of messages.

This approach gave a quick, easy measurement of technologically mediated connectedness of conversations, and was suitable to use across the entire dataset.

The automated analysis of connectedness described here illustrates one of the initial, "big data" approaches to analysis, and it provided efficient indications of the dynamics present within the very large data sets. However, in keeping with many of the concerns outlined earlier from scholars such as Manovich (2011), Boyd and Crawford (2012) and Gitelman and Jackson (2013),

this automated method lacked the capability to examine some of the alternative, human-mediated methods of connectivity which did not conform to the structures of the technological interface (such as simply writing a plain text username within the text of a message). For this reason (as described earlier) subsequent iterations of analysis included incorporated more qualitative techniques to challenge and validate the initial findings. In the case of conversation connectedness, further analysis included the manual coding of samples of contributions. Up to 150 messages were selected from the conversation (this was the whole data set in some smaller cases; the first 150 messages in other, larger cases) and interactions apparent within these were added into the data set. Where large discrepancies were found (in conversations containing high numbers of alternative interactions, outside of formal interface structures) the transformed numbers from this manual stage were taken forward into the iterations of analysis that followed.

2.4.1.2 Cross cutting exchanges

Absent from the initial automated analysis (due to the lack of formal interface features in the case study spaces to accommodate cross cutting exchanges explicitly), this analysis occurred in the more qualitative examination of the data that occurred in subsequent iterations. The automatic classification of messages into post-reply-quote chains goes some way towards describing this factor, but not so far as to identify cross cutting exchanges. Conversations that were determined during the initial iterations of analysis to have a degree of connectedness were subsequently processed further, to analyse the interactions present in more detail. Cross cutting exchanges were identified by the presence of certain characteristics of conversation, such as message chains containing a statement, a message supporting or refuting the statement and a further rebuttal or refutation. In particular, disagreements, including rebuttals, refutations and counter-assertions were recorded, using a coding scheme similar to that of Graham (2008), to identify exchanges in which disparate opinions were encountered – evidence of the presence of cross cutting exchange identified earlier as a key deliberative factor. Manual coding of samples from these conversations (up to 150 messages, in the same way as the manual analysis of connectedness described above) was carried out to determine the different types of posts and replies present. The website provided an interface for this manual coding, with drop down boxes present to make the coding choices as efficient as possible (see Figure 2-6, below, in which the 'message type' dropdown box holds that categories that represent the different forms of participation in cross cutting exchanges). An outline of the coding procedure is provided in appendix 3.

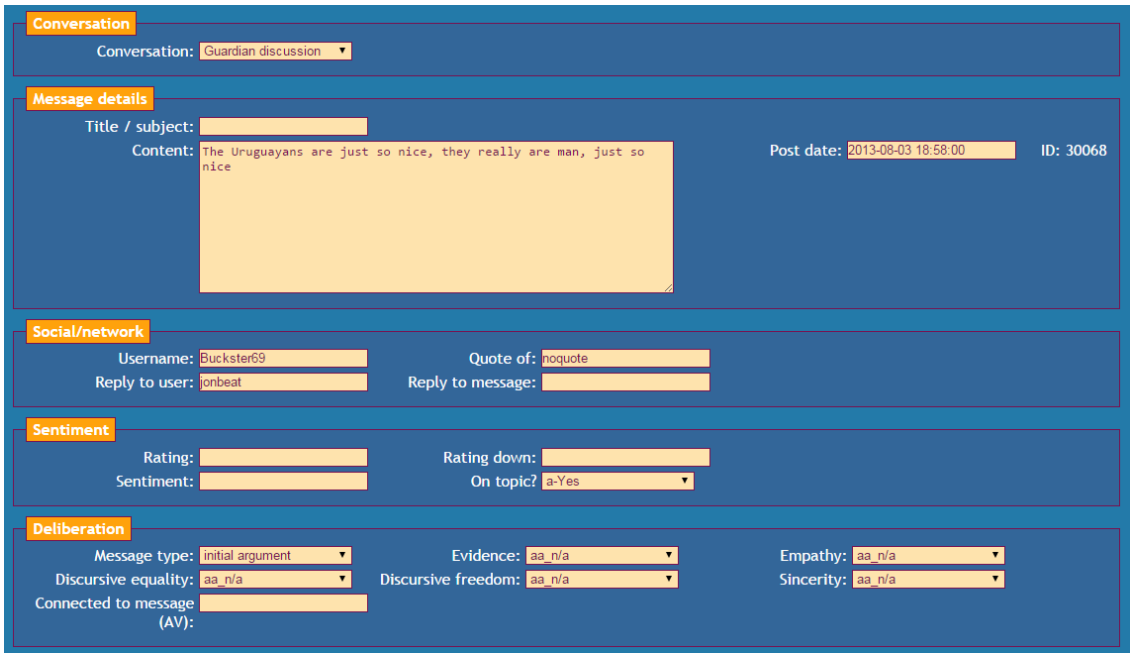

Figure 2-6: The contribution editing screen of the project website, which includes drop down boxes for coding of contributions for deliberative characteristics that were not identified automatically

2.4.1.3 Equality of voice

As discussed in the last chapter, in section 1-5, equality of voice is influenced in different ways: through the options available to the user by the interface, as they seek to contribute to the conversation; by the rules and policies of the space that they are utilising; and by the dynamics present within the community and conversation to which they seek to contribute. Various factors influence the relative equality of voice afforded by a participatory platform; examples include reputation- or rating-based filtering and sorting of contributions or membership and moderation systems that may enable exclusive access, or allow dominance of individuals or groups to develop and thus diminish equality of voice. Categorisation of the platforms based upon characteristics such as access levels, anonymity and moderation can give an idea of the freedom of expression allowed by an interface, but equality of voice is also a product of the social interactions that occur within the space. This latter influence is a factor of the conversational content itself; community members may exert influence on others, through the conversation itself and so by analysing contributions it was also possible to investigate this aspect of equality of voice. Part of this analysis of equality of voice, therefore, involves the examination of domination within conversation. Domination may arise through the action of the various categories of super participants discussed earlier (Graham and Wright, 2014) or indeed through other social dynamics within the conversation. Therefore dominance within a conversation is a complex concept, consisting of quantitative properties and also linguistic, social properties of expression and interaction. To investigate these finer details, case study data was categorised at the level of the participatory space, so that different modes of access allowed

by the design of the space could be represented (characteristics related to identity requirements, anonymity and aliases were noted, as were technical features that control visibility or prominence of contributions such as ratings systems and filters), at the level of the conversation (dominance was measured in quantitative form initially and in more depth during later, qualitative analysis), and at the level of the contribution (each message was coded according to interpersonal dynamic, as described shortly).

The quantitative dominance of conversation contributions in the case studies was determined immediately upon harvesting of data through the automated analysis built into the project website. The data harvesting process generated an automated metric which provided a very simple measurement of quantitative domination – the relative level of contribution by each member of the quorum present. The equation used to calculate dominance in this initial step is as follows:

$$\frac{\sum \left(x^2/m^2\right)}{\frac{1}{n}}$$

where x represents the number of contributions from each contributor, m the total number of messages in the conversation and n the total number of contributors to the conversation.

The equation determines the number of contributions of each contributor, as a proportion of the overall conversation and then averages that across the whole community. The more evenly spread the individual contributions are (based on number, not size of contribution) the lower this indicator will be, with a completely even spread having a value of 1. The greater the concentration of numerical contribution the higher the number will be.

As with the factors discussed above, analysis of these case studies requires both large scale, automated approaches and smaller scale qualitative approaches. This quantitative dominance indicator is a first step towards determining domination patterns in conversations through automated analysis. Of course, this simplistic metric could not capture the intricacies of domination within a conversation; much more understanding of the forces present is required than simply a count of the contributions. However, the metric served to identify particular patterns in volume of contribution and allowed further, qualitative, analysis to be directed in subsequent iterations. The coding scheme of Graham (2008), mentioned above, also included provision for the analysis of interpersonal exchanges, through the coding of messages into categories such as empathy, degradation, neglect, curbing and questionable sincerity (2008 p. 24) and so text analysis and manual coding of posts was thus used to determine the nature of

interactions between contributors. Used in combination with social network and argument visualisation techniques, patterns of interactions, including volumes of exchanges of different natures, could be generated to illustrate the patterns of forms of domination present in the conversation. These observations were then re-evaluated through further qualitative methods including interviews with contributors and administrators of particular spaces, to ensure that an accurate representation of the community dynamics was achieved.

2.4.1.4 Discussion focus

The presence of connected and cross-cutting conversation, and the ability of contributors to take part within a free discursive environment give a good indication of the presence of the types of deliberative qualities targeted in this study. However, the other key factor required in this particular model of deliberation was the level of focus within the discussion. Participants may interact, exchange opinion and express themselves, but they may do so in tangential threads of conversation where the topic diverges from the initial issue. Like the metric representing cross cutting exchanges, this analysis was absent from the automated stage due to the fine linguistic definitions of “on-topic” and “off-topic” conversation. In subsequent stages of analysis, however, more qualitative methods – including text analysis and argument mapping – were used to determine the general themes discussed within a conversation and messages that were conceptually unrelated to the main thread were marked as “off-topic”. Although separate from the initial automated analysis, this stage was directed by it as conversations of interest – those identified as significant in terms of connectedness or domination, were targeted for sampling for this manual coding. This categorisation of contributions was then incorporated into the argument maps for these conversations that were produced during the analysis phase (described below) and utilised in statistical measures, including the determination of the proportion of contributions within a conversation that are off-topic. This metric was then used in the latter iterations of analysis to contextualise some of the findings related to connectedness and cross-cutting exchange, abuse, domination and discursive freedom, institutional linkage and community characteristics, by highlighting the presence of off-topic contributions and sub-conversations in combination with other observations.

2.4.2 Combining, visualising and analysing

In the initial iterations of analysis the indicators and factors of deliberative quality, discussed above, were examined independently, but once the metrics had been generated they were brought together to investigate their combined effect within specific niches. In accordance with the iterative investigative structure the initial metrics of connectedness and quantitative domination – readily available after the automated analysis of the entire data set – were

combined and analysed first, in order to inform further iterations of analysis. These initial metrics were included in a calculation that provided an overall metric of deliberative quality for each conversation which could be manipulated, through weighting of the various contributory metrics, to tailor it to particular representations of deliberative quality. After subsequent iterations of analysis in which more qualitative observations were generated, including the metric for cross cutting exchanges, visualisations were generated using updated metric scores, to provide a comparison with – and evaluation of – the initial metrics. These overall metric values could then be compared, as well as combined with the remaining variables, using a visualisation tool that was developed within the project website.

The visualisation tool was used to translate the numerical metrics into graphical representations, and then to group these representations based upon the other variables to be investigated. Thus the tool facilitated the speculative investigation into the presence of any patterns within the data occurring within particular online niches (see Figure 2-7, below) as defined by the grouping of data by each variable. The analysis of these groupings was speculative, providing potential findings that directed, and were evaluated in, later iterations of analysis, thus allowing the later qualitative analysis to be targeted at areas of potential interest.

The overall metric and the visualisation were, of course, constructions based upon quantitative metrics (though some embellished with qualitative methods) and particular methodologies, and as such needed to be re-evaluated through qualitative methods, as outlined by many of the digital methods critics (Clough et al., 2015; Kitchin and Lauriault, 2014; Kitchin, 2014; Manovich, 2011; Van Dijck, 2014). The more in-depth analysis of later iterations, culminating in interviews with participants, did this, enabling reflections to be drawn on the findings of the analysis, as well as the effectiveness of the method itself.

2.4.2.1 Calculating an overall metric

The initial metrics of '*connectedness*', '*quantitative domination*' and, after the second iteration of analysis, '*cross-cutting exchange*', were combined in an algorithm designed to provide an overall picture of the amount of connected, equally accessible and cross cutting debate that was present within each conversation. The algorithm can be represented by one simple calculation:

(s + x) / d
where s represents connection saturation, x cross cutting connections and d quantitative dominance.

The algorithm accounts for a positive contribution of connectedness and cross-cutting exchange on deliberative quality, and a negative effect of quantitative domination. However, the relative strength of these effects can be altered through weighting, and the assumptions implicit in this

construction are evaluated through qualitative analysis in later iterations. Similarly, these three metrics represent only a subset of the measurements used to evaluate deliberative quality in this study, but were utilised in the algorithm in order to direct investigation into the remaining items. The 'connectedness' and 'quantitative domination' metrics were generated from the entire data set and so were used for the first stage of investigation, giving initial direction to later iterations of analysis. The 'cross cutting exchange' metric, initially set to zero, was added in later iterations, after values had been manually generated. The scores generated for each conversation by the algorithm were translated into the units of the visualisation tool which was used as an aid to analysing the very large initial data set. Once the size of data was reduced through the selective, manual analysis of later iterations (required for the other factors) it became less useful, as direct comparisons and qualitative analysis became more important. For these reasons, the algorithm served simply as a starting point for the investigatory process.

The algorithm provided a simple combination of these indicators by default, but was designed to be customisable through the weighting of each individual indicator in order to provide a means of carrying out the investigatory analysis of this study. This weighting was carried out within the website designed for the project, with the weightings being applied to the values before they were entered into the calculation. This weighting allowed the visualisation to be recreated using different 'definitions' of deliberative quality, according to the research needs. For instance, in order to focus on connectedness, the weightings for domination and cross cutting exchange were set to zero; to focus more on domination, the weightings were changed in favour of this latter dimension.

2.4.2.2 Visualising the data

The visualisation tool itself consisted of a list of case studies that could be interactively included or removed from the visualisation, a set of sliders for weighting of the deliberative metrics and the visualisation itself. In the visualisations produced each conversation is represented by a circle. The circle is coloured to represent a particular interface category and the circle diameter is proportional to the overall quality metric, generated using the weightings specified in the tool – the larger the circle, the higher the levels of overall deliberative quality (as defined by the weightings of the factors). The case studies can be presented all at once, filtered, or grouped by any of the variables to be studied, as shown in Figure 2-7, below.

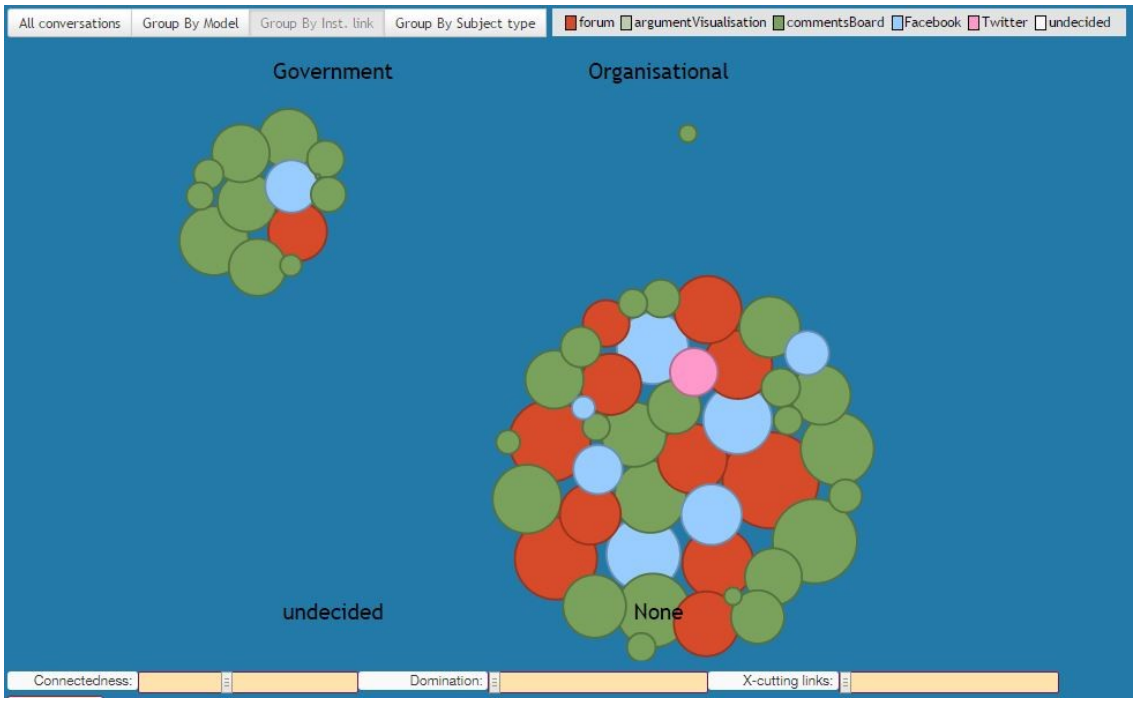

Figure 2-7: The visualisation tool, in this case showing case studies grouped by institutional linkage, coloured by interface design category and sized by overall deliberative quality

The overall process described here allowed broad patterns to be uncovered through speculative investigation, and these patterns were subsequently targeted for further, deeper qualitative analysis involving further manual coding. Patterns identified within the overall sample can then be broken down repeatedly along different axes, relating to the research variables: deliberative quality, interface design; institutional linkage; user group characteristics. Thus, initial patterns observed across the whole sample were revisited and revalidated within particular online niches in order to investigate dependency between the variables.

2.4.3 Network analysis of arguments and social networks

The analysis of the deliberative factors described above, along with the grouping and investigation done with the visualisation tool, provided various qualitative and quantitative descriptions of the data and the behaviours present and provided some important suggestions relating to the nature of the conversations and communities contained within the case studies. The analysis included the identification of connected messages, message chains and sub-threads within conversations, along with the contextual information about these connections, such as the argumentative category of each contribution, whether it was deemed to be “off-topic” and whether it contained any abusive content. The resultant data was summarised using statistics - such as the proportion of the contributions in a conversation that contained connections, or the proportion of cross-cutting exchanges within a conversation - but these statistics do not provide much detail about individual contributors or behaviours at the participant level and only

generalise across the entire quorum. In order to interpret the nature of the connections and message chains more accurately, the data was translated into the form of network maps, which represent the contributors and messages, and the connections between them, mathematically and visually. This approach allows both mathematical and interpretive analysis of the networks present within each conversation – for instance, generating insight into how equally connections are spread across a quorum using network analysis algorithms, and visually highlighting conversation strands, as well as the argumentative structures within them, instances of cross cutting exchange and other categories of content such as abusive content. These network mapping and analysis approaches differed subtly between analysis of social connections and analysis of connected content – both approaches are detailed next.

2.4.3.1 Social Network mapping

Social network maps were automatically created by the project website as the data was imported by the harvesting tool. During this process, contributors - identified by usernames - and the interpersonal connections contained within their contributions formed the nodes and edges of a network map. Each unique contributor in a conversation was represented as a single node in the network and each interpersonal connection within the contributions (replies, mentions, quotes, etc.) was represented as an edge. Thus, graphs were created containing one node for each unique contributor and one edge for each connection, so that some nodes – representing contributors who exchanged numerous messages between themselves – were connected by several edges and other nodes – representing contributors that did not make any interpersonal exchanges – had no connected edges at all. The initial maps created by the website during data harvesting were augmented in later iterations of analysis by the addition of manually identified connections (such as replies and quotations appearing outside of formal interface features) as described above. In these later iterations, networks that stood out as interesting in the earlier iterations were analysed in detail to investigate the dynamics between individual participants, so that the general patterns of interactive behaviour present in each space could be observed. In this way, some of the case studies with the highest connectedness scores from the early iterations of analysis were selected for this next phase of analysis, in order to further understand the nature of the connections present. In addition, however, some of the other interesting examples were also studied in more detail, including some of the group 1 institutionally-linked spaces which, as a group, generally occupied the other end of the connectedness scale.

Social network graphs were created for some of the case studies scoring highest for connectedness, in order to provide more detail about the extent of the connections throughout

each quorum, rather than just looking at the number of replies and quotations present. As simple node-and-edge diagrams, the networks that are created can be analysed mathematically to generate metrics – numerical indicators that represent the nature of the network. Two particular social network metrics can give some insight into the extent of the connectedness of a data set: *average node degree* and *graph density*. Average node degree is a measure of the likelihood of any particular contributor in the cohort connecting with another – the per capita connectedness, rather than per contribution. Scores range from zero upwards, representing the average number of connections per contributor. Graph density is a measure of how far the connectedness spreads throughout the network. If most of the contributors connect to others, this score will be higher, but if there are only a few connected contributors, regardless of the number of connections that they generate, scores will be lower. Scores range from 0, a data set with no connections, to 1, a network in which each contributor connects directly to all others. While these mathematical scores represented the quorum more accurately than the initial metrics generated by the website, more interpretive analysis was also facilitated by the social network maps, as particular communities within the network could be identified and patterns of interaction determined within the overall quorum. Analysis of the social network graphs, or maps, in specialist software, such as the open source software, *Gephi,* allowed these graphs to be formatted and presented in ways that made communities stand out more visually. Algorithms were used to position and colour separate communities within the overall map so that they were visually obvious, and highly connected, or influential, contributors were identified by scaling the node size by connectedness so that highly connected contributors stood out from the others. Strong connections between nodes – identified by high numbers of edges between them – could also be visually identified by styling of the edge in the graph. These graph manipulations were dynamic – they were altered repeatedly to allow layers of investigation to be combined – allowing a thorough analysis of the connected nature of conversation to be carried out.

2.4.3.2 Argument mapping

Argument mapping involves the production of a graph, or map, which illustrates how the intellectual content of the contributions within a conversation link to each other on a conceptual level. Argument mapping is subtly different to social network analysis, in that it identifies threads of intellectual continuance, focusing on structures of rational-critical debate – the message chains identified earlier – rather than the identities of the contributors involved. These maps are built using contributions, rather than contributors as nodes, and the edges of the network are the connections between the contributions. Therefore, exchanges between contributors are represented separately within argument maps as message chains, rather than being grouped into connections of various levels of strength of social network diagrams.

Where possible - depending upon the structure of the interface used by contributors to create conversation content and the presence of interface structures that represent structures of argumentation - the semantic data required for the creation of these arguments was generated automatically during the harvesting process through the use of algorithms linking one contribution to another. In most cases, however, this semantic information consisted of identification of interactions at best, and was often not present at all in the data presented by the online interfaces. Only in a few web interfaces, such as specifically designed argument visualisation systems, is a conceptual category such as cross cutting debate structurally acknowledged and in this study this category was not present in the algorithmically generated data from web interfaces. Therefore the argumentation data was largely generated by manual coding of messages during later iterations of analysis, described in previous sections. As with the identification of social interaction, this coding option was included in the manual coding interface illustrated in Figure 2-6, above, which included input fields that allowed the researcher to identify and record different categories of connections between messages (different argumentative structures, based upon a coding scheme similar to that of Graham (2008), which included assertion, acknowledgement, rebuttal, refutation and affirmation as message types, as well as emotional and humorous responses) and flags for off-topic or abusive content. This qualitative process of textual analysis allowed decisions to be made about whether the author of each message sought to provide a particular viewpoint through making an assertion, or to respond to a previous viewpoint, perhaps through rebuttal or refutation of a statement, to add support, or to comment about the message using humour, emotion, or through the abusive techniques associated with Internet “trolling”. One of the simplest metrics generated during this process is the number of contributions that represent the meeting of different points of view – cross-cutting exchanges. This indicator represents the number of exchanges between contributors with different opinions – contributions classified as rebuttals, refutations or counter-assertions – as a proportion of the total number of exchanges, and the technique seeks to measure the exposure to, and consideration of, alternative viewpoints by participants within a conversation. This measure builds upon the measures of connectedness detailed above, and adds a further layer that shows how much the highly interconnected conversations also feature cross-cutting exchanges. At the same time, messages were also categorised as either on-topic or off-topic, in an attempt to measure how much the conversation was focussed upon the initial topic, and also cases of obstruction of discursive freedom and equality, such as degrading language or curbing, so that the exact nature of contributions could be ascertained.

All of these different categorisations were represented visually within the argument maps through the use of different colours for nodes. Cross-cutting exchanges were coloured red, new

assertions and agreements green, and off-topic contributions and exchanges were coloured blue. Along with the similar network manipulations to those described for the social network graphs, above, comprehensive illustrations of arguments were generated that highlighted some of the key dynamics within each conversation.

The argument maps, created programmatically, but from data generated through qualitative analysis, provided an interesting platform, midway through the transition from large scale quantitative method to small scale qualitative method, from which to reflect on the combination of these two approaches.

2.4.4 User group characteristics

Just as the network mapping analysis described above provided more nuance to the earlier, quantitative and generalised findings, the final iterations of analysis provided yet more detail, contextualising the nature of the conversations in their surrounding environment. In these later iterations of analysis the patterns of conversation dynamics were examined with reference to the characteristics of the social community of contributors themselves, rather than just the content of contributions. Categorising case studies based upon the user group characteristics present within the community of participants involved an analysis of the identities, behaviours, goals and motivations of the contributors and the dynamics between them. This stage of analysis involved qualitative investigation into some of the goals of the sites and designers and some of the motivations and goals of the contributors, ultimately categorising these using a framework developed from a combination of previous studies. The five categories of online discussion space identified by Dahlgren - e-government, advocacy/activist, civic, parapolitical, journalistic (Dahlgren, 2005) - and the framework of democratic models of Deen Freelon (2010), discussed earlier in this thesis, were utilised in this stage of the investigation.

The components of Freelon's schedule of characteristics (2010 p. 1178) observable within this study were examples of community-specific language, ideological fragmentation, as well as those that were measured directly within this study, such as discussion topic focus and measurement of equality through domination, and the amounts of connectedness and cross-cutting exchanges, which are indicative of inter- and intra-ideological questions and responses and rational-critical debate, and the lack of which is indicative of personal revelation, showcasing, monologue and flaming (2010 p. 1179). It would be problematic in this study, however, to assign a model to a case study based upon the deliberative characteristics found and then pose that categorisation as a possible causal factor of the deliberative quality present as the latter is already a product of the former. Instead, these categorisations were applied through a qualitative analysis of each space, looking at the dynamics that generate the user

group, such as a shared interest, membership or goal. The conversational behaviours identified within each case study can then be used as a deeper layer of analysis that identifies presence of different characteristics within the overall conversation, thus helping to provide the "more precise conclusions" about user group characteristics envisioned by Freelon.

Through this process the implied goals of the user groups of the case studies were estimated: for example, participants seeking to find information (and then comment on it) as in the journalistic spaces; to give opinion directly to a representative or institution as in the institutionally linked spaces; to seek out and participate in discussion, as in the third spaces. Combining these categorisations of user goals with observations about group membership dynamics, including shared interests and ideologies, as mentioned above, allowed an interpretive description of the community present in the quorum to be arrived at, to which fine details such as combinations of behaviours present (for example the deliberate "flamers" amongst an otherwise consistent and orderly discussion) were added.

The subjective analysis of a space by the researcher alone cannot fully describe the space, the participants and the contributions with perfect accuracy, of course. To do so would require total immersion within each space and within each community of participants, a task well beyond the scope of this study. However, through interacting with representative participants of the spaces a more accurate insight into the nature of each community was gained. In addition, the behaviours and dynamics illustrated through the iterative methodology to this point were challenged and evaluated through exposure to, and comparison with, the experiences and opinions of case study participants. The next section describes how this was achieved through interviews and online focus groups with designers, administrators and participants of spaces featuring in the case studies.

2.4.5 Choosing and carrying out interviews

The iterations of analysis detailed above provided very detailed insight into the nature of political conversation in the case studies and the interaction and dynamics of the participants involved. The later iterations also provided some contextual understanding of the environment in which these conversations exist and in which these spaces are constructed. However, these illustrations were generated through analysis of the content alone, in the absence of the contributor, and often generated through algorithmic, rather than qualitative means. In order to validate and investigate further some of the important observations generated in these iterations of analysis a final iteration was included that involved online focus groups, surveys and in-depth interviews with members of the participant communities and the administrators and designers that help to shape the conversational space. Several of the key case studies were

selected for this further analysis and individuals contacted for questioning. This process allowed the significant preliminary findings of the earlier iterations to be interrogated in a more qualitative way. A table showing all of the surveys, case studies and interviews, as well as the numbers of participants involved is provided in appendix 2.

2.4.5.1 Online focus groups and surveys

In order to engage with a large sample of the participants of the case studies, focus groups were arranged, with the permission of administrators of a space, within actual conversation spaces themselves. Taking the form of a conversation thread, similar to the threads that participants used for general political discussion, questions were published in the space inviting comment about the use of the space. Topics covered by questions included the motivations and goals of contributors, the feelings of participants about different aspects of usage, experience of participants in the spaces and opinion about the design of the spaces themselves. The responses generated by these questions did not take the form of simple survey answers, however, as they generated discussion among participants, with involvement of the researcher, so that the questions were discussed by a number of participants, rather than simply answered.

Taking place within the conversation space itself, the data contained within these online focus groups was thus shaped by its environment in a very similar way to the conversations that were the subject of the discussion (with the key difference being that of the presence of the researcher). In order to get more private, personal responses from participants, responses were also requested using an online survey, so that participants could contribute anonymously, without considering the effect of their contribution on an audience made up of their fellow participants.

These two methods of research resulted in the generation of a large number of responses which provided an interesting and important insight into the participant perspective of online conversation within the spaces studied which could be added to the knowledge generated about the conversation data itself.

2.4.5.2 Interviews

To add to the data about conversation nature of the case studies, and the perspectives of the participant community, interviews were carried out to incorporate the perspectives and experiences of administrators and designers of spaces into the data set. These interviews targeted key administrative staff that had been involved in the design, creation, maintenance and administration of some of the important spaces featuring in the previous analysis. Through questioning of these individuals insight was generated into the motivations of designers – the

types of behaviours and outcomes that were expected – and their experiences of watching the space as it was utilised by a community. Questions asked about design and policy changes during operation of spaces, evaluation of spaces and participation within spaces by administrative personnel.

These interviews were not representative of the full list of case studies but were selected in order to investigate some of the more significant findings of earlier analysis. Added on to the multiple iterations of analysis that preceded them they helped to contextualise the data-driven findings in the social environment that surrounded them.

2.5 Summary

This detailed account of a complicated research methodology reflects the complicated nature of the topic under investigation. Deliberation is a function of several different conversational practices and subject to several environmental constraints. Online political conversation is a common and widespread practice that generates millions of data items every day, but it is not a single practice taking place within a single space; rather it is a diverse collection of practices taking place within a diverse collection of online niches. Therefore numerous different variables were incorporated into a multivariate analysis.

For these reasons an innovative data harvesting approach was designed and implemented, including the development of a screen-scraping tool capable of harvesting thousands of data items with structures specific to the conversational concepts under investigation. In addition social media data services and tools were utilised to augment the data set with microblogging contributions. Case studies were selected in two stages: a deductive stage in which case studies were selected to fit within categories representing each of the variables to be studied; and an inductive stage where online political conversation was harvested more organically to generate a more general understanding of how participants choose to contribute.

In order to make use of this large and diverse data set, an iterative, mixed-method, *quali-quanti* methodology was devised to investigate the phenomena on a large scale, through automated quantitative analysis, and on a smaller scale, through deeper, more qualitative methods. Over several iterations the analysis moved from initial automated quantitative analysis, to more qualitative methods, on an increasingly smaller scale, to generate in-depth understanding of the most significant case studies. This quali-quanti spectrum of analysis involved algorithmic generation of metrics, manual coding and analysis of content, social network and argument mapping and processing, online surveys and focus groups with participants and interviews with administrators and designers of spaces.

3 Interface design and conversation quality

The three groups of case studies, totalling 270 different conversations, were harvested from 57 different online spaces, each space utilising its own technical platform featuring a distinct interface design. As discussed in the previous chapter, these case studies were selected from across the web and consisted of conversations in a diverse array of participatory spaces, including online forums, message boards and consultations and social media. As such, these different platforms catered for the requirements of online conversation in a variety of ways; all providing space for textual messages to be contributed, but with different degrees and methods of provision for other components of conversation, such as contributor identification, replies and quotations, ratings and reporting tools. The technical platforms provided these features to a greater or lesser extent, some with rich, multifaceted interfaces allowing entry of many of the semantic elements of conversation, others provided very few of these, perhaps just allowing the publishing of a simple textual message with no other supporting data. These diverse architectures facilitate conversation in different ways, and the first research question of this study asked what role these interface characteristics play in the generation of conversation; what influence they have on the conversation dynamics of discussion that occurs within their constituent structures. Three hypotheses were generated in order to examine this question: the first stated that forum interfaces would increase interpersonal connections and discursive freedom within conversations, but would not be conducive to rational critical debate due to the chronological presentation of contributions and the facilitation of off-topic conversation; the second stated that non-threaded comments systems would also limit connectedness and rational-critical debate, to an even greater degree; and the third stated that the maintenance of public identity would make social networks a less connected and cross-cutting conversation space as participants seek to avoid controversy[5]. Each of these hypotheses were tested through a comparison of the conversation found within each interface design category, as part of an overall investigation into the relationship of interface design and conversation.

The analysis showed that platform design was associated in some way with deliberative quality, or at least with the amount of interpersonal connection within contributions. Firstly, there was disparity between categories of interface in the conversational metrics that they generated. Figure 3-1 shows a snapshot of the conversations in the visualisation tool[6]. As described in the previous chapter, this tool was part of the project website and created a graph in which conversations from the case studies were represented as circles, or bubbles. These bubbles were

[5] The full list of hypotheses can be found in the methodology chapter, section 2-1

[6] For an explanation of how the visualisation tool works, refer back to the methodology chapter, section 2-4-2.

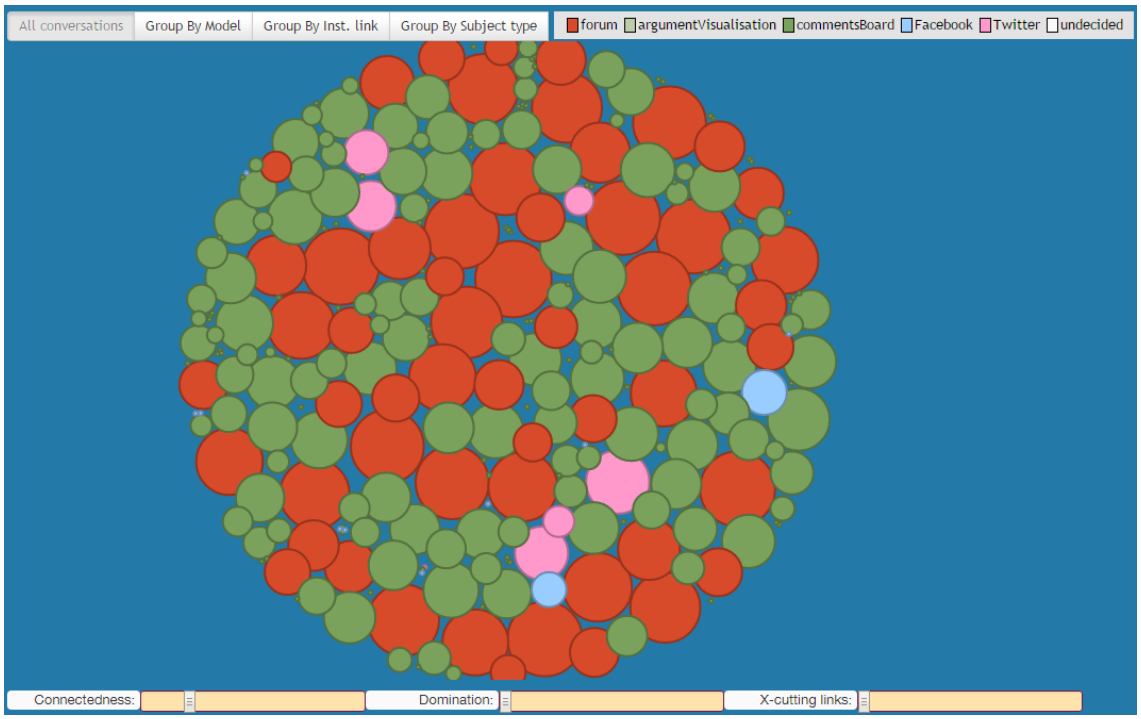

Figure 3-1: Visualisation illustrating the interface design category (colour) and connectedness metric (bubble diameter) of conversations (note zero weighting of two factors in calculation of overall quality)

coloured according to their interface design category and the diameter of the bubble was relative to a combination of the metrics of deliberative quality generated for each conversation (namely connectedness, cross-cutting exchanges and quantitative dominance[7]). The visualisations could be customised by weighting the different metrics within the overall conversation. In the visualisation shown in Figure 3-1 there are examples of both forum and message board interface types that register a relatively high level of connectedness but at first glance it seemed that examples from the forum category (red bubbles) have higher levels of connectedness (bigger bubbles) than those from the message board category (green bubbles). Indeed, in the group 1 case studies forum-style spaces generated the three highest connectedness metric scores and the other forum-style spaces also featured in the top half of the case studies when ranked by either the connectedness metric alone or the overall conversation quality metric. Some of these forum examples, such as the *Department for Communities and Local Government (C&LG)* and the *UK Climbing forum* generated connectedness scores of over 100%, indicating that, not only did many contributions contain replies to or quotations of other participants, but often contributions contained more than one of these social connections. There were far fewer forum-style examples in the group 2 case studies, but one that was included - the *UK Climbing forum* – generated the second highest

[7] The metric associated with the term "conversation quality" used in this study and its three component parts – connectedness, quantitative dominance and cross cutting nature of the conversation contributions – are defined and explained in the methodology chapter, sections 2-4-1 and 2-4-2.

scores. Case studies of conversations occurring within interfaces of the message board category registered diverse connectedness metric scores, though in general interpersonal connection was still more likely in these conversations than the conversations taking place in the third category, social networks.

Secondly, many platforms updated their interfaces between 2011 and 2014 to provide more interactive features (for example, the Guardian – as shown in Figure 3-2 and Figure 3-3, below, and most notably Facebook, both introduced threaded replies to their message boards during the study period) and the metrics generated by the case studies suggested that conversations on these platforms had also increased in connectedness over that period.

It was apparent, of course, that the relationship between interface design category and conversation quality was complex, and there was certainly not a straightforwardly positive association. There were some cases where interface design seemed to directly influence conversation behaviour, by constraining or controlling the form of participation occurring within a space – sometimes enforcing contributions to be constructed in a particular way. One of the most extreme examples of this was the *Communities and Local Government (C&LG)* forum which required all contributions to be supplied in the form of replies except for the initial, seeding contribution. However, the end product generated through use of these structures often included contributions that defied the designed context of the structures that contained them, consisting solely of statement of opinion, rather than exchange, support or challenging of argument.

Figure 3-2: The commenting interface of the Guardian newspaper website in March 2011 – a simple list of contributions without formal structures for replying to other participants.

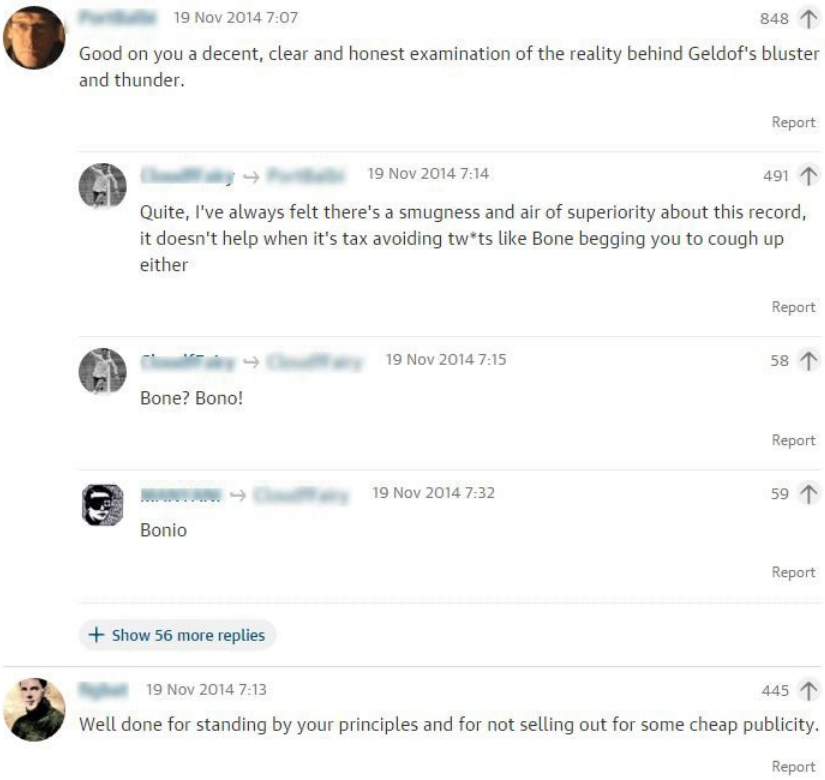

Figure 3-3: the commenting interface of the Guardian newspaper website in November 2014 – now featuring nested replies.

These two competing dynamics present within the *C&LG* conversation – the technologically structured conversation, and the subversive appropriation of these structures by participants – was clearly illustrated by the contrast between the social network map and the argument map generated for this case study. The social network constructed from the contributions of the *C&LG* case study (see, Figure 3-4 below), indicates the presence of clear network dynamics, involving two central nodes (representing two administrative user accounts) that started two sub-threads within the conversation, with almost all of the contributors connected to those nodes, as if replying to them. There are a few instances of branches of conversation beyond this, representing conversation between non-administrative participants, but these are the exception. However, the argument map (Figure 3-5) of this case study – created by manual analysis of the messages, rather than automated analysis, which involved coding of contributions according to the message type –shows that these connections to the admin nodes are not necessarily replies representing interaction in the sense of rational critical debate. Although the interface required that any contribution be in the form of a reply to another post, in reality the contributions were actually individual expressions of preference, without any

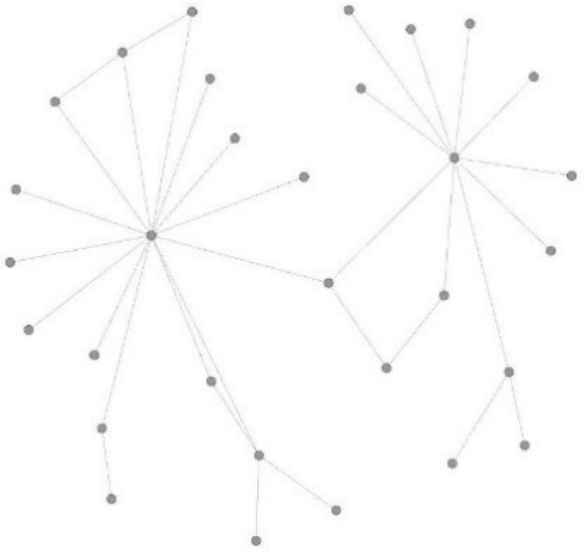

Figure 3-4: Network Diagram of the *Communities and Local Government* forum case study.

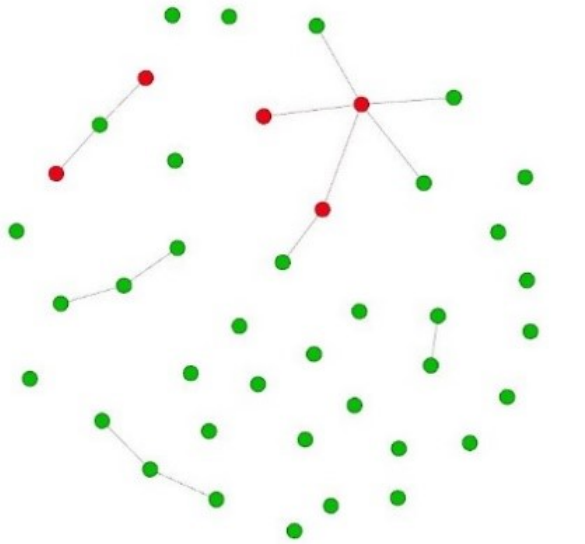

Figure 3-5: An argument map of a conversation on the *Communities & Local Government* forum, showing interaction as connections between nodes, and disagreement (refutation, rebuttal) as red nodes.

intended interpersonal exchange. As the argument map in Figure 3-5 shows, there were very few interpersonal exchanges, and even fewer cross cutting examples. In the quantitative analysis, this case study reported many replies present in the conversation due to the interface provided, but actually little real social interaction was generated.

Despite the suggested disparity in connectedness of conversation between the different interface categories, the presence of particular contributor behaviours illustrates how interface design is not the only influence on conversation dynamics. The example of user appropriation of interface structures illustrated above was reflected in 28 out of 40 manually analysed case studies. Indeed, the first iteration of qualitative analysis carried out in this study (as detailed in the preceding chapter) provided strong evidence to suggest that the interface design is not the primary influence when it comes to conversational behaviour. In this analysis it was very easy to find examples that had connectedness metric scores of zero after the initial, automated analysis (indicating that no interpersonal exchanges were present), but which actually, upon closer examination, contained numerous exchanges between participants outside of, or despite the lack of, any formal interface structures for the facilitation of interactivity. For example, the *Police Review* case study in particular is a clear example of social behaviour overriding the technical user interface, as upon closer inspection of the data it was revealed that some users were replying to each other explicitly using usernames within messages. The first 150 messages of one thread of the *Police Review (Question 2)* were analysed manually. Interpersonal connections

within the text of the contribution were identified by the presence of references to, or quotes of previous posts; five instances of interaction were noted, such as the one in Figure 3-6, below.

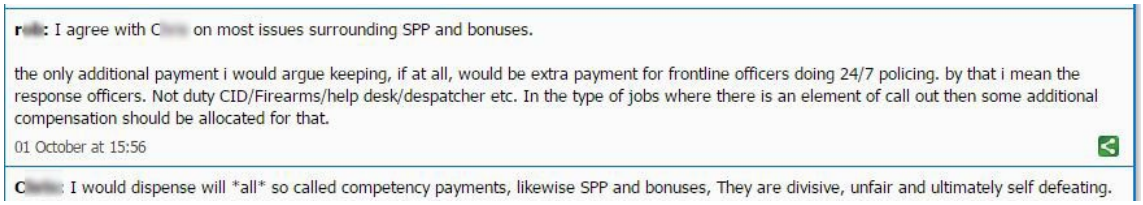

Figure 3-6: An example of a connected contribution where the interaction is identified within the message text.

It was also noted, however, that these references were exclusively statements of agreement or support, and were not reciprocal, with maximum length message chains of two messages. No instances of cross cutting exchanges were noted. It may be inferred that users are reading previous posts and therefore encountering a range of opinions, but the interactions noted occurred between messages posted within small time intervals, suggesting that contributors were responding to the most recent messages, rather than picking out contributions from the whole set.

14 of the 57 spaces from which case studies were harvested lacked formal interactive features in their web page interfaces and therefore the conversations contained within them scored zero for connectedness in the automated analysis. However, every single conversation from these spaces that was selected for manual analysis was found to contain interpersonal exchanges within the text of the messages themselves. For example, nearly half (31) of the 65 contributions in a *Conservative Home* case study from 2011 were deemed to contain evidence of interaction, such as quotations and the inclusion of previous contributor usernames; the Facebook case studies – *Number10* and *Political Scrapbook* – featured a few uses of previous contributor usernames to identify a reply (see Figure 3-7), but also evidence of rebuttal of arguments and posing of alternative hypotheses, including message chains of up to four messages in length; a *Spending Challenge* case study included 24 of 152 contributions (16%) that contained evidence of interactivity through quotes, answers and rebuttals and use of usernames to signify replies. In all cases, when manual analysis was carried out of the conversations taking place in interfaces that had no formal interactive features some, and sometimes significant numbers of, interpersonal connections were observed.

Figure 3-7: An example of in-text interactivity on Facebook

Interfaces with some limited interactive features also contained interactivity outside of the formal interface structures, as users referenced each other within message text, either to provide more social connections or to enhance the visibility of the connection. The *Guardian* newspaper comments system of 2011, from which the case studies in group 1 were harvested, had no reply feature, just a quotation feature. Examining contributions to one of the case studies manually interactive behaviour could be seen within the text of contributions, just like in the case studies above. Use of usernames of previous contributors, sometimes with the '@' symbol, or shortened versions of names clearly signify responses to previous posts (see an example in Figure 3-8).

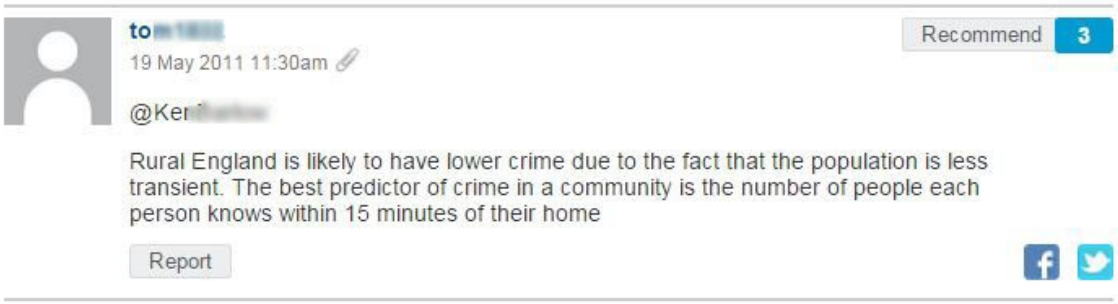

Figure 3-8: An example of an in-text connection in a conversation on the *Guardian* messageboard, utilising the "@" syntax to denote a reply to a different contributor.

The *Daily Mail* website in 2011 had no interactive features, except for rating of contributions, and on manual analysis of one conversation from this space 17 of the 189 contributions responding to one thread about "Council blacklists" contained evidence of interaction within the message text, including the use of usernames and quotations of previous contributions. Similarly, 42 extra interactions were discovered in a conversation consisting of 80 contributions on the *Leeds Forum* platform, in addition to the 22 that existed within interface structures. Unsurprisingly, much less extra-interface interaction was observed in conversations carried out within interfaces with fully interactive functionality. Typically these conversations had higher connectivity scores and the connections existed within the interface structures.

Through the manual investigation outlined here, it was clearly illustrated that the interface structures of many of the participatory spaces only partially represented the conversation contained within, and therefore the specific process of automated analysis that relied upon this representation was similarly incomplete. However, through the addition of the manual process of analysis described here, a more complete understanding of the interconnected nature of contributions was gained. Incorporating the interactions that occurred despite a lack of formal interface features, or outside of those interactive interface features that did exist, allowed a more accurate representation of relative levels of connectedness to be created. These augmented metric scores produced a different illustration of the conversation dynamics present in the case studies when they were imported into the visualisation tool in place of the initial

data. The implications of this discrepancy for the evaluation of the method are reflected upon later, in chapter 6. For now, the focus remains on the emerging patterns of conversation in relation to interface design, which are enriched by the manual analysis.

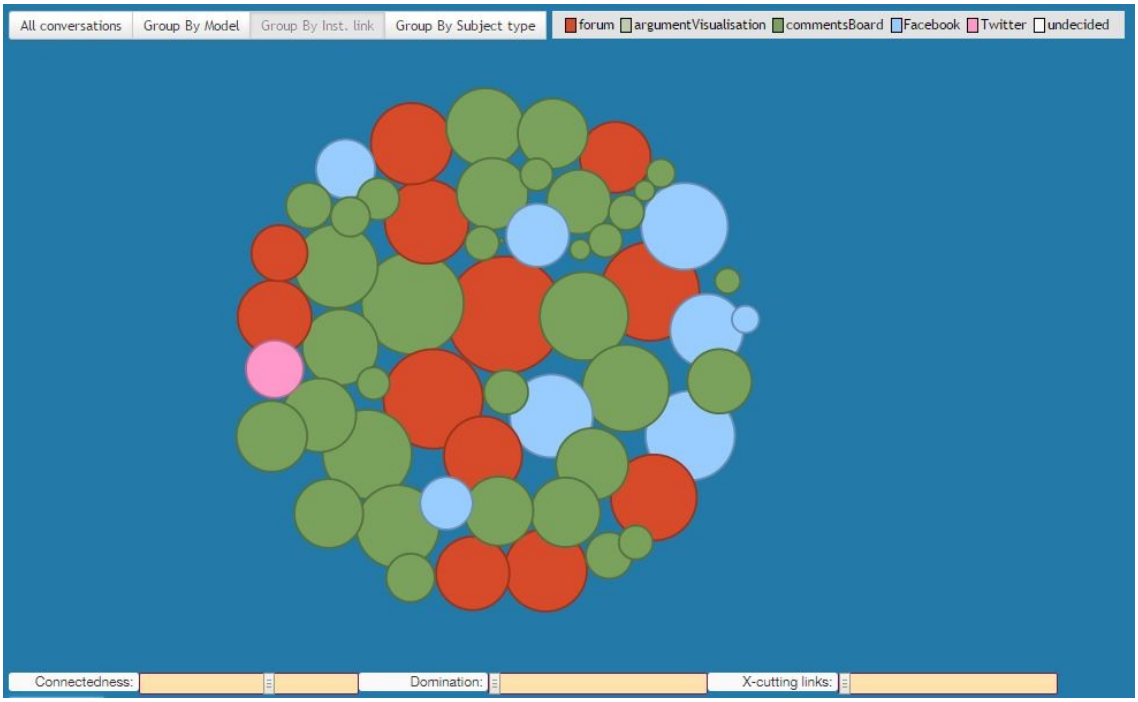

Figure 3-9: A screenshot of the visualisation tool showing the conversations during the automated analysis phase. Node size indicates the automated connectedness score, node colour indicates interface category

The updated visualisation illustrates a different relationship between connectedness and interface design (as shown in Figure 3-9). Viewing the data, with updated metrics, in the visualisation tool again highlighted forums as the interface category where the conversations with the highest connectedness (indicated by the large red bubbles in the image) occurred, but the message boards – and Facebook – were much more similar; the green and blue bubbles are much bigger, though the variation in connectedness is high in these interface categories. As the statistics show (in Table 3-1) after manual augmentation of the metrics conversations in forum interfaces did still generally score much more highly in the connectedness metric, but the other interface categories scored much more highly than initially reported by analysis of the interface.

Category	Mean saturation	Mean qualDom	Mean overall
commentsBoard	39.84	1.86	22.69
Facebook	48.56	1.79	32.16
forum	73.22	2.64	32.17
Twitter	32.03	3.40	9.40

Table 3-1: Augmented cumulative statistics following additional qualitative analysis of samples from the conversations, grouped by the four interface categories

Clearly, the initial indications that the category of interface design acts as a controlling factor of conversation connectedness was

too simplistic, as was illustrated by the agency of the participant in the formation of the conversations described above – the ability to appropriate designs and structures for specific, sometimes unexpected purposes. This participant agency overrides the agency of the interface structures, at least in relation to the development of connectedness within conversations. Thus, the results of the analysis presented here negate the first three hypotheses put forth in the methodology. Of course, this evidence of user behaviour that contradicted the intended functions of design structures was only one such dynamic that was observed that complicated the relationship between interface design and the relative presence of deliberative characteristics within conversations. Other factors, too, combine with conversation connectedness to make the relationship even less clear. As described in the previous chapter, the second metric generated for each case study during automated analysis was quantitative dominance – a measure of the relative proportion of overall contributions from each participant, as shown in Table 3-1 above[8]. The variety of different scores that were observed for this metric, as well as the different forms that the dominance took, provide some insight into why, while there was some association between interface design category and connectedness scores, it was not seen to be a directly controlling factor on the behaviour in any conversation spaces in general. It was illustrated clearly above that participant agency can override interface design in the influencing of conversation dynamics and it follows that more active – quantitatively dominant – participants may provide this influence in greater degrees due to their increased presence in the conversation. Indeed, as discussed in chapter 2, previous research has described how particularly active participants – super-participants, as described by Graham and Wright (2014) – have exerted increased, and broadly positive influence on conversation, through the performance of three particular types of dominance: the super-poster (those posting more messages than others), the agenda-setters (those that influence others) and the facilitators (a formal role of control, such as a moderator) (2014 p. 628). The relative participant roles that are apparent within the case studies, and their impact upon conversation dynamics, are discussed further later, in chapter 5. First, the relationship between the quantitative dominance observed in the initial analysis and the interface design of the participatory spaces is discussed. Forms of quantitative dominance that are particularly relevant to the discussion of platform design and conversation dynamics are facilitation and moderation. These forms of dominance are design features that are built into a participatory space. While not always part of the interface presented directly to participants, the decisions made by the designers, when they create a participatory platform and administrators, as they implement the rules and community norms

[8] Quantitative domination – a measure of the proportion of contributions that each participant made to the conversation – is explained fully in the methodology chapter, section 2-4-2.

of the space, are part of the technical infrastructure that affords the space to contribute. Such features can manifest as quantitative dominance within a conversation as facilitators repeatedly intervene and interact with other individuals present in the conversation. This metric was observed to be highest in the group 2 and 3 case studies harvested from Twitter, which were actually the largest data sets harvested, containing by far the majority of contributions, including large scale contribution by the public about political issues, as well as the institutionally linked conversations of the *Nursing & Midwifery Council* and the BBC. The *Twitter Chats* of the group 3 case studies are an example of how direct institutional facilitation of conversations can exert an influence on the structure of discussion.

Twitter utilises a simple user interface on its website, with the famous 140-character limit on contributions, but users experience the service through a plethora of mobile and desktop client software, which are often designed with specific business functions in mind. The Twitter model of "following" individuals and hash tags, and dispersing messages through "re-tweets" gives the user the opportunity to collect, combine and track authors and their conversations, as well as contacting individuals through message constructs such as mentions and replies. This has provided unprecedented forms and scales of connectivity as diverse and distributed quorums are created around common conversational markers, with many thousands of contributors able to simultaneously post messages about topics. However, despite this large scale connective potential, connectedness scores of political conversation data generally appeared to be low in this space compared to others in this study. Large cohorts were identified through common practice such as hashtag usage, but while these contributors were talking about the same topic at the same time, they were not necessarily talking to each other. While these large user groups can be identified, in reality they are likely to operate as a set of distinct sub groups.

The three Twitter data sets in group 2 (the general public Tweets relating to leaders' debates) were very large, consisting of between 6000 and 60,000 contributions, each from a widely distributed quorum. These case studies did not stand out as particularly high in connectedness in the visualisations (with scores for this metric averaging 32 out of 100), but there was at least some interactivity taking place. Content analysis showed that the comments were often individual statements, expressions of preference and opinion within a distributed conversation, with only few examples of social or argumentative interaction. Connectedness seemed to be much greater in the small group 3 set, which was constructed by institutional attempts to engage the public through Twitter. Comparing the initial metrics of group 3 Twitter conversations with those of the Twitter case studies of group 2, it seemed that these institutional initiatives were successful in generating connected interactions. In the automated analysis these case studies

generated high scores for connectedness (between 69 and 112) and fairly high scores for quantitative dominance as well (particularly for the *Nursing and Midwifery Council* (NMC) conversations which scored 4.8 and 7.8, whereas the score was 2.3 for the *BBC Radio 4* #asknhsengland conversation). These case studies were carried forward into later iterations of analysis in which these metrics were examined in more detail, and upon this closer examination a slightly different story emerged. Social network maps were created for the conversations, in which contributors were each represented just once and connected to other contributors once for every interaction that they had contributed to the conversation. When these social network diagrams were examined with a view to finding influential and highly connected individuals, a particular story of connectedness controlled by dominant structures and participants is apparent. These dominant structures and participants relate to the presence within the conversation of contributions from a central authority – an administrative account repeatedly providing direction and guidance, stimulating interactive behaviour, rather than any effect of interface design itself.

Figure 3-10 shows the network diagrams of the NMC Twitter chats – the #revalidation conversation on the left and the #newcode conversation on the right. In both examples, central nodes can be identified that are by far the most connected, with other participants arranged around them like spokes. These central nodes are the organisational Twitter accounts that are participating as facilitators within the discussion (@nmcnews – the Twitter handle of the organisation - and, in the case of the revalidation conversation the account of an expert, brought in by the organisation to provide information). Despite this organisation-centric structure, other connections can be seen that represent interactions between participants that do not belong to the central organisation. Though rare, these connections provide evidence of organic, self-

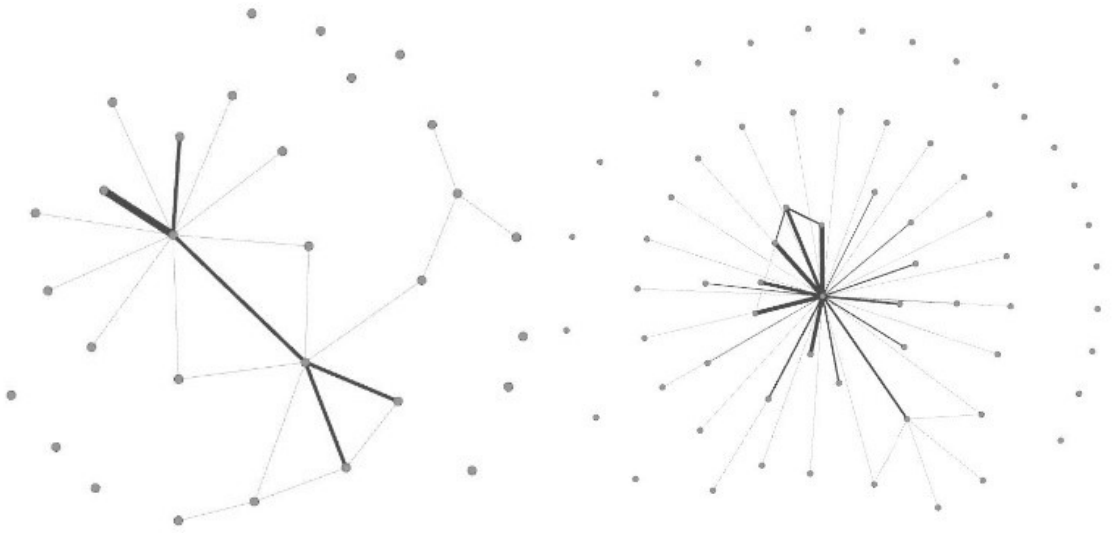

Figure 3-10: Network diagrams of the *Nursing & Midwifery Council* Twitter chats, showing a centrally-controlled structure of interaction with the organisation facilitator(s) in the centre

directed discussion between participants on the Twitter platform.

The *BBC Radio 4* #asknhsengland conversation - a much bigger data set than the NMC Twitter chats- launched during a live broadcast on national radio and elicited responses from the general public as well as the medical profession. This large, distributed quorum possibly contributed to the lower quantitative domination scores of this case study, but a form of facilitation was present nonetheless and in this example an alternative conversation dynamic appeared. Organised as a question-and-answer format feature it is not surprising to see an organisation-centric arrangement in the network map shown in Figure 3-11, similar to that of the NMC examples. However, beyond the wheel-and-spoke structure of the main network lies an "outer rim" of contributions – the tweets that were not connected to any others. Between these two structures is a small collection of connected tweets – evidence of organised, self-directed discussion springing up on the fringes of the debate. While definitely in the minority in this data set, these small chains of contributions show that the facilitated question-and-answer format of the Tweet-in can still be a catalyst for other forms of public discussion, and that this facilitation is not the only dynamic occurring within the conversation.

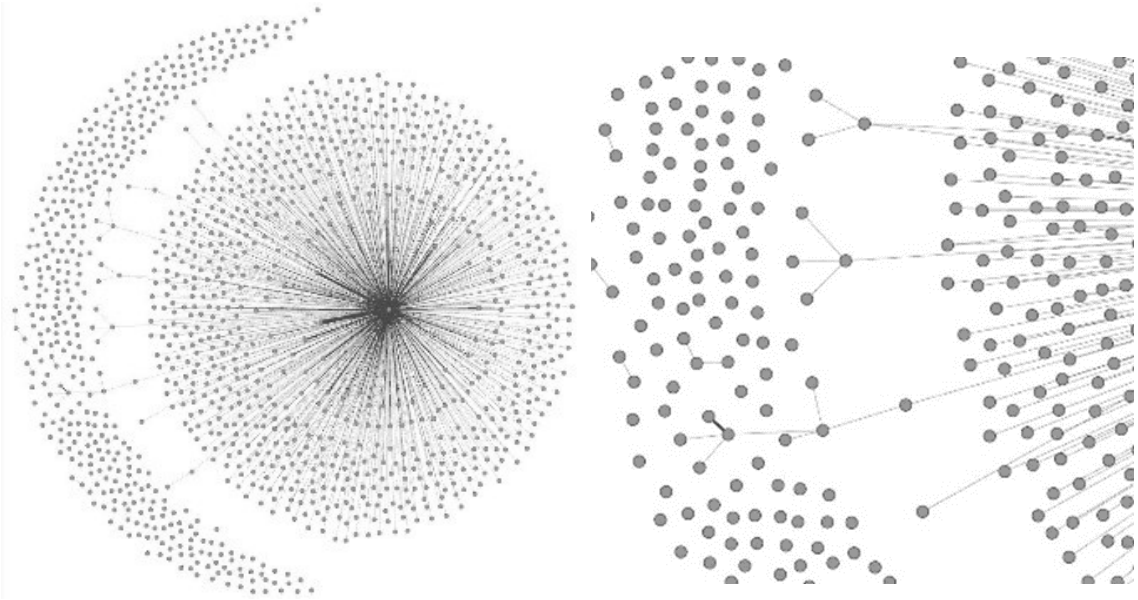

Figure 3-11: Network maps of the BBC Radio 4 #asknhsengland Tweet-in (full network on the left; close up of interactions on the right

As the analysis above shows, while the very large-scale participation that did occur in relation to topics such as the EU and Scottish referendum TV debates, interactions within this tended to be few, and between very small numbers of people. This is perhaps not surprising, as users of Twitter generally utilise client software that features interfaces designed to show small snippets of conversation, prioritising contributions from authors specified within a user's list of 'followed' people over contributions related to a particular conversation. The Twitter architecture is designed to spread messages and memes, maximising audience of individual concepts, but not

to show complete conversations. However, the institutionally linked case studies did show that opportunity exists for focussed interaction on Twitter amongst small, interested groups. Through intervention in the debate, connected conversations could be created within these subgroups in which participants are much more likely to be aware of the contributions of others. This property is one that attracted the NMC to the platform as a space for conversation, as likely contributors were easy to find:

> *"although Twitter is not our main comms channel… it is a way of reaching many members for whom we have no email address... There are already active communities on Twitter."*
>
> Digital Communications Officer, Nursing and Midwifery Council

However, rather than encouraging interaction, the NMC sought to broadcast a message through their Twitter conversations, rather than simply generate debate:

> *"Twitter is open, hashtags tie conversations together. You can reply to a question from one person, but many others see the message at the same time. Not everyone keeps track of the conversation but everyone notices our message."*
>
> Digital Communications Officer, Nursing and Midwifery Council

This form of facilitation was not restricted to the Twitter case studies, and was observed in the *Communities and Local Government* forum, of the group 1 case studies, which was initially considered to be a highly interactive space until argument mapping showed otherwise. This space had facilitators active within its conversations and these facilitators were the most active contributors. However, there was little evidence of them trying to encourage interactive debate between participants – only exchanges between themselves and individual members of the public in Q&A style – and this was reflected in the low connectedness scores of argument maps generated for the sample. This form of facilitation can create conversations with increased connectedness scores without generating the widespread interpersonal connectivity deemed valuable in terms of deliberative quality. The interactions between participants other than a facilitator that occurred within facilitated discussion were very much the minority, and in general the case studies analysed suggested that facilitation, and indeed quantitative dominance scores, did not correlate directly with interpersonal connectedness in any straightforward way. Some well-connected case studies generated high dominance scores, some the opposite, and the same noted for conversations scoring poorly for connectedness[9].

It was also observed that, when facilitation was absent, there was no evidence to suggest that the category of interface design was a directly causal factor in the generation of quantitative

[9] A more nuanced analysis of domination, including the different forms that it can take, is presented in chapter 5, which deals with user group characteristics and community dynamics.

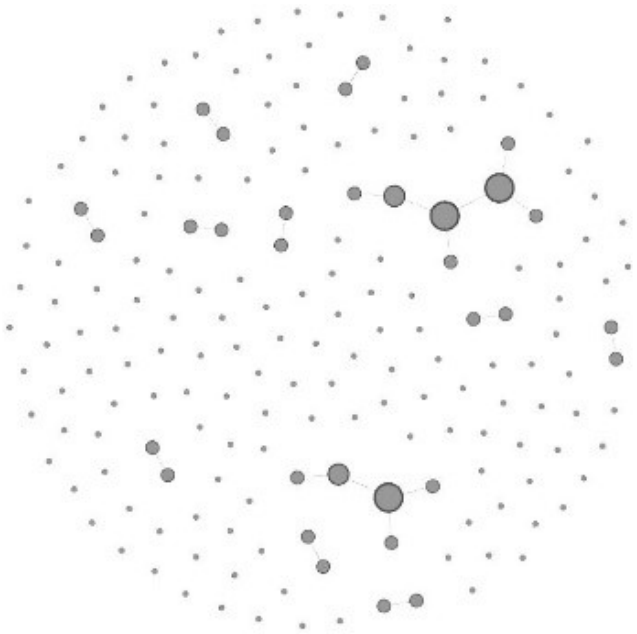

Figure 3-12: Social network map of Red Tape Challenge website, with node size indicating activity of contributor

dominance in online conversations, either. Amongst the group 1 policy-related consultations no other example of active facilitation were observed, but there were different levels of quantitative domination measured. The consultations, which were free of facilitation, examined in the *Red Tape Challenge* and *Spending Challenge* case studies, showed little evidence of quantitative domination. For example, the three most active contributors in one conversation from the *Red Tape Challenge* website contributed just three messages each, out of 194 in total. These three contributors were the same three that were the most connected, with node degree scores of 3, the highest calculated within the sample (indicated in Figure 3-12 by the three largest nodes in the network) so it was clear that these repeat contributions were connections with other users – but the small number present does little to change the disconnected nature of the contributions as a whole, as the vast majority of the contributors made no connections at all. In stark contrast, the *Your Freedom* data set, which were generated in a space that utilised a very similar interface to that of the *Spending Challenge* website and, like the latter, made no use of facilitation, scored relatively highly for quantitative dominance. For example, of the 849 contributions to one conversation in this space, 125 came from just one user, with the next most active participant contributing 56 times (see Figure 3-14). However, this quantitative dominance was not mirrored in connectedness, as can be seen from the network graph in Figure 3-13. The 100 contributions manually sampled from this data set only showed interactions surrounding a single, inflammatory post, and few other message chains. The contributions were overwhelmingly statements of opinion and while the super-active participant did make some attempts to respond to other contributions, these were not responded to by other contributors, lending further weight to the theory that many visitors to the site were one-time only participants. Of course, there are numerous possible causes for this, including the attentions of the super-participant, or the website interface making interactions and replies hard to notice.

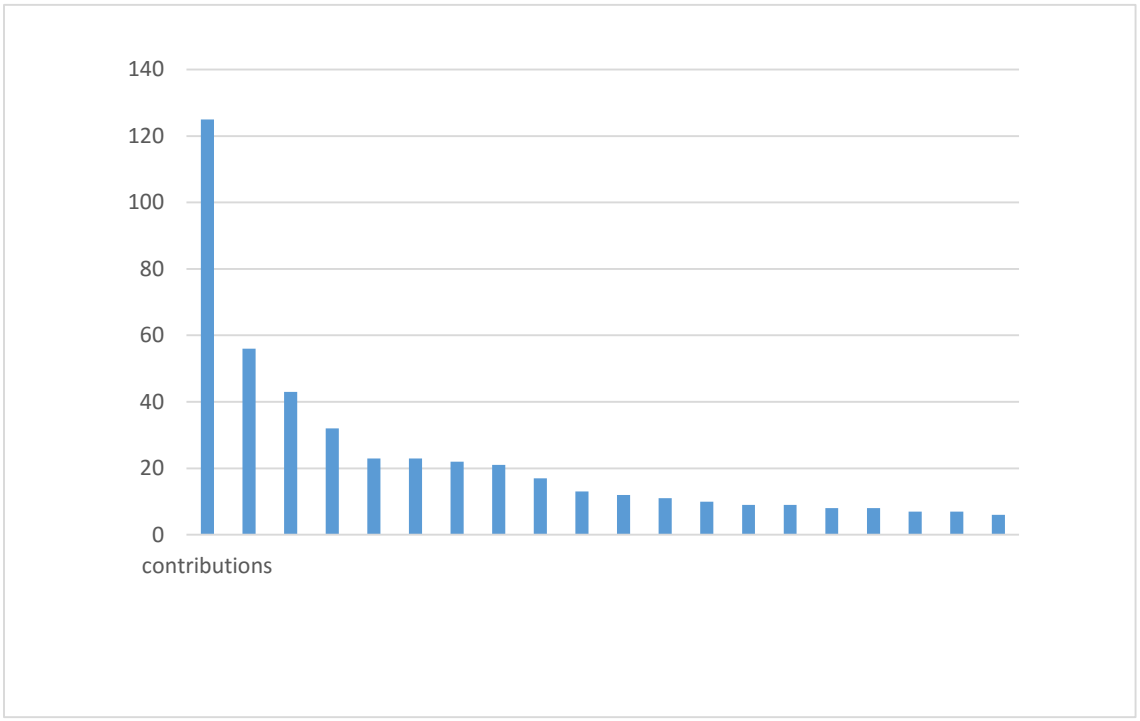

Figure 3-14: Distribution of contribution volume among participants in a *YourFreedom* website conversation

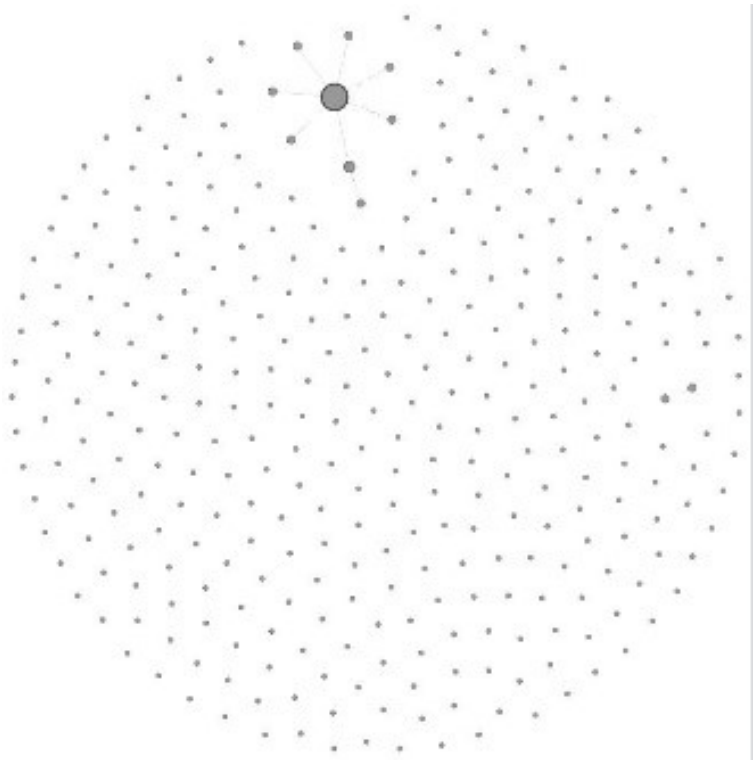

Figure 3-13: Network map of the sample from the *YourFreedom* web site, the size of node represents the number of contributions made by each

The results of the study show that simpler interfaces without interactive features did not tend to feature highest in the metrics for connectedness or cross cutting exchanges, but they did nonetheless include interactive discussion, often in the form of appropriation of the interface

by users in displays of bespoke communicative practice; negating hypotheses which predicted a direct link between interface design and connected, cross cutting conversation. The hypothesis which predicted that the requirement of accurate personal identities within participative spaces would curtail the connected and cross cutting conversation was also challenged, as some of the most connected and cross-cutting conversations occurred in spaces where participants were familiar with each other and interacted personally beyond the political discussion. Such conversation did occur in some social media spaces, and in particular the comments systems that existed in websites outside of social media spaces, but which utilised the Facebook comments plugin[10] (therefore utilising Facebook account identities and posting messages using personal Facebook profiles). The conversations with the most interpersonal connections, and the most cross-cutting exchanges, happened within spaces in which the interface design had fully interactive features, such as forums and message boards with threaded reply structures. However, there is not a simple direct link between the two parts of this relationship and the causal factor is not clear. Conversational behaviours seem to be generated or influenced by complex combinations of social dynamics, and certainly not through interface design alone; but the evidence here has shown that the interface design may help to facilitate, encourage or amplify those behaviours and is therefore a significant, if not determining, factor in the shaping of conversational behaviour. Decisions made about the design of spaces in the form of moderation and facilitation strategies have been shown here to have a range of effects, and this is discussed further in chapter 5 (which concerns user group characteristics and community dynamics). However, two observations about interface design and conversation behaviour were also made: firstly, that features, such as threading and partial display of content, can be used to shape overall conversations for reasons including the hiding of unruly participation and the presentation of an edited view of a conversation; and secondly that ratings features can have similar effects by enabling filtering of content. These two observations are discussed below.

Among the case study spaces design choices were sometimes made in response to interactive behaviour, rather than being the cause of it. For example, the *UK Climbing* forum platform started as a simple forum without formal interface features for the facilitation of interactions such as replies or quotations, but nonetheless generated very well connected and cross cutting conversations. As the discussion on the site developed, the site owners incorporated new

[10] The Facebook comments plugin is a system created by the social network company to allow web developers to add a ready-made commenting system to their website, to which contributors can post comments using their Facebook account to provide identity verification. Optionally, contributors can also share the post on Facebook. Details of the service can be found at: https://developers.facebook.com/docs/plugins/comments

designs to respond to the requirements of the site and its users, as detailed during an interview with the site owner:

> "*The forum was established in 1997 when the Internet was very young … before anyone knew what a forum was so we had few specific goals, we just had a forum where climbers hung out. It was initially intended as a potential marketing place for our businesses. It was the starting point of the site. … [Starting] early is the main reason, but continuing developing and moving the site along has also helped sustain the success*".
>
> "*There are some problems but it is relatively minor and associated with a few people. … The Pub Forum and Premier Post forum are designed to channel types of posts that are difficult to handle elsewhere. We are thinking of setting up some like dislike functionality as well to try and help with the moderation".*
>
> Website owner, UKClimbing.com

Similarly, the *Guardian* comments board has continually evolved despite having a very large and well-connected user base over the study period. Indeed, an interview with a product manager from this latter case study highlighted how interface changes were put in place specifically to control and moderate, even marginalise, interactive behaviour after the group dynamics had already been created:

> "*We try to encourage interaction between users*" … [but] "*It is more interesting from a journalism perspective if users respond to the story itself… it is hard to ensure this as users can drift off, off topic, or can start to take two sides and debate, which can become quite divisive*".
>
> "*One of the most controversial changes we made was the introduction of threading. The comments used to be presented in a timeline and some committed users would read all posts. Introducing threading was not popular with those users and we knew it (they told us). However, most readers want to 'see' the conversation, see the opinions, which is much easier to do in a threaded interface. This has created 'better' interaction – replies are contained within a thread so are away from the majority".*
>
> Product Manager, Guardian Interactive

The threading mentioned in this interview involves replies to messages being nested below the original contribution, and only a few replies are shown by default (the reader must click on a "see more" hyperlink to display other replies). Thus, when a comment receives many replies – something that happened as a result of participation strategies such as inflammatory posting, or "trolling", which is discussed further in chapter 5 – most of those replies are hidden from view by default. In this example the interface characteristics were redesigned in a way that facilitated more interaction, in much the same way as was implemented in the OpenDCN structure discussed in chapter 1 (De Cindio, 2012), by structuring reply threads in such a way as to present the ongoing exchange coherently, all in one place. However, at the same time, the redesigned

interface removed this interaction from the default view offered to the website visitor. In some places, interactive features can improve the number of connections between participants and the cross-cutting nature of exchanges, but in others, they can be used to curtail aspects of conversation. Group dynamics and interface design combine to shape conversation, with neither acting alone.

The *Guardian* comments interface also utilises a 'Recommend' feature that allows users to participate by showing support for the contribution of someone else, without necessarily writing their own contribution. Hypothesis 4 of this study stated that such features would reduce the conversation quality by reducing the amount of cross cutting exchange. There was little evidence in the findings of this study that recommendation, or rating, systems directly affected conversation in this way, as case studies in which cross cutting exchange existed in spaces with and without rating systems. However the relationship between rating systems and both the community dynamics and overall approaches to interface design may be more significant. The relationship with community dynamics is discussed later in chapter 5, but here the use of rating systems during platform design and management is focussed on. As noted in the quote from the product manager at the *Guardian*, above, from certain perspectives features such as ratings systems can actually improve the quality of discussion by reducing redundant content and providing detail about the relative popularity of arguments present within the discussion. The goal of exposure to, and acknowledgement of, other opinions and perspectives, might be served as well through this form of participation – in popular spaces where diverse opinion still appears within the contributions. As the Product Manager at the *Guardian* made clear in an interview, the majority of readers want to consume a story, rather than contribute to it:

> "*We call it the 90/9/1 rule: 1% comment, 9% read comments, 90% just want the story - 'the Guardian view'. The numbers are inversely proportional to engagement – the commenter is much more engaged. … But there is value to the reader in having comments, we have seen that in data and user testing. Users often say 'I love reading the comments but would never post, as I don't want to be personally involved'…. We know that there is something in the nature of learning the Guardian view on a subject and then carrying on to learn the views of others*".
>
> Product Manager, Guardian Interactive

The effect of these design decisions was observed in the analysis of the *Guardian* sample as the "trolling" and heated debate happening within sub-threads, as a sub-network within the overall quorum, impacted the overall view of the "story" little, but the conversation more so. In the very large data sets of the Guardian comments section, which included as many as 2100 contributions, these methods of consumption and expression provide a significant proportion

of the overall participation. In these situations, those that would not contribute through writing a comment can still contribute by adding support to the arguments of others, providing a richer 'story' that includes insight into reader opinion, but neglecting the interpersonal exchanges that make up deliberative conversation. In smaller, less popular conversations, it is likely that this type of participation could reduce the diversity of opinion, as contributors simply agree or disagree, without engaging in debate. In either case, participating through clicking rather than typing will impact on the connectedness of the individual within the conversation, and potentially therefore on the diversity of the content exposed to. Even if the conversation overall exhibits good levels of cross-cutting exchange, the individual participant themselves may be less likely to focus on and rationalise opposing opinion, avoid personal interaction and exchange, and therefore forfeit the bonding, and acknowledgement that such interactions can bring. As discussed in chapter 1, much of the literature discussing ratings systems has focussed on user feedback as a motivation for further contribution (Cheshire and Antin, 2008), reputation building as a motivation for participation (Noveck, 2010; Preece and Shneiderman, 2009; Semaan et al., 2015), or the accuracy of ratings systems as a measurement of opinion and contribution quality (Iandoli et al., 2014; Buckingham Shum et al., 2014; Klein, 2012; Muchnik et al., 2013). The evidence presented here describes a different dynamic, in which the presence of lighter-weight forms of participation may be detrimental to the creation of connected discursive communities. This could be a significant effect because, as detailed in chapter 5, such a community can be an important part of the willingness of participants to discuss reflexively over time.

Interface design, and the extension of it to features of platform design such as facilitation and moderation, are significant influences on the shaping of conversation, but clearly do not work alone. While institutional facilitation can have an effect on the connected nature of participation, and interface structures can organise, highlight or hide content and encourage, or at least make easier certain forms of conversation behaviour, more often it seems that there are local factors that exert influence. The agency of participants to override interface designs, for example, can be demonstrated through the appropriation of spaces and structures for particular communicative practices by individual or groups of users, such as the interpersonal exchanges carried out without the use of formal interface features for interaction. Sometimes conversational cultures develop that designers seek to influence or control through interface design, and sometimes interface designs are devised or chosen with the intention of fostering such a culture (it was also observed that different categories of space on the web utilised design differently, for instance - in both groups of case studies the institutionally linked spaces made much heavier use of message board interfaces than any other category of design, detailed in the next chapter). In individual cases, interesting relationships between interface and behaviour can

be observed, but these are always also related to the local environment, user group characteristics and participatory culture as well. The impact of interface design on community ties - such as the easy participation enabled by the 'recommend' feature of the *Guardian* comments board, the distributed sub-communities of Twitter and the hidden replies of nested threads - may be a significant influence on conversation quality. For as chapter 5 illustrates in detail, the process of community building and bonding between participants may be crucial in the generation of connected, cross cutting discussion amongst harmonic, but diverse quorums. Further insight into the development and nature of these community dynamics is detailed in the chapter 5. Before that, the concept of institutional linkage is revisited in the next chapter. As detailed here, institutional facilitation of conversations was involved in the generation of connected and cross-cutting conversation; the next chapter discusses the effect of the institutional presence itself.

4 Institutional linkage and conversation quality

The previous chapter discussed the extent to which the design of the interfaces provided in participatory spaces can be an influence on the conversation that occurs within them. It described how interface design categories could be associated with relative levels of connected and cross-cutting discussion, and how interface design could be used to present conversation to suit the needs of a particular space. At the same time, it showed how participants can appropriate the features designed into the interface for their own purposes, overriding the in-built controls on interaction and structuring the conversation as they see fit. Indeed, while interface design was seen to be one tool that could be used to shape conversation, participant agency manifested in significant ways in numerous examples. This agency is complicated to analyse, as human decision making relates to a number of dimensions, including the identity and social characteristics of the individual, their motivation and goals, the perceived audience and the influence of the community of fellow participants. Some of these dimensions are analysed in the next chapter, which discusses community dynamics. In this chapter the institutional linkage of a space is considered as one potential determinant of the goals and motivations of participants, as these participants may be seeking various political outcomes as they participate. As described in the outline of the methodology, in chapter 2, following examination of the work of Wright (2012c), Freelon (2010) and Cook (2006) this study defines institutional linkage as the relationship between a participatory space and an institution such as government or political party, a professional body, or a workplace; essentially a linkage with a body that holds some form of political power relevant to the participants of the space. The presence of an institution within a space – as an owner, designer, administrator, sponsor or participant – introduces perceived efficacy, through the potential of direct political input. Participation in a consultation or debate about an issue, or voicing an opinion to decision makers, may be done with the aim of affecting political change. These goals and motivations are not defining characteristics of institutionally linked spaces, of course, and the analysis first sought to clarify any patterns that emerged in the conversational behaviours in such spaces, before seeking to understand the dynamics behind them later.

The case studies were categorised into groups that represented their level of institutional linkage: first, the governmental sites, including the consultations and direct participation initiatives that Dahlgren identifies as *e-governance* and the informational sites that he describes as *e-government* (Dahlgren, 2005 p. 153), plus other examples that are overtly linked to or created by government and political parties; second, the case studies that are linked to other forms of institution, outside of formal government, including the initiatives run by health and policing institutions; thirdly, the case studies that do not fall into these two categories, existing

outside of the realm of formal politics, where no link to decision makers or representatives can be assumed. The analysis phase of the study highlighted some differences between case studies that existed within these different categories of institutional linkage. The data showed – both before and after qualitative augmentation of the connectedness metric, and the addition of the analysis of cross cutting exchanges (as described in the methodology section, chapter 2) – significant differences in conversation between the institutionally linked and non-institutionally linked spaces. The visualisation tool illustrated the suggested variation in connectedness metrics present between groups, and also suggested that a deficit was present in connectedness and cross-cutting exchange in the institutionally linked spaces (the bubbles are generally smaller in the example visualisation shown in Figure 4-1, below).

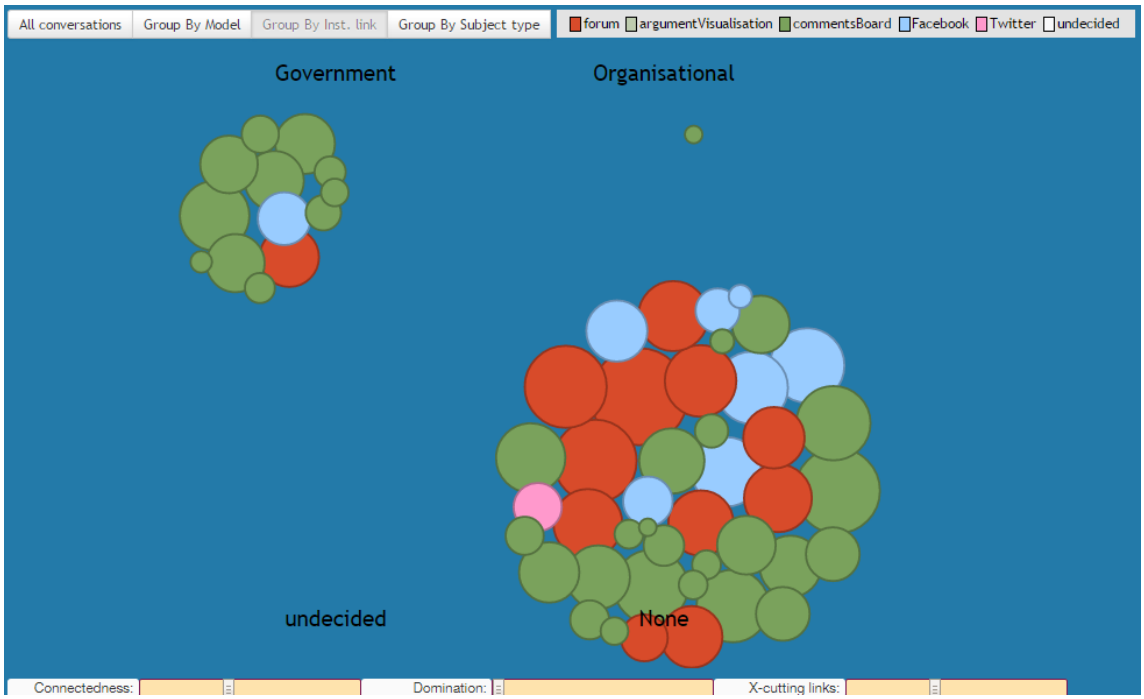

Figure 4-1: Visualisation tool screenshot showing the conversations after grouping by institutional linkage, using the augmented metrics that resulted from manual analysis of samples, described in chapter 2 (node size represents connectedness metric score)

Indeed, the institutionally linked case studies consistently scored lower than the others in the various measurements of connectedness, including the initial automated connectedness metric, the average node degree score of social networks and argument maps created after manual analysis of contributions and the graph density score of these social networks. Content analysis of many of the institutionally linked conversations showed a diversity of opinion present, but on the whole the argument maps showed very little conversational exchange between individuals.

Within the institutionally linked spaces it was possible to observe three different sub-categories, each consisting of spaces created for different purposes and each containing particular types of

Figure 4-2: One contribution to the Spending Challenge website; illustrating the form of individual expression common in this space

participant behaviour. Labelled as 'policy-linked', 'PR-style' and 'party affiliated, these are described in turn here. The first of these categories contained the policy linked consultation type spaces, including the *Spending Challenge, Your Freedom, Red Tape Challenge, Communities and Local Government* forum. The policy linked spaces were largely filled by standalone contributions that expressed a preference without engaging with alternatives, like the one illustrated in Figure 4-2, from the *Spending Challenge* case study. These communities seemed to be populated by individuals who visited and posted once before leaving for good, with a few exceptions. For example, a conversation harvested from the *Red Tape Challenge* website showed exchanges of up to seven participants, but an overall social network with an average node degree score of 0.215 and graph density of 0.001 demonstrates that the vast majority of participants make only single contributions – mostly the expression of opinion without reference to other participants (see Figure 4-3, which shows very few of the participants – the nodes – with connections to other participants). The argument map of this conversation showed even less interaction, with very few cross cutting exchanges (see Figure 4-4), in which cross-cutting exchanges are displayed as red bubbles, amongst the green bubbles representing single statements and agreements. Various different opinions were expressed by participants in the conversation, but there were very few interactions – only 16 in the sample of 100 messages. Message chains were nearly

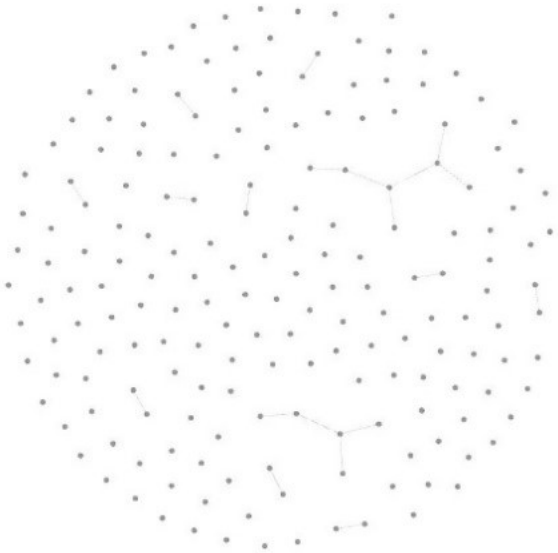

Figure 4-3: Social network diagram of the *Red Tape Challenge* case study, showing very few exchanges between contributors

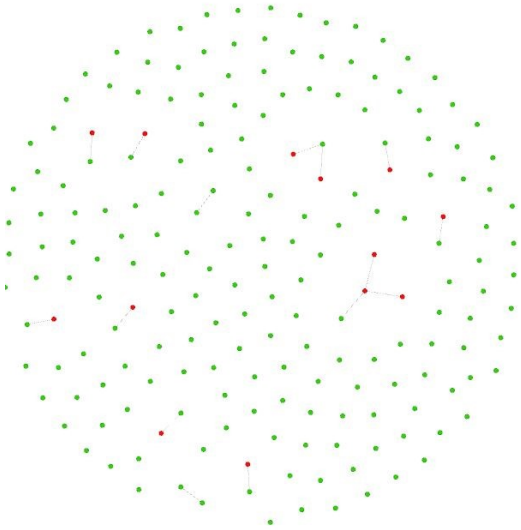

Figure 4-4: Argument map of the *Red Tape Challenge* case study, showing very few connections, or disagreements (red nodes)

always only two messages long, with a maximum of three. These interactions took the form of a rebuttal or refutation of, or counter proposal to, a statement and chains of repeated interactions did not form. The contributions were almost entirely individual responses in support of or opposed to a proposal, as if the contributors were simply voting for or against something without being willing to engage. The lack of message chains of any length suggests that contributors would not be repeat visitors, and the single replies are likely unseen by the original poster.

The second sub-category of institutionally-linked spaces contained the social network presences of institutions, such as the *Number 10* Facebook page, which were not linked to policies or consultations, but seemed instead to have been created for the purposes of public relations (PR). While there were no specific consultations or policies in these spaces on which the public were invited to provide input, the conversational behaviour seen here had some similarities to the policy-linked spaces, as very little connectedness was observed in the PR-type spaces. Participants were slightly more likely to contribute multiple times in these spaces, but on the whole this was rare and participants were highly unlikely to visit more than once to participate in a single conversation. One example that illustrate this point is one conversation harvested from the *Number 10* page on Facebook which generated relatively high scores for quantitative domination in the automated analysis, with three participants making 21, 13 and 9 contributions respectively of the 207 total. These participants interacted with each other in short message chains, as shown in the network map in Figure 4-5, but the highest node degree score was actually only 2, indicating that contributors never interacted with more than one other participant. While these participants were the most notable of the cohort, their domination was only relative within a very un-interactive discussion. Content analysis of this data revealed interested individuals commenting on news and announcements, occasionally interacting, but in general making single comments or statements to express their point of view. Neither the policy related, nor PR-related institutionally linked spaces were amongst the highest scorers for connectivity or cross-cutting exchange,

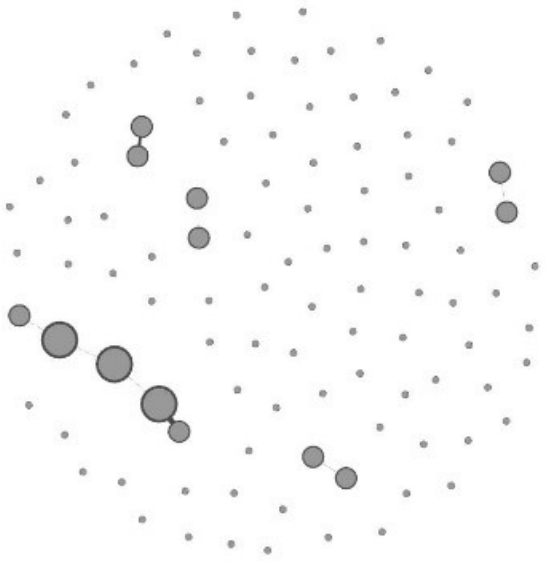

Figure 4-5: Social network map of conversation on *Number 10* Facebook page, with node size showing relative activity of contributors

but the policy related conversations stood out as examples of the least connected of all the conversations in the study.

The third sub-category of institutionally linked space contained the party affiliated spaces such as the *Labour List* and *Conservative Home* websites. In contrast to the directly governmental spaces discussed above, the spaces affiliated with political parties generated conversation that scored more highly in terms of connectedness. Both the *Conservative Home* website and the *Labour List* web site generated conversations of which the social networks present had average node degree scores above 1, with one *Labour List* conversation scoring as high as 2.87, indicating a very high proportion of interactions amongst the contributions. The social network graph density scores were relatively high in these spaces as well, with most nodes connected to the network. There tended to be a concentration of connections towards the most active nodes in the network, however, indicating that a small active core of participants contributed most of the interaction (Figure 4-6 represents the social network of a conversation on the *Conservative Home* website).

Figure 4-6: Network diagram of a conversation on the *Conservative Home* website

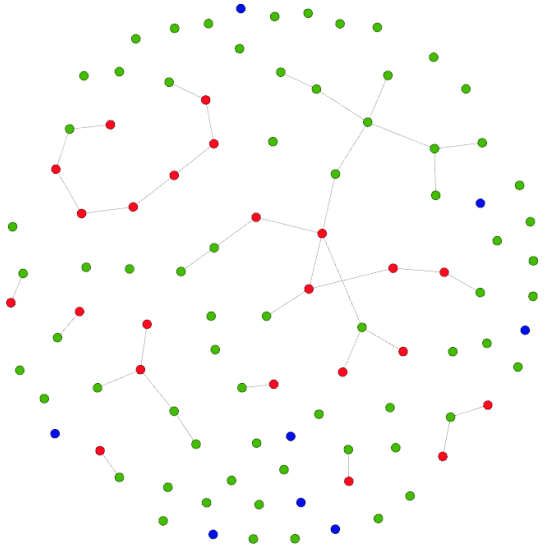

Figure 4-7: Argument map of a conversation on the *Conservative Home* website

The argument map shown in Figure 4-7 represents the same *Conservative Home* conversation, and contains evidence of much more interactive behaviour than that observed in the policy-related and PR-style spaces. While the average node degree value generated was lower than that of the social network, at 0.784 indicating a lower level of genuinely argumentative exchanges than social interactions, there were examples of long chains of interaction amidst the numerous single statements of opinion. The long chains of red nodes present in the map demonstrate chains of repeated cross-cutting exchanges in which participants are posting alternately from different perspectives. Often continuous rebuttals of opposing arguments,

there were also examples of evidence revision and research and, interestingly, there were numerous examples of chains terminating in a "green" node – some sort of agreement. This agreement is not usually the participants working out their differences and reaching consensus, but more often is a "weight of numbers" effect in which further participants try to add weight to an argument (this could lead to chain elongation, branching or termination).

The case studies included spaces that were attached to other types of institution as well the government and political parties – the *Police Review* website allowed police officers and staff to discuss organisational review and policy, and the *Nursing and Midwifery Council* Twitter chats allowed healthcare professionals to participate in conversation about the regulation of their profession. The *Police Review* website, which resembled many of the governmental examples discussed above with its focus on policy documents and the consultation process, recorded the lowest scores for connectedness of the case studies, despite the presence of interactive efforts by certain individuals outside of formal interface structures discussed in the last section. The Twitter chats – which also focussed on new regulation but from an informational, rather than consultative perspective – scored more highly in the connectedness metric, as contributors provided questions to be answered by the expert facilitator, but independent interaction between contributors was less common and took place in short message chains consisting of small exchanges of opinion. In general these policy-related spaces linked to organisational institutions contained similar patterns of conversation as those linked to governmental institutions.

The metrics, social networks, argument maps and content analysis highlighted above illustrate the differences between the policy-related spaces, PR-related spaces and the affiliated spaces of the political parties. It can be seen that institutional linkage does not have any single effect over conversation dynamics in general. As the evidence above illustrates, there are sub-categories of institutional linkage, and numerous and varied conversation dynamics taking effect within these different types of institutionally linked spaces. The policy-related spaces – both formal e-governance and organisational initiatives – seem to consist of *action-oriented* contributions, such as expressing an opinion or preference, or providing support or opposition to a proposal; in short – making one's voice heard in a space where officials might be listening. The PR-style spaces seemed to attract participation with a different purpose; serving to provide an expression of opinion, these contributions were not focussed on any consultation or other apparatus of efficacy, but instead formed a general sounding board for contributions related to varied political topics and containing different levels of engagement with each subject matter. The conversations in these spaces consisted of similar types of contributions to those in the

policy-related spaces, however; contributions that are similarly individual and lacking in interactivity. These spaces are informal spheres of expression, rather than formal spaces of action. The purpose of the affiliated spaces of parties and party members and activists is different again, attracting particular individuals and communities and generating different conversation dynamics. Contributions here were more interactive, consisting of a large proportion of genuine attempts to exchange opinion through rational critical debate. Perhaps the shared interests and ideas and the smaller quorum is reflected in the highly interactive core of the conversations in which repeat visitors grow familiar with each other and share common arguments.

This study hypothesized that neither forum nor comment board interfaces would be ideal for generating cross-cutting discussion in institutionally linked spaces, due to the polarised nature of debate that would appear there. In actuality it did not seem to be the interface that was the controlling factor in these spaces. The conversation dynamics observed were the product of a particular type of community, with particular goals, to be achieved within institutionally linked spaces. The next chapter discusses the relationship between conversation, user group characteristics and community dynamics at length, but in relation to institutional linkage, it seems that the goals of the different forms of participation are important, particularly in the action-oriented models of participation of the policy-related spaces where participants contribute in order to express their preference, rather than form it. In the party-affiliated spaces, the goals are different, and participation is inherently more about interaction. In these spaces, different dynamics become important – including forms of bonding and communicative practices – in the formation and maintenance of civil and constructive communities. The analysis suggests that institutional linkage of a space exerts an influence on the connectivity and cross-cutting nature of online conversation through the implicit goals associated with the type of institutional linkage. The influence can be positive or negative, however, and where the action-oriented mode of participation is not present, the underlying reasons for the influence are uncovered only by considering the communities and practices that exist within a space, discussed in the next chapter.

5 Community and purpose – participatory spaces and models

The two preceding chapters have outlined how interface design and institutional linkage are related to conversation structure and dynamics. With regard to the former, it was seen that in certain cases characteristics of interface design can be used to shape the view of the conversation for passive participants and action can be taken to intervene in the conversation to try to direct or inform participation. However, examples of these cases appeared within spaces in which interpersonal connection and opinion exchange were already present, and overall it seemed that interface design can be more successful in shaping or making visible interactive behaviour than generating it. With regard to the latter, the case studies illustrated how particular goals and expectations about participation – such as direct input into a consultation, personal expression or deliberation of political issues – were associated with different modes of participation in the form of different conversational behaviours. Both of these findings demonstrate that, while either of the variables may exert an influence on conversation in certain ways, the agency of the participant can be an overriding influence. This participant agency was illustrated in two related dimensions that are particularly important in the construction of conversation: firstly the nature of the quorum and the characteristics and roles of those present – including any facilitators and moderators or super-contributors; secondly the goals and motivations of these contributors. These dimensions of participant agency are the subject of this chapter, in which the interactive dynamics of participants within conversations are investigated.

As discussed in the literature review of chapter 1, numerous scholars have presented models that are relevant to these concerns when writing about the different spaces and communities that exist online, and the different public spheres that are created through their combination (Dahlberg, 2001a; Dahlgren, 2005; Freelon, 2011; Jensen, 2003; Papacharissi, 2004; Pickard, 2008). The framework of online discussion space of Dahlgren (2005) is particularly prescient here, as his e-government spaces map onto the institutionally linked spaces of the case studies discussed in the last chapter, and the action-oriented model of participation that they encouraged. The other four categories of space proposed by Dahlgren - advocacy/activist, civic, parapolitical and journalistic – also translate onto groups of case studies of this investigation, and these groupings are discussed below in relation to the conversational behaviours observed within them. The differences in conversational behaviour observed within these groups can be understood not only through the nature of the category of space in which they take place, but also through the nature of the community of participants that inhabit these spaces. Therefore the models of democratic participation put forth by Freelon (2010), discussed previously in

chapter 1, are also important here. Freelon's framework includes three models of democratic participation which are put forth in order to enable a more granular appraisal of participation than simply more or less democratic or deliberative (2010 p. 1177). The three models differentiate between the actions of self-expression and preference assertion (which Freelon places within the liberal individual model), the intra-ideological actions and practices of conformance (placed within the communitarian model) and rational-critical argument and inter-ideological questioning (placed within the deliberative model) (Freelon, 2010 p. 1178). These models can be transposed to some of the case study groupings of the analysis presented here, for example the individual personal expression that was characteristic of the e-government spaces, or the interactive and responsive exchanges of the third space forum. In this chapter these existing theories, frameworks and models are applied in combination to the case studies in order to investigate their effect and coexistence in a range of different online niches, in an attempt to add further granularity to them.

The sectors of Dahlgren and models of Freelon necessarily generalise across groups of spaces of course, and community dynamics within these overarching frameworks are also important. It was discussed earlier how previous studies have outlined the effects of different participant roles on individual conversations (Albrecht, 2006; Dahlberg, 2001a; 2001b; Kies, 2010; Oldenburg, 1999; Panyametheekul, 2011; Tucey, 2010; Wright, 2006). Some particularly important participant roles in this study are the super-posters, agenda setters and facilitators of Graham and Wright (2014), and the moderators discussed by numerous scholars (see, for example, Coleman and Gotze (2001), Noveck (2003), Wright (2009; 2006) and Tucey (2010), amongst others). Many of these roles were observed within the social networks and argument maps of case studies analysed here and were influential in the generation of the overall conversation dynamics in different ways, as is described below. The institutional facilitators of the *Nursing and Midwifery Council* Twitter chats and the *Communities and Local Government* forum, discussed in the last chapter, for example, were both observed to be influential in the actions of the overall community. These individual roles are also discussed in this chapter in relation to the previously discussed roles of the other variables – interface design and institutional linkage, as well as the frameworks of Dahlgren and Freelon to investigate the combinations of these factors exerting an influence in the different online niches studied.

The initial iterations of analysis focussed on the visualisation of case studies in groups according to the interface design category and institutional linkage of the platform. These variables were relatively easy to determine and code for each platform, and provided broad categories within which diverse behaviours were observed, carried out by diverse user groups. The analysis

required a more fine grained approach to differentiate and describe the group dynamics present in the user communities of each case study. However, the social network analysis and argument visualisation techniques employed did allow different patterns of behaviour to be identified within conversations through the presence of distinct characteristics. These were then translated into specific modes of participation – indicative of potential contributor roles and possible democratic models – which were investigated further using more qualitative techniques. Combining the metrics, maps and networks generated from these very large case studies with qualitative investigation of the specific details of each conversation space allowed the forces behind the observed patterns to be explained more clearly. In doing so, another of the hypotheses of the study is tested; that which states that the most reciprocal debate will occur in the most exclusive spaces; which will be detrimental to the level of cross cutting exchanges and reflexivity.

One clear and important finding of the analysis was that the large data sets, such as those from *Twitter*, *Youtube* and the *Guardian* website, featured mixed models of participation, with high connectedness and cross-cutting scores being generated by sub groups while large proportions were contributing entirely alone. The *Guardian* website provided some of the largest data sets within the study (containing up to 2100 contributions per conversation) and argument maps created from samples of this data illustrated pockets of conversation that adhered to different modes of conversation. For example, the first 100 messages of one conversation consisted of two sub-conversations. Each seeded by a single initial assertion on the comments thread, these sub conversations existed entirely within the specially formatted nested replies structure of the interface, described in chapter 3 (Figure 5-1 shows the overall conversation map and some of the highly connected fragments from within it). This is a common structure observed within conversations in this space – contributions that form initial assertions are sometime ignored, but other similar messages generate a flurry

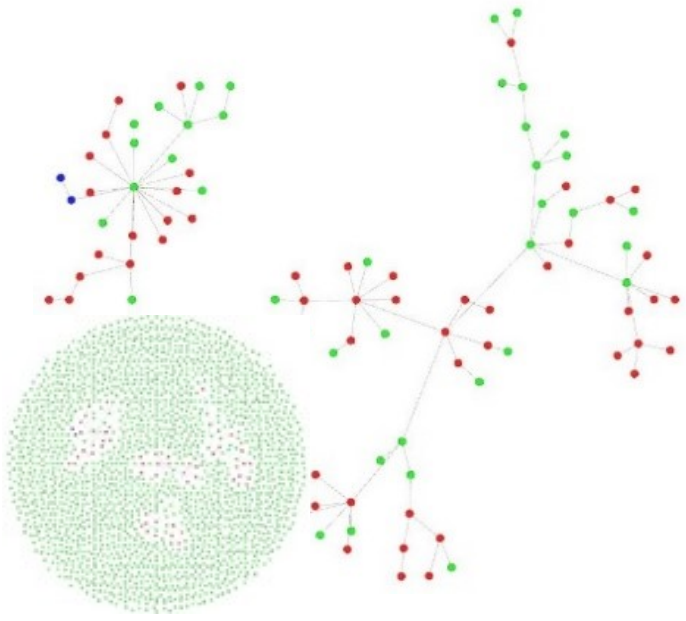

Figure 5-1: Argument maps of a conversation on the *Guardian* newspaper comments section. Connected conversations are shown in the main image, the whole cohort in the inset (as described earlier, green bubbles = agreement, red = disagreement, blue = off topic).

of connected comments, the authors of which form a connected community within the reply section that interacts as a sub group. Participants may reside in several subgroups, but the message chains do not cross over. Key contributions within these sub-conversations are often inflammatory – typical Internet "trolling" behaviour – drawing posts from multiple other contributors. Other chains consist of long strings of "green" nodes – chains of agreement and affirmation. There is evidence that some contributors are familiar with each other but most are not and exchanges are often heated in both cases – this platform recorded the highest proportion of abuse of all the samples, including 12 of the 100 messages sampled. The abuse tends to lead to counter-abuse, or the end of a message chain (however, the inflammatory poster does not necessarily exit the conversation, but often simply posts another initial assertion elsewhere, receiving new comments from a different set of contributors). There is no evidence of contributors trying to work through their differences in this sample and animosity persists. As described earlier in the analysis of interface design in chapter 3, in this case study the interface designers reacted to these conversation dynamics by trying to capture these heated exchanges in sub sections of the space, away from the less interactive initial assertions (in that chapter, the account of a manager of the space described how this decision helped to protect the "overall view" of the story, as preferred by 90% of the readers). The dynamics of this conversation are therefore the product of a combination of interface design and user group characteristics, but it was the user group characteristics and behaviour that acted as a driving force that influenced the decisions about interface design.

In these very large case studies these details tended to be associated, not with particular spaces, or interfaces or institutions alone, but with communities of participants within each space. Communities existed within the overall cohort which displayed specific, if fleeting, interactive behaviours. Across the study as a whole, however, different patterns emerged within conversations held on different scales. Amongst the thousands of contributors sampled in this study were distinct patterns of practice that existed within particular spaces. Occasionally practices – such as flaming or trolling – overlapped various spaces, but often practices were distinct within the communities of single spaces. As outlined in an earlier chapter, by identifying and quantifying several components of Freelon's schedule of characteristics (2010 p. 1178) the behaviours present within spaces can be mapped to democratic models of participation. Characteristics such as reciprocity or monologue, inter- or intra-ideological questioning and rational critical debate have been illustrated in the preceding sections through analysis of connectedness metrics, and social network and argument mapping to identify cross-cutting exchanges. Thus, the case study conversations can be analysed to ascertain how closely each

maps to the models proposed by Freelon, and whether these democratic models can explain the conversation dynamics present within them.

During the iterations of analysis in which manual coding of messages took place and social network and argument maps were generated many of these characteristics were discovered, but so were additional group practices, such as examples of shared community language, chains of off-topic exchanges and different forms of conversational dominance. This section uses these characteristics to illustrate the mapping of case studies to the liberal individualist, communitarian and deliberative models described by Freelon, but also provides exceptions – conversations involving group dynamics that are not entirely congruent with any single model. The analysis provides insight into important conversational characteristics beyond simply connectedness and cross cutting nature of exchanges that are related to these group dynamics, highlighting cases in which the nature of otherwise similarly connected and cross-cutting conversations seemed to vary, depending upon characteristics of the participant community, in particular cases that obscured the boundary between the deliberative and communitarian models.

An examination of these conversation characteristics also helps to investigate hypothesis 7 of this study, which stated that the most connected debates occur in the most exclusive spaces and that this would be detrimental to the level of cross-cutting exchange. The first part of this hypothesis - the effect on connectedness - is illustrated in the Twitter data sets of the group 2 and group 3 case studies, which used similar tactics such as the publication of official Twitter handles and hash tags to help people to discuss each topic. The very large data sets that developed around the TV debates, and which were not structured by facilitation techniques, generated relatively low scores for connectedness (maximum score of 52% for connectedness and 0.246 average node degree); the slightly smaller data set of the *BBC Radio 4* #asknhsengland conversation, which used a Q&A format, was more connected; the smaller data sets of the *Nursing & Midwifery Council* Twitter chats – again using a Q&A format but the result of selective and exclusive invitation of a community of healthcare professionals – scored much more highly (with maximum connectedness values of over 100). However, these examples do not illustrate the second part of the hypotheses, as similar levels of cross cutting debate were observed in the conversation of the exclusive community as in the in the larger, more open data sets. These conversations tended to consist largely of standalone contributions, but occasionally

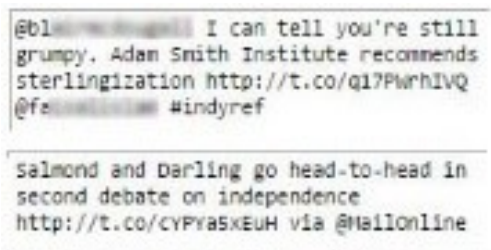

Figure 5-2: Three example tweets from the Scottish referendum TV debate data set – a statement, a refutation and an interaction

forms of interaction were observed. Examining a sample of the messages of the TV debate data set, three models of participation can be observed, as depicted in Figure 5-2. First, the most common, a standalone statement (sometimes just a notification, rather than an opinion). Second, a partisan reply where a participant simply refutes or rebuts a claim in a previous message. Third, the rarest in this data set, the highly interactive contribution where a participant directly passes their message to one or more other participants in the discussion. While these modes of participation are similar to those seen in other spaces, the huge data sets as a whole conform mostly to the first mode. As in all the case studies there are elements of interactivity and occasionally very small communities may debate, but overall the space is predominantly used for types of communication other than interactive conversation.

Freelon's communitarian model describes spaces where like-minded contributors come together and interact in a self-affirming, rather than cross-cutting, way. While a very small number of the case studies conformed to this model – the *Guido Fawkes* political blog, for example – more of the case studies that scored highly for both connectedness and cross cutting exchange were those in which an amount of ideological concord can be expected – some political blogs and the political party affiliated spaces of the *Conservative Home* and *Labour List* websites in which any disagreement present can at least be expected to be confined to ideologies of a particular sub-section of the political spectrum. Within these spaces a significant amount of cross-cutting exchange occurred (as outlined in the last section, and Figure 4-7). Indeed, the hypothesis that the 'exclusive' spaces harbouring connected but not cross cutting conversation would be defined by particular shared opinions and ideologies was false in a number of conversation spaces.

Looking across the case studies more widely the second part of the hypotheses is refuted more strongly. While the most connected conversations did occur within smaller communities of participants that shared some interest, value or characteristic, these conversations were also those with the highest levels of cross-cutting exchange. Some of the highest connectedness scores in the study came from conversations in "third spaces", the most outstanding example being on the *UKClimbing* forum. Social network analysis of three conversations from this space discovered that each contained dominant figures in terms of quantity of contribution, but the proportion of contribution was spread widely through the quorum. There were typically several participants making more than one contribution and even when there was one contributor providing most of the content, several others were highly active as well. This pattern of activity was matched by the social network data, with individual degree scores as high as 39 for the most dominant contributors (as shown in Figure 5-3). Notably, the less well connected contributors were often still connected directly or indirectly to the core of the network. The community may be dominated to an extent by an active core of contributors – super-posters of Graham and Wright – but these contributors interact with all participants and the network as a whole remains well connected and interactive, performing the roles of agenda-setter and facilitator at the same time. This core of contributors that replied to participants was noted by contributors who were well aware of participants that actively stoked conversation, as this excerpt from an interview with one forum user shows:

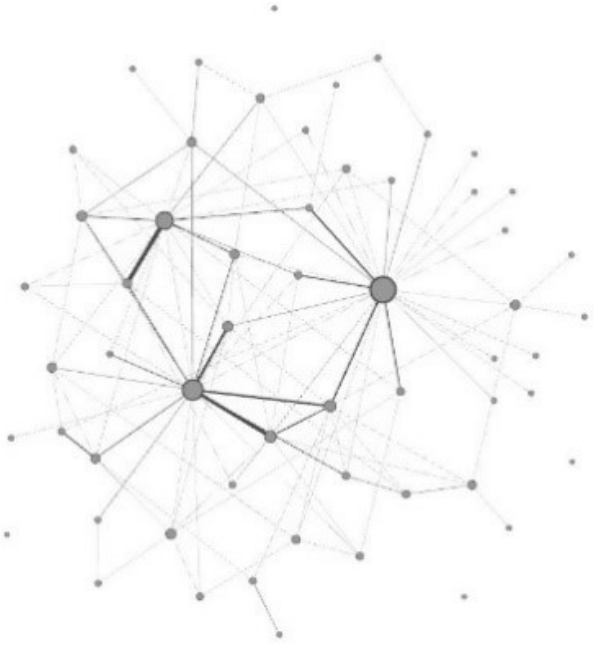

Figure 5-3: A network map of a *UKClimbing* forum conversation, showing the connectedness of the contributors present (represented by node size)

> *"I think [the popularity of the discussion about Scottish independence] was more by chance... the forum had one of the most passionate pro-Yes men in the world on it... Had he been on flyfishing weekly you'd have [found that space instead]".*
>
> Participant 1, UKClimbing forum

Indeed, the presence of particularly active contributors seemed to be acknowledged and valued by the community, as another interview excerpt illustrates:

"It's a community of which I've been a member for a long time. It's had its ups and down but there is a hard core of contributors whose views I respect".

Participant 4, UKClimbing forum

Of course, connectedness is only part of this picture of deliberative quality and one of the interesting characteristics of the *UKClimbing* case studies was the fact that this connectedness, influenced by a core of contributors that reached out to other contributors, was maintained at the same time as a high presence of diverse opinion and cross-cutting exchange. The relatively highly cross-cutting nature of these connections was illustrated by the manual analysis of argumentative exchanges – the interactions in which participants encountered opposing viewpoints – on this platform. For example, the map shown in Figure 5-4, representing the contributions to a conversation about EU membership, generated an average node degree score of 1.767, indicating high levels of argumentative exchange within the conversation. As can be seen in the map, there are long, multi-branched chains of messages with both agreement and disagreement present. Cross cutting exchanges were the most common example of interconnection, making up 67% of replies within the sample, though chains were often made of an assertion with consecutive amicable messages of agreement, with occasional breaks, or endings that were cross-cutting.

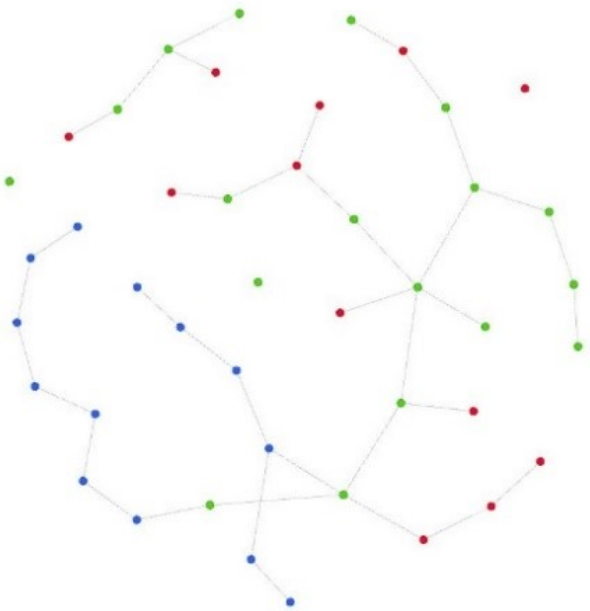

Figure 5-4: An argument map of a conversation on the *UKClimbing* forum (red dots represent cross-cutting exchanges, blue dots off-topic exchanges)

According to Freelon's models, this form of conversation is to be expected amongst participants that conform to the deliberative democratic model of participation as contributors seek reciprocal conversation in which inter-ideological questioning and response is present. Indeed, these characteristics were present within the *UKClimbing* contributors – participation was motivated by a desire to discover new perspectives and information and engage with other who have opposing views, as some of the comments from interview questions relating to individuals' motivation for contributing highlight:

"Enjoyment, occasionally to learn something. The process of producing a coherent, well reasoned and rational argument is an excellent intellectual exercise, and I usually learn more about my own position."

"I have learnt a lot about issues I didn't know about or understand the history of before."

"Fun mostly, but also correcting errors & misunderstandings (especially over the EU) as I feel strongly that the UK press poorly covers EU events & politics".

"Understanding. You approach topics differently to other people, have different knowledge of them and react to words/actions differently too. You can learn new things if the discussion is largely about facts, so understand whatever situation is being discussed better. More important than that though, I think you need to question what someone has said, especially if it seems alien to you when you first hear it, to know why they think what they do. Gains you understanding of their reasoning (if they have any!) and if it's someone asking you it makes you question your own reasoning and so improve it."

*"Debates for me normally progress into a two-way conversation within the thread with quite in depth posts where we are both trying to address all the points raised, with evidence. These interactions *are* are the experience. In a good debate, you're forced to examine your own view, modify it, find evidence to support it, and to satisfactorily deal with challenges. I might occasional change my mind"*

"The interactions make it more engaging: you're forced to consider other views, and often have your own challenged. Makes you think, makes you look at possible weaknesses in your own arguments as well as other peoples."

Various participants, *UKClimbing* forum

Of course, these quotes represent only a subset of the community, and other responses showed that there were clearly alternative approaches that some participants felt needed to be challenged:

"Mainly it's for personal satisfaction of developing my own views (in the cases where I'm arguing with someone clever and reasonable from another viewpoint). But some people's views are so harmful and badly thought out that I feel compelled to explain how reason proves their view to be nonsense. In those cases it is more a compulsion rather than for the enjoyment of the debate."

Participant 3, *UKClimbing* forum

"…and it's fun knocking down some of the more spurious, ill-informed or irrational posters!"

Participant 5, *UKClimbing* forum

These confrontational approaches provide the potential for disharmony amongst the quorum as positions are challenged, often aggressively. But despite this potential for disharmony, the quorums manage to maintain the overall harmony and cohesiveness, alongside connectedness

and a cross cutting nature, that defines the high quality nature of these conversations. Perhaps one reason for this could be an interesting feature of the argument map shown in Figure 5-4. This feature is identified by the chains of connected blue messages – the significant sub-conversations where contributions went off-topic but maintained a level of connectedness. In this conversation about Scottish independence, a sub-theme of UK-Australian migration emerged. The thread was initially sparked by an attempt at curbing – silencing the voice of an Australian observer – that initially led to an emotional exchange but moved on to become an amicable conversation about the contributors personal circumstances. This kind of off-topic exchange, wholly within a single conversation thread, amongst the other contributions, was common on this platform; indeed, off-topic conversation threads were present in a number of the most connected and cross-cutting case studies. Perhaps this feature of cordial interaction, stemming from an altercation, is one of the reasons that this community can maintain the productive conversation observed, despite the diversity of opinion present.

Communities form for a number of different reasons, some ideological, but others centred on a different bond, such as a special interest. Whatever that social bond, it seems that it is an important part of the formation of civil, cross cutting conversation. What seemed more important than ideology in the maintenance of cross-cutting exchange was the ability to accept and acknowledge differences and to respond to conflict in a way that allowed the participants affected to remain within the quorum and to remain interactive. Some of the most connected and diverse conversations were those that included off-topic conversation, including multi-message chains of off-topic exchanges within a conversation. Sometimes these were sparked by some form of discursive abuse and provided opportunity for further exchange that facilitated increased understanding and an opportunity for reconciliation. Other times these off-topic conversation provided simply an outlet for participants to discuss a shared interest, promoting social interaction and bonding between community members. The most connected and cross-cutting of the case studies, and also one of the most specialist in shared interest – *UKClimbing* – was a good example of how ties beyond the political discussion helped participants to interact; as the forum manager stated in an interview:

> *"Climbers define themselves as climbers and hence they 'feel' they relate to other climbers better. They are mostly happier asking for advice on plumbing on this forum than on a specific plumbing forum, for example, since it is a more comfortable and less intimidating environment. This has been less successful with regard the [closely affiliated forum] UKHillwalking since hillwalkers don't define themselves so precisely as hillwalkers"*
>
> Owner and administrator, *UKClimbing* forum

This sentiment was echoed in responses from conversation participants themselves:

> *"We are generally climbers first, then keyboard warriors second. There is a sense of community, a bit like having the conversation in the pub after a day on the hill".*
>
> Contributor 4, *UKClimbing* forum

This case study provides a prime example of Dahlgren's parapolitical space, in which shared cultural concepts are discussed and in which political views can emerge through debate (2005 p. 153). Participation here conforms somewhat to Freelon's model of deliberative participation, due to characteristics present such as inter-ideological questioning and response and shared community language and a general environment which "*upholds the cultivation of social cohesion and group identity above the fulfilment of individual desires*". The ties that bring these participants together are not ideological, there are no political values or beliefs shared by the group as a whole, nor even frameworks for analysing and contemplating political subject matter. Perspectives are diverse and opinions likewise, yet this community clearly form an important category of political participation through interactive discussion. This particular grouping seems to stem from a combination of democratic model, sector of public sphere and also specific user roles. Super-posters and agenda setters seem very important, but these are not distinct groups in this space. Individuals take on some of those roles at different times, due to the requirement to maintain the shared, external, social bonds that are a distinctive feature of this category of space. This observation augments the findings of Graham and Wright: while participatory roles exist, individuals don't necessarily perform them in any regular way, but rather possess the capabilities to do so and choose to perform them when deemed necessary.

Considering how these case studies fit into the frameworks of Dahlgren and Freelon can give some insight into the mixed, overlapping nature of some individual spaces. Dahlgren identified e-government as a distinct category of participatory space online: spaces linked to institutions of democratic power within which citizens can interact with representatives and gain information about government administration and services (Dahlgren, 2005 p. 153). These spaces fall within the category of institutional linkage defined within this study, populated mainly by participants fitting Freelon's definition of liberal individualism, contributing statements of preference and opinion with little regard for other contributions in the space. However, institutionally linked spaces were identified within this study that fit within this e-government category, but are distinct from each other in the purpose and goals of the website, administrators and contributors. The first is the various institutional presences in social media and other participatory spaces which have provided additional contact points for citizens to interact with representatives and public service bodies, beyond the standard departmental and service-related websites. Often created for P.R. purposes, these spaces do not infer any premises of action or efficacy, rather they offer a space for messages to be broadcast (see De

Cock and Roginsky (2014), Roginsky and Jeanne-Perrier (2014) and Kim et al. (2015) for more details on such spaces). These institutionally linked spaces offer a new category of space for citizens to interact within – a more casual, informal, unstructured space for response, and for the voicing of opinion, but not for dialogue with officials. The other type of institutionally-linked spaces in this study, the consultations and crowd-sourcing initiatives of the *Spending Challenge, Red Tape Challenge* and *Your Freedom* websites, offer citizens the promise of direct input into policy making, the opportunity to submit ideas and to comment on particular proposals in the hope of adding weight to their claim to become law, or to protest against the idea. Dahlgren acknowledged the distinction here, noting the term e-governance that has been used by others to describe this specific form of "*horizontal civic communication*" (Dahlgren, 2005 p. 153). These initiatives allow citizens to take an active part in the formation of policy and to discuss associated civic issues, but the analysis showed that they harboured the least connected, least cross-cutting conversations in this study, contributed by liberal individual participants posting simply to make a preference known. But simply assigning the liberal individualist model to participants in e-government initiatives makes a broad statement and misses some of the finer details of the relationship between some of Freelon's democratic models and Dahlgren's categories of space.

Dahlgren offers the civic and parapolitical spaces as those that are not attached to institutions, news outlets or activist or advocate groups; others have defined the closely related third spaces: interactive spaces in which political discussion may be generated by citizens, encountering each other for non-political purposes. Examples in this study include the civic spaces such as *Leeds Forum* in which a geographical commonality brings participants together, the special interest such as *UKClimbing* or *Pistonheads* where the draw is the interest in rock climbing or motor vehicles and the spaces in which political discussion emerges from a service designed for broad, but apolitical, societal activities, such as the customer discussion forum on the *Amazon* e-commerce platform. These spaces with their own unique communities offer very different conversation dynamics – the connected and cross-cutting exchanges of the rock climbers, the small and often polarised discussions on the local forums and the large and diverse conversations of interested shoppers. While the first of these can be described in very specific terms – the collegial community – the others are less clear cut, and often overlap multiple models. Specifically, these examples overlap and blur the lines between Freelon's deliberative and communitarian models, and form sub categories of Dahlgren's civic and parapolitical spaces. Differentiation might be made within these categories to separate the local, specialist and broad spheres of participant community and space.

The variety of spaces, interfaces, communities and institutions present within the case studies has resulted in the discovery of many varied practices and communities which overlap in different ways to create a diverse participative online sphere. The biggest data sets of this study – the thousands of tweets harvested in relation to TV debates or the #askNHSEngland tweet-in and the thousands of contributions to *Guardian* and *Daily Mail* news story comments spaces – exhibited a range of distinct interaction patterns within the same case study. The NHS tweet-in had a clear wheel-and-spoke network of a classic Q&A, and yet also contained sporadic bouts of exchange between participants. The TV debate sparked many individual tweets – expressions of support for one party leader or other, expressions of preference for the result of a referendum, amongst others – but there were also message chains full of exchanges among the data, formed where participants encountered each other in their Twitter client newsfeeds and were motivated to respond. The *Guardian* comments spaces contained clearly liberal individualist examples such as flaming or trolling and the associated responses, statements of preference and individual monologue, but within the pockets of replies were some very interactive, connected and cross-cutting exchanges of a more deliberative nature. These large mixed models clearly cannot be categorised within particular democratic models as they are home to several. These examples are also the spaces that might be most affected by changes in design strategy, with decisions made to encourage, impede or hide any of the models of participation present, as described above in the Guardian's treatment of 'divisive' interactions.

6 Tools and Methods: output and evaluation

This study was designed with goals of analysing a wide range of case studies, each containing a large number of contributions. The aims of the study originated from the desire to analyse the relationship between interface design and online conversation dynamics; a concept so large in scale and so diverse in nature that very large samples were required to generate understanding of large scale interaction and discussion. Samples of data from individual case studies consisting of particular spaces online can give valuable insight into that niche and its behaviour, but the dynamics between communities of participants in their entirety, analysis that can represent whole conversations on a large scale, requires larger samples. When a large number of case studies are selected, this data requirement takes on an even greater magnitude of scale. As discussed in the literature review of chapter 1, researchers in digital media, as well as many businesses of various sizes in the digital media industry, have developed and utilised digital methods that enable the collection and analysis of such massive data sets and have created processes for mining the data and generating insights into its nature (see Mayer-Schönberger and Cukier (2013), Lovelace et al. (2016), Ruppert et al. (2013) Savage and Burrows (2009), Thelwall et al. (2011) and Wu et al. (2014), for more details). However, as discussed at length earlier, these "big data" methods are often quantitative and descriptive and a gap remains between the insight generated in this way and the understanding achieved through deep qualitative work on a smaller scale (Baym, 2013; Boyd and Crawford, 2012; Clough et al., 2015; Gitelman and Jackson, 2013; Kitchin and Lauriault, 2014; Kitchin, 2014; Manovich, 2011; Van Dijck, 2014). This final research question of this study sought to evaluate the attempt made within it to unite the big data approaches with the deeper qualitative methods, to add social context and understanding to the quantitative picture of conversational structures developed on a large scale.

With regard to the requirement for the analysis of large data sets and the harvesting of whole conversations, the methods utilised were highly successful. The case study data sets consisted of nearly 140,000 contributions from almost 60,000 distinct contributors, representing 270 unique conversations which took place in 60 different online spaces. Harvesting this data – diverse in terms of the content itself, the way it was stored, the way it was presented and the level and forms of access granted to it – presented a huge challenge. Several commercial tools exist that purport to collect data from across the web; however, in reality they only collect data from selections of data sources, and these data sources are typically commercially determined[11]. The companies choose to harvest data from the spaces that will be most profitable (Facebook,

[11] Companies such as Gnip (http://gnip.com) and Datasift (http://datasift.com) provide general digital data for analytics purposes.

Twitter, popular comments systems, for example) and refrain from investing resources into bespoke collection methods for minority spaces such as local forums and niche blogs (Kennedy et al., 2014; Moss et al., 2015). Other tools exist to provide "screen scraping" services[12] that users can configure to extract custom data from pages, but these tend to be limited in the range of data structures that can be accessed. The conversation data used in this study exist in widespread locations across the web, in spaces that utilise many different interface designs and database structures. The group 1 case studies were chosen to represent each of the variables – different categories of interface design and different categories of institutional linkage – and thus were not selected from easily accessed repositories with APIs or other methods of relatively easy access. The group 3 case studies were similarly deductive selections of institutional attempts to utilise digital media spaces for public engagement. The group 2 case studies consisted of emergent conversation, which developed organically through citizen responses to political happenings. This data existed in the places that people choose to contribute rather than any central collection or space; the search engine methodologies used in the study identified the case studies based entirely on their content, and not on the suitability of the data for collection through existing services. Thus, the number of different database structures in which the data is resided, and the interface structures into which the data was loaded for display, were potentially infinite. In both of these cases the bespoke data harvesting tool – the web browser plugin-in design to facilitate 'screen-scraping' of content into a database – allowed this data to be harvested from within these diverse environments and amalgamated automatically into one database. Moreover, it allowed the data to be collected in entirety in a way that would have been impractical through manual cut-and-paste data collection or through negotiated access with all of the different organisations involved. Importantly it allowed access to data sources that are not available through existing data services. The bespoke data harvesting tool facilitated the harvesting of conversation data from web pages on a scale that would be impossible to emulate in other ways. By providing a facility for the developments of data structure profiles for individual online spaces, the harvesting of multiple conversations from each space was made very efficient – taking just a few clicks of the mouse to harvest potentially thousands of data points in a matter of seconds. The tool was also updated to provide this harvested data in the form of a simple file download rather than the direct entry into a database that was used in the

[12] Screen scraper services such as www.screen-scraper.com and Outwit (www.outwit.com) are software that allow users to define data within web pages to be harvested and output in some form.

study, in order to make it useful for other researchers. This open source tool, freely available for download from the project website, forms one of the major outputs of the project[13].

The harvesting tool does have its limitations, of course. While the tool allows virtually unlimited numbers of pages of comments to be harvested, there is a limit to how many contributions can be presented through any standard web page that can be crawled by a harvesting tool. Data sets consisting of tens of thousands of contributions, generated by the platforms of mainstream media organisations, were not always presented using standard web pages, but rather on social media platforms, particularly Twitter. The use of the Twitter Application Programming Interface (API) and associated data services[14] allowed these hundreds of thousands of related tweets to be harvested automatically, in a format that could be integrated easily with the rest of the data set. Harvesting data from a diverse range of online sources did, however, introduce problems of comparability into the research. Due to the disparity in structure and interfaces between the online spaces, there were disparities in the forms of data collected and the processes involved in the collection. For instance, while many of the case studies were harvested directly from specifically designed websites, the group three case studies were harvested from Twitter. As the number of different interfaces used by contributors to access this service is high, and the contributions are not presented in any central space other than the Twitter databases it was not possible to collect the data in an identical way to the method used for other case studies. Instead, the Twitter API was utilised and the analysis therefore relied upon the data structures designed by Twitter to represent the conversations. As such, the data contained only interpersonal interactions defined through the use of Twitter usernames and "@" symbols within messages. It is possible that members of the public participated in the conversation without using the connections listed above, expressing opinions and perhaps even conversing with other Twitter users through means such as mutual 'following', but these public-private conversations have no markers to identify themselves, so would not usually be included in a systematic harvesting protocol, and were not included in the sample in this study. It is possible, therefore, that the conversation was wider and more connected in these spaces than the automated metrics displayed, though given the constructed nature of some of the conversations such as the *Nursing & Midwifery Council* Twitter chats, the effect is likely to be smaller in these than in the general open topics of the TV debates. In the case of the conversations harvested through the bespoke Firefox plugin, this effect is removed, through the capability to harvest

[13] The *Conversation Scraper* is available at http://www.chrisbirchall.me.uk/deliberation/. See appendix 1 for documentation related to the download and use of the tool; see also chapter 2, section 2-2-5 for details of how the tool was created.

[14] The Twitter API and various commercial services provide access to the Twitter databases for research purposes. For more details of this, see chapter 2, section 2-3-2.

entire data sets. Of course, this is also a factor of the more manageable size of the conversations in the spaces targeted by this tool. Had websites contained data sets as large as those found on Twitter, a limit to the feasibility of the plugin may have been reached.

Concerns about exhaustiveness of digital data drawn from online sources is echoed in the literature. Baym (2013) and boyd and Crawford (2012), for example, discuss the fragmented and exclusive nature of internet data. They question whether data on this scale can ever be complete and inclusive and whether social data can ever be represented completely in digital form; such concerns are apparent in the methodology utilised in this study. The deductive sampling method of the group one case studies was deliberately exclusive, as conversations were sought that fitted into the analytical framework. The inductive sampling procedure used to generate the group 2 case studies started the process of 'digital' exclusivity in the methodology of this study, by utilising technologically-mediated methods of data sampling. Although the sampling technique used in this study mirrored mainstream internet access methods through its use of Twitter, any methodology to measure "what is happening on the internet" is bound to be problematic. As detailed by Baym (2013) in her study of the online music industry, the internet consists of multiple autonomous fragmented spaces – there is no single source of internet data. The approach taken in this study, in the inductive sampling of the group 2 case studies, was to use the mainstream tools available – the tools available to citizens when they search for information and opportunities to participate. The data used were certainly only a sample and undoubtedly other interesting case studies exist. However, within those samples used nearly all of the conversations were harvested in their entirety without exclusion of any participants (the Twitter data sets are the exception, as described above), through the use of the *Conversation Scraper* harvesting tool.

Regardless of the relative completeness of the data sets harvested using the bespoke tool, questions persist for both those and the Twitter data sets relating to the question of how these technological methods of data production are actually constructing the population that they represent. When data is tailored to fit technological structures – both during its production and afterwards, during storage, maintenance, analysis and representation – it can be curtailed and altered, and it is very difficult for researchers to know, or to ascertain exactly how this process is carried out (Baym, 2013). As this study has shown, user agency can override this effect in the data production stage, maintaining patterns of communication despite the lack of technological structures to specifically accommodate them. However, the presence of these patterns within the data is only visible when the data is interpreted in such a way as to allow inclusion of understanding beyond the technical structures. Once the data is translated into storage

architectures and then presented through APIs or analytics services, the processes included in its creation become opaque and the human processes of production can be obscured. The stages of processing and structuring that occur in some of the technological process of data collection, storage and presentation, for instance those of the Twitter platform, including replies only which include the "@" symbol, before the possibility of manual interpretive analysis is problematic – the data is technologically shaped before the human researcher gets to see it. These implicit limitations within the process of representation of human communication through technological means must therefore be accommodated within the analysis process designed for this type of research.

Like the collection of data from across diverse online spaces, the task of analysing these very large data sets was challenging, with the sheer scale necessitating automated and algorithmic, rather than manual forms of data processing. This automated analysis was built into the harvesting process through the incorporation of the live database into a project website that contained algorithms for the generation of metrics and a visualisation tool for the presentation of the findings. The automated method of generation of metrics created a range of scores across the case studies that provided some insight into the conversation dynamics present within each space and illustrated a few key trends. The initial outlay of time that was required to develop the software, tools and algorithms that were implicit within this approach enabled the actual data collection and initial quantitative analysis to be done at a very large scale with very little effort. With the tools complete, conversation-specific data could be harvested quickly, easily and on a scale not previously available. The visualisation tool that was developed within the project website provided a method for grouping and dividing, aggregating and examining this very large data set. This approach allowed the data to be analysed across several different axes, by differentiating between case studies based on the categories of analysis in the study – interface design, institutional linkage and democratic model of participation, as well as connectedness and quantitative dominance metrics. This tool provided some very useful insight, such as the difference in design preference in different spaces and the lower connectedness scores in institutionally linked spaces.

As detailed in previous chapters (notably chapter 3, discussing interface design and conversation), there were some very obvious anomalies within the representations of the data sets in the initial quantitative analysis. For example, some of the case studies generated very high scores, or scores of zero, for the connectedness metric that were later shown to be inaccurate. In many case studies higher quantities of interaction were discovered using manual coding, and this effect was significant, as manual analysis raised some samples from a

connectedness score of 0% to as much as 51%. Looking at the case studies from group one that scored zero for connectedness it is clear that in some cases interactive behaviour has been underestimated by the automated phase of the methodology due to its design being based purely on interface structural characteristics and neglecting the human agency of participants. Thus, communicative agency of the participant allowed them to override the interface structures, displaying behaviour outside of the model designed for in the participatory space, and therefore outside of the range of behaviours that the automated analysis algorithms were designed to understand. For instance, the *Police Review* website offered no formal interface features for interpersonal interaction, lacking reply or quotation features, so it was unsurprising to see a score of zero reported for connectedness in the automated metrics. However, closer analysis uncovered social interaction present, despite this lack of interactive interface features. Similarly, many of the very low scores reported by the metrics of the initial analysis phase were generated due to the lack of structural socially interactive features in the interface designs of the websites from which the data was collected. The *Police Review* case study in particular is a clear case in point of social behaviour overriding the technical user interface, as closer inspection of the data reveals that some users are replying to each other explicitly using usernames within the text content of the messages. There were several other case studies that utilised interface designs that contained no interactive features and similarly received connectedness scores of zero in the automated analysis (*Financial Times*, *Sky News* and the *Croydon Echo* news sites, *Open Europe*, *Autonomous Mind* and *Tall bloke* blogs and the *Lib Dem Voice* message board. Upon closer analysis, however, there was a significant amount of interactive behaviour found when the case studies were sampled and analysed manually. Interactive behaviour was observed in all conversations, including the use of usernames of previous contributors, or content indicating a reply to a previous post (see the example in Figure 6-1, below).

Figure 6-1: A message on the *Lib Dem Voice* web site, the content of which clearly indicates that it is a response to a previous message

There were also examples where the automated method had inflated the interactivity, generating overly high connectedness scores due to structural interactivity reported by interface characteristics (such as the attempt to shape conversation by limiting opportunities to contribute to the form of replies to other messages). The cause of this discrepancy is exactly the

same as for the under-reporting – the agency of the contributor to communicate in monologue and personal expression, even when doing so within interface structures designed only to accommodate interactive behaviour (for example, in the case of the *Communities and Local Government* forum discussed in chapter 3).

These examples provides the first hint of the possible interface- or technologically-determined results that are generated by this automated method of analysis. The data generated and used in the initial phase illustrated the structural connectedness of the conversations as afforded by the technical interface of the website in which they are contributed, which proved to be different in many cases to the true connectedness of the conversation as understood through closer analysis of the content. This automated method allowed relatively rapid analysis of large and diverse data sets, but is an example only of how the web page components of the interface present the contributions. For this reason the true nature of some of the conversations taking place in certain spaces online was misrepresented when analysed by the automated method alone. Beyond the technologically mediated shortfalls of the automated analysis phase of this study, lies a more serious criticism of the digital analysis of human communication. Scholars have repeatedly questioned the validity of the use of metrics for the use of representing human behaviour due to the constructed nature of the resultant conclusions (Baym, 2013; Boyd and Crawford, 2012; Clough et al., 2015). We learn about human use of technology only what the technology is designed to tell us. In the initial stages of this study this was certainly true – the erroneous zero scores of certain platforms were prime examples of the predetermined output of digital automated methodologies that boyd and Crawford claimed were changing the very definition of knowledge (2012 p. 3). However, this study sought to understand how people were interacting within these online structures. It sought to understand the dynamics that occur when citizens choose to embed their communications within these technologically mediated structures; to perform their communications through them. As Clough et al discuss, big data methods are not simply a new way of generalising across populations on a larger scale, but are actually a methodological embodiment of an emergent conception of sociality (2015). Moreover, the study reflects many of the mainstream methods used to understand public behaviour online, and public political opinion online (see Ceron et al. (2013), Roginsky and Jeanne-Perrier (2014) for examples), and thus serves not just to critique the digital methods employed, but to illuminate their implications for citizenship. In that sense it adds to the growing knowledge in the political arena about the ways that citizens are represented by online participatory spaces and associated digital methodologies.

Crucially, however, this study sought to mediate some of these problems through the use of a mixed method approach, and the subsequent iterations of increasingly qualitative analysis that accompanied the automated stage proved to be vital. Despite the clear flaws in the generalised metrics that were implicit in the automated analysis, the algorithmically generated summaries of the very large data sets did provide procedural benefits to the overall methodology by providing rough estimates of the patterns apparent in the data. The initial observations provided direction for the later analysis iterations, pointing to interesting metrics to be investigated further, including those requiring closer inspection and validation through more qualitative means that produced enhanced metrics to be utilised in regenerated visualisations that reflected the updated data sets. In the quali-quanti iterative approach of this study the later stages of investigation allowed more detailed analysis of each case study to be carried out, on a much smaller scale, but utilising manual, qualitative techniques, including content analysis of samples of contributions. Thus, the interconnectivity that existed in some case studies outside of interface structures was investigated in later iterations of analysis, and this follow-up analysis proved vital to the generation of understanding about the real conversation dynamics that lay within the textual content of each message, rather than just those implied by the structural interfaces of the web pages.

The iterations of the analysis phase also provided opportunities for further quantitative and qualitative analyses, notably in the form of argument visualisation and social network analysis of the data sets. In this process the coding of messages was based upon manual, rather than algorithmic analysis. This qualitative data was then added back into the quantitative processes of network analysis and mapping to provide a combination of algorithmic efficiency and qualitative accuracy[15]. This analysis proved to be crucial in the understanding of the conversation dynamics, providing much richer analysis of community formation and discursive exchange than is allowed from the metrics alone. It was the social network analysis that identified dominant participants and sub-communities of the conversations; the argument visualisation that identified the off-topic exchanges of the highly connected conversations, as well as the cross cutting nature of discussion in certain spaces. This phase of analysis was directed by the earlier phases of quantitative and manual analysis but provided an extra layer of detail which proved to be highly influential upon the final conclusions. Manovich (2011) described the problematic translation of digital metrics into social values, and this charge might be aimed at the processes described here, too. However, the embedding of qualitative methods within the analysis helps to add nuance to the resultant knowledge. The wide variety of

[15] For more detail about the network analysis methodology, see chapter 2.

analytical methods used in the study were required to make full sense of complicated, multi-community interactions, conforming to multiple different models within the same space. This iterative structure which started with large scale analysis, moved on to smaller scale verification of patterns using manual coding, and then included mathematical processing of the improved metrics introduced the qualitative understanding of communication into a large scale investigation of online interaction.

The final analysis stages which included interviews and surveys were equally important and influential, providing the required depth to the qualitative understanding sought. This vital last step of analysis allowed insight into the processes that shaped the conversations from a personal perspective – that of both designers and contributors. This phase of analysis provided a verification method with which to evaluate patterns observed in earlier iterations, as well as allowing explanations to be made for some of the patterns found in the data, providing evidence of the reasons behind certain behaviours and designs. These final qualitative stages allowed the patterns generated through quantitative research to be understood and interpreted through the lens of the study of interpersonal, human communication and the efforts of individuals to influence it.

Given the wide range of variables affecting the conversation dynamics of the case studies, developing an automated process to measure connectedness, cross-cutting nature and quantitative dominance – combining these to form an overall conversation quality metric[16] – is ambitious. But the sheer scale of the conversational environment of the participatory web makes automation essential for studies seeking to gain a wide view of online behaviour rather than a deep understanding of a small sample. The initial quantitative approach tested here has succeeded in facilitating the collection of a large and diverse data set – a significant success in itself. It has generated descriptive statistics about the case studies within this data set and the set as a whole and has provided analytical tools with which to investigate it further. With the project tools available in open source repositories, the techniques are also replicable, enabling easy access to further large scale research in the future.

There is definitely some knowledge to be gained through this method, not least the insight into the nature of automated, metric-rich analysis that is becoming prevalent in the digital economy. However, it is clear that it does not work in all cases and knowledge gained will always be bound within the technical constraints of the medium. The technologically-determined premises of

[16] The metric associated with the term “conversation quality” used in this study and its three component parts – connectedness, quantitative dominance and cross cutting nature of the conversation contributions – are defined and explained in the methodology chapter, sections 2-4-1 and 2-4-2

success in the automated phase results in these inevitable flaws. However, when the technology conformed to the expectations required for success – such as in the spaces where interactive features were plentiful and manual analysis did not identify a deficit in connectedness scores – the approach worked well. Beyond those cases, the qualitative iterations of analysis were a vital part of the methodology, correcting the misinterpretations and assumptions of the automated analysis. The iterative approach proved vital in other ways than just providing further levels of analysis. It also directed the investigation – one phase of analysis informing the next as emergent hypotheses and conclusions became clear. Setting out to find out what is happening in a particular scenario requires the flexibility to analyse emergent trends as issues, as well as testing predetermined hypotheses. In this, the iterations provided great value as further phases of analysis were generated based on the findings of the previous phases, and emergent trends were investigated to a deeper extent. The iterative, quali-quanti method utilised in this study allowed very large data sets to be analysed, but also allowed parts of that large data set to be analysed more deeply to generate the understanding that is gained through close qualitative analysis. The multiple iterations of analysis were used to gradually move from the broad and shallow illustration of conversations online to the deeper and more specific, with each iteration directing the next towards the data of interest in an exploratory approach in which emergent outcomes were embraced. The methodology sought to bring together big data approaches and in-depth qualitative analysis through these investigatory techniques and did so successfully. Any single component of the approach would have yielded a narrower and more incomplete view of the conversation dynamics within the study time period, but together, real insight into the nature and the causes of conversation dynamics was gained.

7 Conclusion – new methods and models

This study took place during a unique setting; post-financial crisis United Kingdom, led by a coalition government into a period of public austerity. The study set out to understand how citizens of the UK, subject to all of the different pressures of the time, utilised internet technologies to discuss politics. It sought to investigate the relationship between the technological, political, social and interpersonal forces that shaped the resultant conversations, and to identify where, why and how a more deliberative form of conversation arose. The preceding chapters have described the context and goals of this study and laid out in detail the methods and results of investigation undertaken. They describe the mixture of methods utilised and the iterative structure designed to combine them effectively. They describe the specific definition of deliberative quality, or conversation quality, used in the study, which prioritises connectedness and cross cutting exchange but also allows an examination of equality of expression and conversation focus. The analysis produced an illustration of the scale, form and location of a wide variety of online political discussion in the UK. This chapter summarises the results of those iterations of analysis, focussing the findings on the five research questions and hypotheses of the study. It describes how the initial quantitative data generated from the automated, big data methods were combined with a deeper, manual analysis of the data as well as contextual insight gained from surveys and interviews to build a robust theory about the relationship between the variables under investigation. Previous chapters have also reflected on the emergent outcomes of the study - the knowledge generated outside of the research questions - and put forth an argument about the nature of public participation in political conversation in the context of a contemporary digital media landscape.

The mixed methods, iterative investigatory approach used in this study proved to be successful in generating two research outcomes. The first, represented by the first four research questions outlined in the methodology chapter, was a means of generating knowledge about large-scale dynamics in online conversation; the second, encapsulated in the fifth research question, led to a critical appraisal of the role of algorithmic analysis of human interaction and social phenomena on the Internet. With regard to the latter, the techniques developed for large-scale, conversation-specific data collection enabled the assembly of data sets that fit some of the definitions of “big data” by encapsulating entire conversations, without the need for sampling (Anderson, 2008; Snijders et al., 2012; Wu et al., 2014). The tools used for this purpose persist, for the benefit of the research community[17]. The bespoke automated analysis provided headline

[17] The bespoke tool built for the purposes of harvesting conversation data from websites - the *Conversation Scraper* - is available at http://www.chrisbirchall.me.uk/deliberation/. See appendix 1 for

metrics that described these data sets in an efficient and practicable manner. The automated analysis was, of course, clearly flawed in many ways. What the initial automated method gained in precision through whole population analysis rather than sampling, it lost through reduced accuracy due to poor interpretation of the content by the algorithms employed to analyse it. These flaws clearly illustrate the pitfalls of analysing technologically mediated data without questioning the inherent imperfections of the translation of complex human communication into much more limited technical structures, as described by many scholars previously (Baym, 2013; Boyd and Crawford, 2012; Clough et al., 2015; Gitelman and Jackson, 2013; Kitchin and Lauriault, 2014; Kitchin, 2014; Manovich, 2011; Van Dijck, 2014). However, when these flaws are taken into account and mitigated for in the design of a broader research strategy, the methods can be employed as useful components of a robust framework. By adding layers of smaller scale, gradually more qualitative methods, many of the flaws of the original analysis could be corrected. Through more qualitative analysis of samples of the larger data sets, more accurate patterns could be used to target areas of interest; patterns observed at the macro scale could be evaluated and further interrogated in more depth. Like any methodology, errors in data collection, sampling, generalisation and misinterpretation must be acknowledged and mitigated for. In the large scale data–centric approach to understanding online communication, those mitigations, and indeed much of the valuable insight came from the smaller scale, more in-depth later iterations. However, without the large scale initial iteration, these important data sets and the interesting patterns running through them would not have been discovered. This study has illustrated that when mass human communication is combined with technological communications infrastructures, mixed methods approaches can prove vital to understanding large scale phenomena, while at the same time interpreting the human meaning that lies beneath. Algorithmic big data approaches can paint a broad landscape, but we have to look much more closely – using qualitative methods – to understand the people and practices represented within it. The implications for the wider world beyond this study are clear: large scale automated analysis of social phenomena – the measuring of the social through metrics – is fraught with problems related to exclusion, representation and accuracy. Many examples exist of commercial applications for big data methods – sees Mayer-Schönberger and Cukier (2013) for a summary, or Lovelace et al. (2016), Thelwall (2011) and Wu et al. (2014), for specific examples – and the use of big data methods in the business world is both widespread and profitable (Russom, 2011). Jose van Dijck discusses how these methods can be utilised in numerous situations, with commercially valuable results (2014). However, van Dijck goes on to

documentation related to the download and use of the tool; see also chapter 2, section 2-2-5 for details of how the tool was created.

question the assumption that this is evidence of the universal utility of the method. Challenging what she calls the "compelling logic of dataism" she describes how these success stories leave unanswered some critical questions about the usage of the methods (2014 p. 202). As van Dijck explains, the discovery of actionable knowledge is the success in itself. Commercial applications often strive to make predictions, or to segment populations using analytics to generate commercially valuable insight. However, they do not ask, let alone answer, the questions about why these segments, or phenomena might exist or come into being. Such understanding, accessible only through qualitative approaches is lacking in these applications. In the world of politics these shortcomings are cast in a sharper light, as the sociological contexts and influences are a vital part of policy creation. Long term political planning requires an understanding of these underlying phenomena, but as boyd and Crawford describe, there is a drive in government to use big data analytics for civic purposes such as traffic planning or criminal policing, in the same way that it is used to produce more targeted advertising or to develop products (2012 p. 14). This study has provided further evidence of how this lack of methodological nuance can create real problems in the space between citizens and representatives by simplifying the notion of the public into metrics. Combining the problems outlined by van Dijck, boyd and Crawford with the other critical shortcomings outlined in the last chapter (those of the exclusiveness of big data methods and the inaccurate representation that they can produce), these problems are exacerbated. When trying to understand the wants and needs of citizens and their place and role in society, it is critical that the big data approaches are enhanced with the more human-focussed, qualitative research that develops real understanding.

The analysis presented here was built on a methodology that sought to ameliorate some of these problems through the incorporation of qualitative approaches to verify the dynamics observed in the metrics, and it was largely successful in doing so. Returning to the first research outcome mentioned above, the overall methodological approach facilitated the generation of valuable insight into online political conversation. Discussing the first research question of the study, chapter 3 focussed on the relationship between interface design and conversation dynamics, questioning whether the deliberative quality of conversation could be influenced by the interface structures afforded by the website in which the conversation was taking place. The analysis indicated that the forum category of interface design was the most likely to be utilised in the spaces scoring most highly for conversation that is both connected and cross-cutting – two of the metrics used as a specific measure of deliberative quality (prioritising exchange of opinion and exposure to alternative perspectives, as defined earlier in the first chapter of this thesis). Spaces that utilised highly interactive interface designs generated higher connectedness metrics than others, but conversations with deliberative characteristics existed in interfaces

completely devoid of interactive interface features, too. Interface design was seen to be a significant, if not determining factor in the generation of connected and cross-cutting conversation. Nor was the relationship between interface design and connected, cross-cutting conversation a direct one, as other variables of participant community characteristics and institutional linkage were involved. In many spaces interpersonal exchanges and interactions occurred within interfaces that were not designed to accommodate them, as participants exercised their agency to interact despite, rather than because of interface characteristics. In others, interactive behaviour developed within a community and remained unchanged even after the inclusion or expansion of interactive interface structures. Rather, the agency of the participant to appropriate interface structures to suit their own needs was more influential than the agency of the technology itself. Presentation of conversations through interface features was used more effectively in response to particular conversation dynamics, rather than to generate them, to shape the output in the view of the non-contributory participant, or reader (the "story" as described in the *Guardian* case study). This observation is important, as evidence that designers can exert influence over conversations; some power does reside with the owner of the space, but this power can only be exerted in certain ways in certain spaces, as will be discussed shortly. However, this human agency itself is not completely independent and was influenced by a number of different factors. The case studies analysed in the preceding chapters showed that different types of participatory space elicited different motivations for participants and these manifested in different behaviours. Moreover, different community structures and different roles played by participants within these were also influential on the communicative behaviour observed. Therefore to understand how this participant agency influences conversational behaviour these interconnected social dynamics must be considered.

The agency of the human participants to appropriate interfaces to suit their own needs is of course subject to every dimension of the human condition – temperament, knowledge, motivation and inspiration, goals, strategy and all of the other properties that the human intellect possesses. However, the study was able to isolate some factors that seemed to be intrinsically linked to the types of behaviours that participants in the conversation spaces chose to exhibit. Chapter 4 described the investigation of another variable of the study – the institutional linkage of the space in which conversation takes place. It is easy to imagine how the institutional presence felt within these spaces might feed into the motivations and goals of a participant, and make them feel more or less at ease in the contributory space. The analysis did indeed show that this presence exerted an influence on the participants as distinct modes of action were observed in different types of institutionally linked spaces. Party-affiliated spaces, such as the *Labour List* or *Conservative Home* websites, contained conversations between

groups of participants that were relatively highly connected and contained a degree of cross-cutting exchange, as different opinions were put forth. Spaces created for informational, or public relations purposes, such as the *Number 10* Facebook page, contained conversation that was much less connected and cross cutting, consisting of mainly expressions of opinion as contributors sought to have a voice heard in a space monitored by representatives, power-brokers or decision makers. In the policy-linked, consultative spaces, this dynamic was amplified, with the least connected and cross cutting conversation being observed in such spaces. Here, the preferred method of participation was solely the expression of preference – interactions and exchanges were rarely present when participants sought to have direct input into policy related issues. These spaces and modes of participation map well to the frameworks provided by Freelon (2010) and Dahlgren (2005), but add further granularity by highlighting specific models in specific places, within the broader groupings described in those earlier studies. The institutionally linked spaces exist within the category of space defined by Dahlgren as e-government and the modes of participation there map well to the liberal individual model of participation (in the policy-related conversations and PR-style spaces) and the communitarian or deliberative models of participation (in the party-affiliated spaces) proposed by Freelon, based upon the presence of characteristics such as preference expression, personal revelation and monologue in the former, and intra- or inter-ideological questioning and response and rational critical debate in the latter. However, neither the e-government space nor the liberal individual model of participation of the frameworks of Freelon and Dahlgren are able to describe the institutionally linked spaces in sufficient detail for two reasons. Firstly, it was clear that in the policy-related conversations, the spaces that suggest the possibility of direct intervention in law-making (e-governance, as described by Dahlgren), a more extreme version of the liberal individual model exists. An action-oriented model better describes this participation, where individuals contribute purely to propose, support or reject policies and policy proposals, without any desire to discuss them with the greater cohort. Secondly, the PR-style presences of institutions in social media and other mainstream online spaces represents a different approach to interaction with the public. These spaces offer neither services to the public nor open access to government information. Rather, they provide a space for the publishing of a story, edited and curated for political purposes, and the public contribute in response to that, rather than for the purposes of direct influence or for discovery of information.

These models of participation were not constrained to the institutionally linked spaces. As discussed in chapter 5, these models of participation were manifest by various forms of community dynamics in each of the spaces examined. In spaces such as *UKClimbing.com* and *pistonheads.com*, in which participants congregated due to a common interest other than

politics (climbing and motoring, respectively, in these two case studies) conversations were characterised by Freelon's deliberative model of participation and mapped directly to the *parapolitical* spaces described by Dahlgren. Indeed, this shared interest, completely separate from the political topics being discussed seemed to be a crucial part of holding the quorum together as participants sought to maintain social bonds despite political differences. Interestingly, other features of conversation were observed that were associated with highly connected and cross cutting conversation. Significantly, the most connected and cross-cutting conversations were also those that featured chains of off-topic messages most prominently. Sometimes started through political disagreement and disharmony in the conversation, other times by the mention of a shared interest, these off-topic threads seemed to be acting as a mechanism for repairing social ties and maintaining bonds between participants, otherwise at risk through disagreement and sometimes uncivil contributions within conversations. Graham (2010) and Basu (1999) have both illustrated how social conventions and interconnections such as humour, or "banter" can act as the glue that bonds communities together. These shared communicative practices help to create personal bonds, strengthen shared identity and opinion and repair social ties that have been frayed. Illustrated in this study is an alternative form of this social glue, in the form of off-topic sub-threads. In the communities in which shared interests and membership of social communities, external to the topics being discussed (such as the climbing community of the *UKClimbing* forum) are the defining characteristic of the quorum, political and ideological differences were common and conflict often arose. However, numerous occasions were observed where this conflict was discussed and dealt with through off-topic discussion, within the main conversation, which sometimes led the parties involved back to the original discussion in an amicable way. Striking examples existed of truly reflexive exchanges in which disparate opinions were shared and reflected upon in a deliberative manner. These by no means made up the bulk of the contributions of the forum, but certainly contributed to building the community that existed in this space that consistently generated the most connected and cross-cutting political discussion.

The larger conversations – in some of the mainstream spaces such as national news websites like the *Guardian*, contained mixed models of participation – liberal individual modes such as expressions of preference and personal opinion and flaming or trolling, but also deliberative modes as participants sought to interact and engage. Similar patterns were observed in the very largest case studies, the Twitter conversations which consisted of three distinct modes of participation – the statement and the aggressive rebuttal of the liberal individual model and the hyper-connected mode of the deliberative model. As was illustrated in the *Guardian* news website case study, some of these modes of participation were subject to attempts by the

designers and administrators of the space to hide, curb, or otherwise influence their use. It is in these specific cases that the agency of the technology – the interface structures – comes back into focus. The presence of specific conversation features that support important community dynamics, such as the off-topic message chains of the deliberative third spaces, or specific design choices made in response to the presence of particular modes of participation, illustrate where design can have an effect by curtailing the very space- or community-specific features and behaviours that exist within very locally defined online niches. Thus, by combining the findings of the three research questions discussed above, the fourth can finally be tackled through a discussion of the impact, or promise, of interface design within specific niches of the web. Using the models of participation described above, some of which were particularly prominent in institutional spaces, it is possible to draw some linkages between the expected models of participation of each space and the structures designed into the interface of the space. Furthermore, the analysis suggests that some of the interactive features of interfaces in the case studies analysed above may be of more use within spaces associated with certain models of participation and less useful in spaces associated with others. For example, structures for interpersonal connection that aim to enable and encourage rational-critical debate may be wasted in spaces where contributors predominantly utilise an action-oriented approach to express support or opposition for a policy related proposal; features such as 'liking' or ratings systems may be less important (or even counter-productive from a deliberative perspective) in spaces populated by tight-knit, sociable communities where conversation threads are consumed in entirety, rather than filtered for popular content.

The research above shows that design can have significant impact on the way that conversation is presented to, and consumed by participants. In the large data sets of the *Guardian* newspaper comments section, mixed models of participation exist in separate sections of the conversation – often single posts without connections to others, but also regular bursts of interactivity that cause sub-threads of replies to form within the conversation. These were spaces that were subject to attempted control through interface design, as was evidenced by the decisions of the *Guardian* team. Some of the dominant forces shaping the conversations were those of interactive techniques – such as inflammatory comments ("trolling" or "flaming"), and the large number of replies that they generate. Specific design decisions were described that were made in order to hide or marginalise these interactive bursts, or at least to provide the casual reader an easy method of ignoring them. In these large data sets that grow and develop rapidly, editorial control is seen to be essential to make the overall story of the contributions more accessible to the reader – or more specifically the news consumer rather than the active, contributing participant. But these design techniques are related to the interactive nature of the

conversation as they can influence the amount of attention that is given to any particular contribution. Within a quorum that is prone to interactive techniques such as flaming, design choices such as these can help to structure content to fit a particular purpose; but that purpose is not to encourage connected and cross cutting debate, it is to present particular selections of comments on a news story.

Another design choice that was utilised in these large data sets was the rating of contributions and the display of their popularity. As discussed in chapter 1, scholars have described some of the effects of rating systems on conversation such as increased motivation to contribute when feedback is received and the accessibility, but perhaps exclusiveness of filtering systems based upon ratings (Buckingham Shum et al., 2014; Cheshire and Antin, 2008; Iandoli et al., 2014; Klein, 2012; Muchnik et al., 2013; Noveck, 2010; Preece and Shneiderman, 2009; Semaan et al., 2015). This study proposed in hypothesis 4 that the lightweight participation methods enabled by this approach – allowing participants to contribute by expressing a preference through support of an existing contribution – would stifle rational critical debate by reducing the need to construct an argument and reducing connected and cross cutting interactions. The examples analysed in this study show that in the large data sets of the *Guardian* and Twitter, this hypothesis could be true, but is rendered less important by the powerful social dynamics already in place. It is hard to tell whether these spaces would be more connected and more cross cutting without the ratings systems, but with design decisions already being made to control excessive interaction in order to present the information more clearly. Indeed, these ratings systems can be seen as part of that effort, as they allow the reader to identify 'popular' contributions from across the huge discussion. This is a very different construction of public discussion than that which prioritises equality and inclusivity, but perhaps in spaces that attract large numbers of contributions and participants – too many to be interacted with in in their true numbers – and prone to aggressive and inflammatory participative approaches, such design might be necessary in order to make the data set useful for the majority.

Similarities exist between these large mainstream examples and the attempts by institutions to reach out to mass audiences. The PR-related spaces, not linked to any type of action or promised efficacy, exist to provide an opportunity for publishing stories and announcements – an alternative to the news media – and to elicit reaction to those messages. The aims and objectives behind this are a matter of discussion, but the engagement of interested citizens provides the potential for a discursive space in which preconceived action-oriented modes of participation are less prevalent. Such a space can be prone to misuse (illustrated in one of the case studies by a number of Syrian government advocates posting large numbers of abusive or otherwise

unhelpful messages in the comments facility of the *Number 10* Facebook page), and the examples analysed in this study contained only a small amount of interactive discussion. Here perhaps, interface design may hold some promise of encouraging rational critical debate between participants. Commercial participatory platforms, which serve business models that rely upon numerous and repeated visits from users, already exhibit features to engage and retain participants. For example, on Facebook and Twitter, notification systems are employed to alert contributors when a fellow participant responds to content that they have posted previously. Such a feature can help to avoid the pattern of single visits to a conversation, seen in many of the institutionally linked spaces. However, the PR-style social media case studies – such as the *Number 10* Facebook page – still did not contain particularly interactive discussion. Despite the notification systems and the motivations related to reputation and ratings systems described by scholars (Cheshire and Antin, 2008; Noveck, 2010; Preece and Shneiderman, 2009; Semaan et al., 2015), the diverse, distributed and disconnected communities of participants likely to populate these initiatives seemed unwilling or unable to form the kinds of bonds that have been shown to be important in the development of interactive and civil debate. In these cases, the motivation for interactive discussion must be provided in another way if it is to occur. Institutional involvement to provide purpose is required to turn the occasional contributions of personal expression by liberal individualist participants into a more interactive discussion conforming to a more deliberative model. Here lies the paradox of participation in institutional spaces – the need to engage the participant, perhaps through the promise of efficacy, but also to encourage forms of participation other than the action-oriented model that this potential efficacy seems to provoke.

Preece and Schneiderman propose the *Reader-to-Leader* framework to describe how users first encounter social media in the capacity of a reader, and gradually become more active in the space by contributing small amounts before going on to collaborate with others and assume leadership roles (2009 p. 2). The authors stress that the content of a space is crucial, to engage users in the first step – reading – and to build up a community of readers that might go on to interact (2009 p. 17). Resources that encourage participation must also be provided, including instructional guides as well as interactive interface features (2009 p. 18). However, the jump from contributor to collaborator is the most difficult step as this requires trust and bonding between participants. The evidence provided in this study suggests that it is here that the important role of facilitation seen in the third space forums and party-affiliated spaces might provide an important missing link in the institutionally linked spaces. Skilled facilitation which reaches out to participants may be the key to encouraging interaction. According to the *Reader-to-Leader* framework, engaging content is the first step to creating active communities, and is

therefore an important consideration for institutionally-linked spaces. Facilitation strategies might be a crucial next step as an active measure to encourage interactivity in order to build bonds and trust between participants. Intervention by the interface designer, in the form of interface structures that attempt to shape contributions from participants, might be a last resort in an attempt to encourage particular behaviours. Within collaborative communities, once they are generated, interface functionality allowing the modification or deletion of posts can help contributors to create more thoughtful, edited messages, and interface structures that describe content as well as presenting it – replies, quotes, other forms of argumentative response – may also help to maximise interactions and exchanges.

Referring back to one of the challenges discussed in the introduction of this thesis – to create spaces where deliberative conversation can take place that is linked to democratic processes and decision making – the three categories of institutionally linked space identified in this study are associated with different models of participation, and therefore may be subject to different dynamics that make different design approaches more or less appropriate. The party affiliated spaces, such as the *Labour List* and *Conservative Home* websites contain conversation in which communities of citizens discussed matters in a relatively connected and cross-cutting fashion, with elements of off-topic conversation helping participants to bond, and therefore maintain cordial social relationships despite political differences. Like the example of *UKClimbing.com,* mentioned above, design here may be somewhat incidental as this highly connected and cross cutting discussion is a factor of the participants involved. Design in these spaces need just provide the space for participants to construct their own conversations. However, in the policy-related spaces where the action oriented model of participation dominates, connected and cross-cutting discussion rarely generates by itself. As documented in the literature review section of this thesis, this is one section of online space in which numerous systems and platforms have been developed to encourage rational critical debate about civic and political issues (Buckingham Shum et al., 2014; Cavalier et al., 2009; De Cindio, 2012; Fishkin, 2003; Iandoli et al., 2014; Klein, 2011; Noveck, 2010; Pingree, 2009; Schuler, 2009; Shanks and Dahlstrom, 2009). The argument visualisation systems, for instance, that were designed to shape the participation that occurs within a space through the design of the technology, specifically to enforce the generation of particular elements of rational critical conversation, such as proposals, counter proposals, refutations and supporting evidence. Such systems have included forms of participation that are alternative to standard text input of message boards, such as online polling for the action-oriented. It is hoped that interfaces such as these may make this form of participation easier and clearer for the participant, and additional methods of information provision are sometimes provided to engage the participant in a process of rational

consideration before contribution. As the case studies above show, however, the participants will not necessarily utilise the interface in the ways envisioned by the designers. The *Communities & Local Government* forum was a prime example of this; participants of this space appeared to just want to make their views known, and nothing else, so the interface design was powerless to shape their behaviour. In spaces characterised by this action-oriented model of participation, designing interfaces which encourage deliberative exchanges was ineffective, as there was no desire for discussion amongst participants.

It can be argued, however, that these spaces where direct political participation occurs are not the places in which one should look for deliberation of public policy issues; rather, we should be looking for connected spaces in a network through which political action is generated. A study by Benkler et al (2015) revealed a diverse and connected online network, related to a high profile case of online activism[18] in which major organisations played a role in motivating citizens from across society to act. The study analysed hyperlinks to uncover relevant connected content. Perhaps an alternative approach would be to investigate the spaces in which the preferences of such participants are generated. The political action taking place in political consultations and similar initiatives may have been generated elsewhere, and this alternative space, visited previously before the institutionally linked space might be the one in which interactive discussion takes place. Indeed, as Graham, Jackson and Wright illustrated, conversation that emerges in non-political forum spaces can play an important role in the facilitation of political action (2015a p. 662) and mobilization of citizens (2015b p. 12). Multiple spaces for participation could be connected within a network, the overall participatory experience combined in a multi-stage process that ends with individual statements in policy related space which may be the result of different models of participation in earlier rounds of discussion where opinion is formed and action encouraged.

Indeed, some of the observations made during the analysis of the case studies point to particular types of contributions that could well lend support to such a theory. Contributions to initiatives such as the *Red Tape Challenge* were often of the form that suggests a particular idea was being supported or opposed through the contribution, rather than the participant engaging in any type of discussion (for example, statements such as "*this law should not be repealed*" or "*keep this law in place*" were common on one thread in which a proposal to change part of the equalities act was being discussed). Observed in high volumes, contributions such as this form a strong weight of numbers in support of or opposition to a particular policy direction or proposal. In this

[18] The SOPA/PIPA debate, related to proposed regulations in the US which were designed to help counter copyright violations.

mode of participation citizens act individually, but for a common cause, as if expressing a preference through voting. However, citizens must first find this participatory space in some way, and be motivated to visit and participate. This could happen through a general interest in the institutionally-linked initiative; perhaps through a personal interest in the policy being discussed; or perhaps through a news story or by the involvement of an advocate or activist group. It is this motivational force that links a specific model of participation – the *action-oriented individual* – taking place within an institutionally linked space with other models occurring elsewhere. A journalistic space such as a newspaper website, an activist group with an interested community, or an advocate organisation active in the area concerned, could all be places in which political action of this kind is fomented. Each of these motivational forces consists of its own blend of space and community, conversational dynamics and democratic model of participation. In this way the conversational spaces online may form a network of content, spanning different categories of space and utilising multiple models of participation. Action-forming chains of individuals within the network may be long or short, perhaps running from an institutional press-release, to a newspaper comments section, to an advocacy group, to a consultation, or perhaps jumping between parapolitical spaces in special interest forums and ideologically congruent communities in advocate group spaces. Indeed, Dumas et al. describe how particular groups of activists can capitalise on this model to spread messages of action through large networks (2015). End-points of this network, such as online consultations where conversation turns into action, are also mixed spaces, but in varying degrees. The action-oriented individuals may dominate in some while a few deliberative participants provide occasional interactivity; in others, particular contributions may cause a response from participants leading to flurries of exchange. In this networked model, the interactive discussion, or lack thereof, occurring within institutionally-linked spaces becomes less important if it is occurring elsewhere, and the importance of alternative spaces for political discussion is illustrated.

The idea of conversation occurring in alternative spaces raises the question of where these spaces might be. The case studies discussed above included several deliberative communities, but these were the exceptions and conversation within them occurred between relatively small numbers of participants. It would be more significant to find evidence of political participation at a larger scale. Here, we can find a great deal of literature to inform the argument. There have been many examples of digital media spaces being linked to political movements, from the Battle in Seattle (Gill, 2000) and Occupy (Fuchs, 2014) to the Arab Spring (Aday et al., 2012; Howard and Hussain, 2011) and Kony 2012 (Zuckerman, 2012). The growing presence of social media in the everyday practices of citizens in many countries has made them a focal point in the

engagement of citizens in political topics and the generation of political action. Offering the "opportunity for continuous communication… shifting among social and political concerns" (Bimber, 2012 p. 124), or what Castells (2009) termed "mass self-communication", these platforms allow citizens to contribute and reach large audiences, challenging accounts and attempting to set agendas. However, use of these spaces for expression is often described solely through their ability to provide the citizen with a voice, and analysis of audience and interaction is rare. Individual voice is accommodated within these campaigns through discursive participation, as are different forms of expression, lighter weight actions such as "badge wearing" and sharing content within social media platforms. These actions have also been observed alongside traditional practices of expression, such as demonstrations, petitions, consultations and voting. Where these practices are seen as replacements for the traditional actions, terms such as *slacktivism* and *clicktivsm* (Fenton, 2012) or *push-button citizenship* (Coleman, 2012) have been used to highlight the different nature of participation, from the identity politics of the social network to the efficacy goals of traditional protest. Moreover, this fleeting presence of citizenship within everyday media consumption is at odds with the sustained interaction and exchange that many have deemed valuable as part of a deliberative democratic public sphere (Coleman and Gotze, 2001). The liberal individual model of participation in the digital sphere entails the replacement of collective actions by expression of individual interests, and has been cited as a means of weakening social movements, often linked to technologies as an active agent in this decline (Bennett, 2003). Indeed, Ethan Zuckerberg voiced pessimism about the potential for deliberation within these contemporary networks, due to the participation being driven by passion, making contrasting opinions difficult to bring together in a civil manner (2014 p. 165).

As the group 2 case studies showed, the spaces where emergent conversation occurs – the spaces that citizens choose to visit in order to participate in response to political events – were largely the mainstream news media and social media platforms, with other, niche spaces for particular communities also involved. It follows that it is these mainstream spaces in which connected and cross cutting conversation must occur in order to fulfil the goal of large scale deliberative public discussion of politics. If, as proposed here, the spaces providing important sources of information, inspiration and opinion – and even action-generation are the mainstream platforms of digital consumption – the social networks, blogs and media organisations – then the characteristics of these spaces are particularly pertinent to this question of whether they can foster deliberative discussion. However, as this study has illustrated, some of the variables seen to be of influence in the generation of deliberative discussion take on a specific form in these spaces. Institutional linkage may vary, with the PR-

style spaces like the *Number 10* Facebook page being a prominent example, but decisions over interface design and moderation strategies lie largely with the owners and employees of the companies that produce these spaces. These decisions are driven by the commercial imperative. In the digital sphere this means generating the metrics that form the currency of the digital economy – users, views, shares, clicks, all of these maintained over time. These metrics do not map neatly, and are sometimes strongly at odds with, the ideals of deliberative conversation as described earlier. User experience is all, brand loyalty is built by the addictive properties of digital media services that bring back users repeatedly and cause them to interact with content. Scholars such as Turkle (2008) have linked these properties to those that provide self-affirmation and positive feedback. Interactivity, connectedness, cross cutting discussion might be part of this for some people, but the conflict that these entail ensure that they are certainly not the driving force that generates social media user communities. Therefore these spaces are not the most conducive to the kind of conversation that is important in the formation of informed opinions and preferences. These spaces, frequented by large numbers of citizens, in fleeting visits actually serve to obstruct the formation of quorums that have the necessary properties to foster connected and cross cutting conversations, as the required social bonds and group norms are not present. The PR-style governmental spaces on social media that were studied in previous chapters are a clear case in point.

As illustrated in this study, the communities generating the most connected conversations were tight knit; sometimes they were diverse communities that were united around particular interests, in other cases they were deliberative communities which adhered to group norms and values. It was clear that communities without this social cohesiveness were less likely to create highly connected conversations, and were less likely to deal with cross-cutting encounters amicably. As described above, this is at least partly due to the importance of the maintenance of a social bond between the participants and their incorporation of strategies, such as off-topic exchanges, that might help to realise this. Such strategies can increase the levels of connectedness and, eventually, the cross cutting nature of exchanges. They can also increase values for observations such as quantitative dominance – the relative proportions of contributions from each contributor – by increasing the opportunities and reasons for specific participants to contribute. Dominance in conversation itself did seem to be an influential dynamic in the overall deliberative success of a space. It is not surprising that the spaces registering as the most interactive and cross-cutting will have some very active participants, as engaged debate requires repeat contributions. However, the quantitative domination metric used in this study describes particular participants that stand out from the crowd. These contributors can arise from different models of participation: the super-contributors that speak

a lot; the inflammatory "trolls" that post regularly to elicit numerous responses; and the moderators, facilitators or the expert voice, that act to inform and guide the discussion. It is apparent from the case studies analysed here that these different forms of domination had diverse effects on interpersonal exchange and community dynamics. Some results suggest that an amount of intervention in a debate, through institutional facilitation or the involvement of an influential participant, can increase quantitative dominance figures while helping to generate productive discussion, and therefore that dominance within a debate may be linked with connectedness in this way. Other results have shown how very similar spaces, with similar interfaces and similar goals can have radically different amounts of quantitative dominance present, without any noticeable effect on connectedness. The interactions between some of the other variables in the study – other community dynamics, such as social ties and norms of practice, and also the interface design of each space – can be important factors affecting the requirement for, and effectiveness of facilitation and the impact of quantitative dominance in some situations. Interface design decisions can help to control the resultant participation patterns, as discussed above, but platform design does, of course, extend beyond the web interface. Moderation and facilitation are important features of a conversation space and, while they can sometimes emerge organically out of shared community norms and practices as was seen in the *Pistonheads* and *UKClimbing* forums, they are often the product of decisions by designers and administrators, implemented deliberately to shape conversation. Significant differences were identified in conversation structure that were attributable to facilitation strategies. The structural facilitation of the *Communities and Local Government* forum that forced all interaction to be done through replies and the Q&A structure of the *Nursing and Midwifery Council* and *BBC Radio 4* Twitter chats and tweet-in are prime examples. The first of these helped to create conversation that was focussed, but ultimately not well connected or cross cutting; the last helped to create conversation that featured, amongst a structure that was highly facilitator-centric, small pockets of interactions around the fringes of the conversation.

What did seem to be the case was that the most connected and cross-cutting platforms were the ones with the most noticeable quantitatively dominant participants, but where this quantitative dominance is also reflected in a level of *interactive dominance* – where these very active contributors connect across the quorum – perhaps as influential, or even controlling participants. Previous research has highlighted how interactive groups of participants can facilitate conversation in a forum (Albrecht, 2006; Oldenburg, 1999; Panyametheekul, 2011; Graham and Wright, 2014). The evidence observed in this study illustrates all three of the different forms of dominance put forth by Graham and Wright - the super-posters, agenda setters and facilitators (2014 p. 628). Within the case studies at least two different types of

quantitative domination were observed – formal facilitation by central administrators as seen in the institutionally linked cases; and a more informal quantitative domination occurring through natural interaction between participants, including the super-posters and the agenda setters noted within the *UKClimbing* case studies. There is no simple relationship, then, between quantitative domination, either as formal facilitation or not, and connectedness of conversations; it is more a function of the amount, and the nature of, the interactivity of the dominant participants.

Thus, decisions about platform design involving moderation, rather than interface features, can be influential in shaping conversations in some situations. Indeed, from certain perspectives it can be deemed necessary within particular online niches when unmoderated participation fails to meet the goals of the owners, administrators and designers of a space. In some niches, such as the Twitter chats of the *Nursing and Midwifery Council*, facilitation might help to generate interaction. In others, such as the *Guardian* message boards, it might be used to hide interactions. Both of these examples, however, illustrate a source of control over the conversation, held by those who have power over it, rather than those simply taking part. Participation is thus part of the overall balance of control between participants and administrators. Those in power seek to shape the conversation for their needs: the *Nursing and Midwifery Council* described how, to them, Twitter provided an existing network of relevant people which they used to disseminate messages; the *Guardian* developed their comment section interface specifically for the purposes of presenting a story, hiding sections that didn't fit their ideal; the *Number 10* Facebook page seeks to publish stories for consumption by the public. Each of these aims, or strategies, omits any desire to generate independent, connected, cross-cutting discussion between members of the public. In other spaces, such as the *Police Review* and the *Communities and Local Government* forum, participants utilised the space in ways that defied the interfaces provided, appropriating space to contribute opinion or interact with other participants as they saw fit. In addition to these two forms of agency – the controlling administrators and the rebellious participants – are the spaces where the participants themselves set the rules, and forms of community practices and norms generate and influence the contributions and behaviours of the community, as demonstrated in the *UKClimbing* forum. These three examples illustrate different positions on a continuum of participant and administrative control over spaces; a social ecology of control that is specific to every online niche and its community of participants, moderators and designers, influenced by the aims and goals of each party and the structures that they create, or co-opt to further their cause.

Research, such as that by Lewis et al. (2014) has shown that facilitation by journalists and authors within the comments section that accompanies their work can have a significant effect upon the dynamics of a conversation, an effect encountered by staff at the Guardian:

> *"When [staff] members, or particularly the author, are active in the comments section the behaviour is totally different. Conversation is more on-topic and quality is higher".*
>
> Product Manager, Guardian Interactive

In examples such as this, the involvement of an influential participant seems to provide order and civility to a conversation. Perhaps an approach such as this is one possible way to improve the deliberative quality of conversation in mainstream places. When institutions reach out to mainstream digital media spaces – seeking to find other citizens in their favoured places rather than to draw them in to institutionally linked, or overtly political places – they can potentially engage citizens in participation outside of the action-oriented model of participation of the directly-politically linked space. This addition to the existing platform may add an important element to the *Reader-to-Leader* framework discussed earlier, generating the social cues that help participants move from reader, to contributor to collaborator. However, use of mainstream spaces requires the ceding of control over interface and platform design features to the commercial entities that create and control the space, and their market-driven policies. However, participatory practices within such a space are still open to manipulation. Exploitation of the agency that participants, including facilitators and super-contributors, command over their conversational behaviour may offer an opportunity to create the conditions necessary for connected, cross cutting conversation to take place, through policies of interactive dominance which aim to engage as many participants as possible. Combining thoughtful facilitation with the technical features of contemporary digital media – such as notifications of contributions to content that is relevant to a user – it may be possible to recreate some of the interactivity and engagement of social media in general in a political sphere. Techniques such as positive feedback, encouragement and gratitude from facilitators may increase repeat contributions and interactions through the provision of the kind of gratification and positive self-affirmation that has been so successful in commercial services. Increased engagement and repeat activity may help to build the kind of communities in which participants value their membership and thus seek to maintain the social bonds that membership entails – the sort of communities seen in the tight-knit forums that produced the most connected and cross cutting conversations.

The case studies analysed above clearly illustrate that different participatory spaces, with different communities of users, owners and administrators, all with different aims and objectives, can form unique online niches. Each of these niches require different platform and

interface design decisions to be made to maximise the amount of connectedness and cross-cutting nature of exchanges within conversations taking place there. Some spaces house communities that will discuss, and even deliberate, regardless of the interface, others are outlets for policy related action, in which communities will almost always reject interaction in favour of expressing support for, or opposition to, an existing notion. In between these extremes are an infinite variety of niches in which social dynamics play a vital role in shaping the conversations that occur. However, in some cases, such as the large and aggressive conversations of the major news websites, the social media presences of political institutions, or the facilitated community engagement of professional bodies, platform and interface design can play it's part too, shaping, to various degrees, the conversation present within interface structures and making connectedness and cross cutting exchanges more or less likely.

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Appendix 1: The *Conversation Scraper* documentation

The bespoke data harvesting tool used in this study – the *Conversation Scraper* plugin for the Mozilla Firefox web browser – allows conversation data to be easily identified within web pages and harvested for later use. The tool allows profiles to be stored so that web sites can be sampled repeatedly over time. The tool used in the study sent data directly to the project database which was hosted online, but the tool was modified to provide data as content in a csv file. The tool is available from the project website.

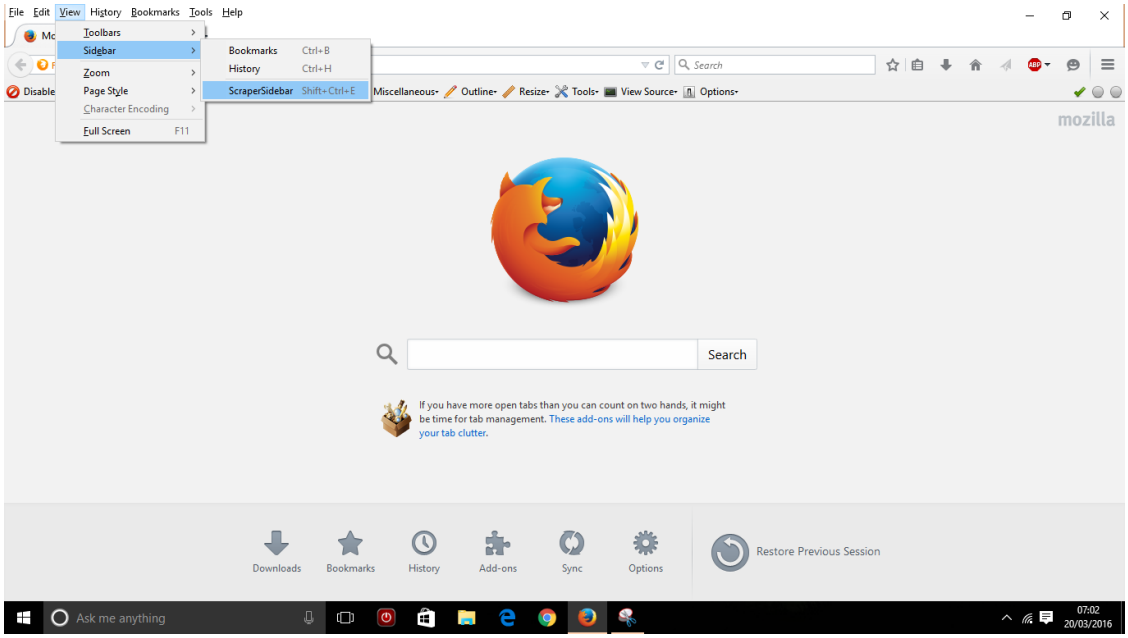
Installing the tool

The tool is available at the project website: http://chrisbirchall.me.uk/deliberation. The tool requires the Mozilla Firefox browser. After downloading the plugin, simply open the Firefox browser and drag the file into the browser window. The browser will then install the plugin and restart.

Opening and viewing the tool

The tool is a browser sidebar; it is loaded into the window of the browser to extend the user interface, forming a panel to the side of the main web page window.

To access the tool, display the browser toolbar and click on the view option from the file menu. Select sidebars and choose “ScraperSidebar” from the flyout menu:

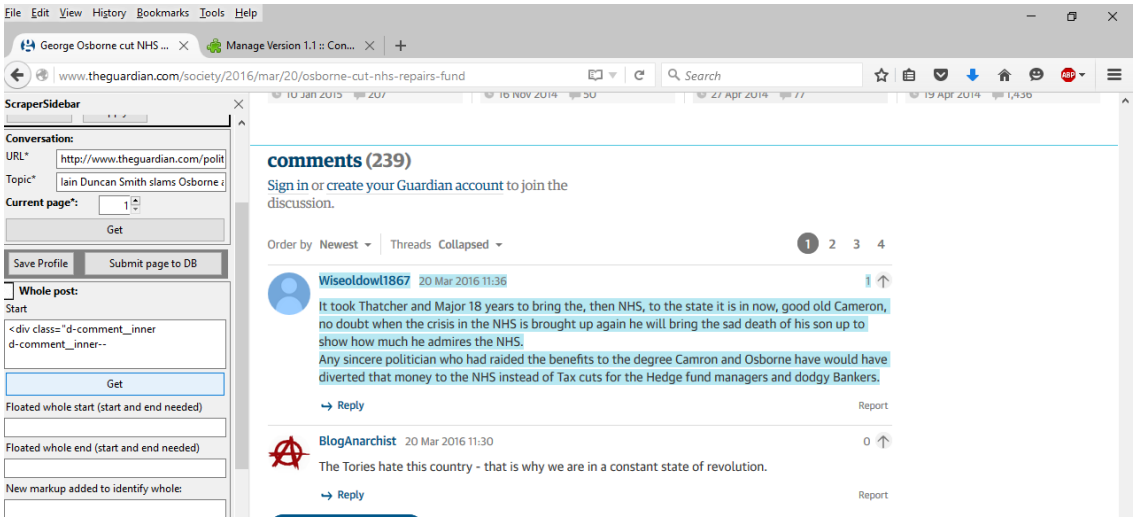


Using the tool

Navigate to the page containing the conversation data that you want to harvest, then open the sidebar as detailed above. At this point you can either mark up the conversation using a predefined profile for this web site, or create a new profile for the site.

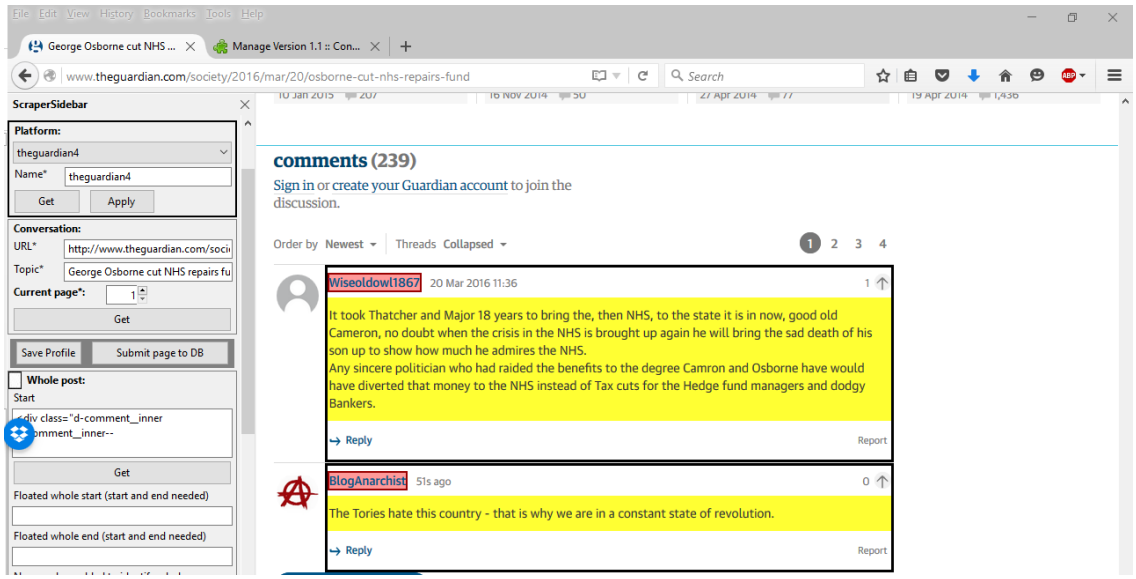
Creating a profile

Highlight sections of code in the page with the mouse (or alternative access device) and then click “Get” on the associated section of the sidebar form. A good place to start is to highlight one entire message and then click on the get button of the “Whole post” section of the sidebar form:



Note that after the Get button is clicked, some code is entered automatically into the sidebar form field. This code is part of the HTML source code of the page and identifies the exact element that contains the content that you have highlighted.

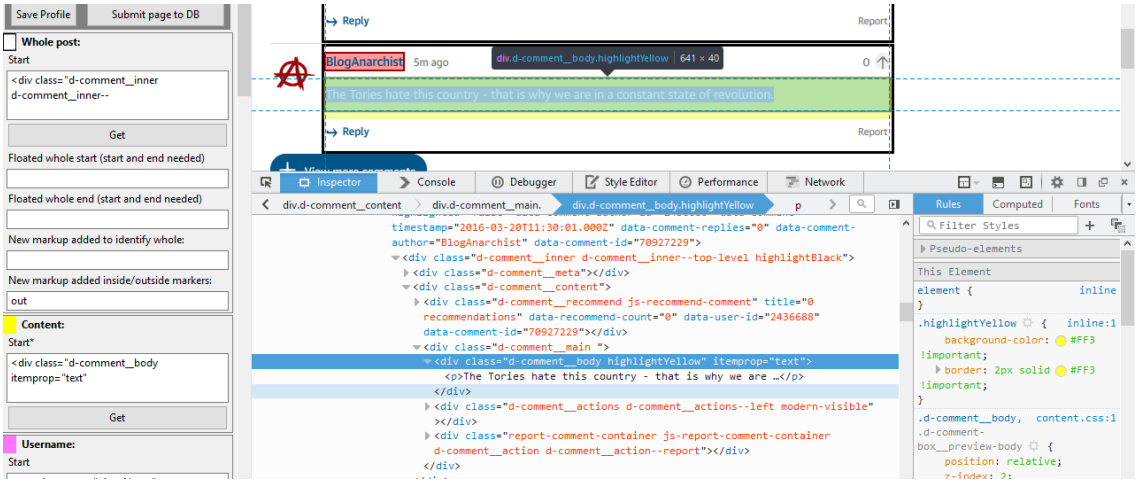
Continue this process with smaller sections of the message, such as the username, the username to which a message is a reply, etc. Each time a section is defined in this way, the messages should be highlighted so that sections of all messages are shown in different colours:



If the highlighting is not done correctly, the mark-up code automatically selected by the tool is probably not quite right. You can manually edit it in the fields of the scraper form to fine tune.

The mark-up code that is entered into the sidebar form field should correspond to the code of the HTML elements that hold the conversation data. In order to check this, and to improve

accuracy, highlight a section of the conversation and then right-click the highlighted area and select “inspect element” from the contextual menu. The code inspector will open, allowing you to identify the unique HTML code that is used to create the different interface characteristics:



Note that the code inspector highlights elements in the page as you hover over the related code sections in the source code. You can explore the code in this way to find the most appropriate parts to use as the mark-up in the sidebar form fields.

Saving the profile

Once you have a profile defined for a particular website, you can save it within your browser, so that you can use the profile over and over again. Simply click the “save profile” button on the sidebar form.

The code that has been entered into the sidebar form is then written to a local text file, stored within the local Firefox user profile on your machine. This file can be manually edited (so you can delete profiles) and will remain on the machine until manually deleted.

The location of this file varies depending upon device and operating system, but at the time of writing the following was true:

- Under Linux: "$HOME/.firefox/Profiles/$PROFILENAME/conv_profiles.txt"
- Under MacOS: "$HOME/Library/Application/Support/Firefox/$PROFILENAME/conv_profiles.txt"
- Under Windows: "%APPDATA%\Local\temp\%PROFILENAME%"\conv_profiles.txt
- Under Windows 8/10 this is: "%APPDATA%\Roaming\Mozilla\Firefox\Profiles\%PROFILENAME%"\conv_profiles.txt

Exporting data

Once a conversation has been marked up successfully, you can export it to a csv file on the local machine. Simply click the “Submit page to DB” button and the file will be created.

The data is saved to a file called “conv_export.csv”, in the root folder of a user’s local profile on their machine.

For example, on a Windows 10 machine it will be saved as:
“C:\Users\<username>\conv_export.csv”

This file is overwritten upon every export – remember to copy it somewhere safe when you are happy with it.

The file can be opened in text editors (Notepad, Textedit, etc.) or spreadsheet software such as MS Excel.

Appendix 2: Interviews, focus groups, surveys

Appendix 2.1: Table of interviews, focus groups and surveys

Interviews				**# Participants**
1	Piers Jones	Product Manager, Online Discussion Team	Guardian News and Media Ltd.	1
2	Alan James	Founder, Owner and Manager	UKClimbing.com Ltd.	1
3	Kyle Christie	Digital Communications Officer	Nursing and Midwifery Council (NMC)	1
Online Focus Groups				
4	Participants invited within “Off-belay” forum		UKClimbing.com	36
5	Participants invited within “Random” forum		Pistonheads.com	12
6	Participants invited within “Politics” forum		Amazon.com Customer forum	4
Surveys				
7	Participants invited within “Off-belay” forum		UKClimbing.com	41
8	Participants invited within “Random” forum		Pistonheads.com	15
9	Participants invited within “Politics” forum		Amazon.com Customer forum	4
10	Participants invited within “General” forum		LeedsForum.com	3
11	Participants invited using #revalidation hashtag		Nursing and Midwifery Council (NMC)	2

Appendix 2.2: Sample Interview Guide

Sample interview guide to a conversation space administrator:

I am interested in looking at how conversations like those on your website have been generated over time. I want to ask questions relating to the goals of the designers (what kinds of behaviours they are trying to enable) as well as the challenges that they encounter. I am interested in the designer/manager's views about the end user. I am also interested in the culture of work at such places; the driving principles, for instance.

1) What does your site aim to achieve?

Why did you add a commenting system? Do you have idealistic aims about public conversation? Or are there commercial reasons for getting participation?

Gather ideas – how to process data?

Give a voice – who to?

Expose to information

Generate conversation (or even deliberation)

Build up a following

Increase visits and click-through

How were these goals generated?

Are there political reasons?

Is your aim to generate political discussion or any discussion?

2) How successful are you in achieving these aims?

Which features make the site successful?

What problems have you encountered in reaching these goals?

How do you measure success/failure?

3) Have you encountered any problems while operating the site?

Moderation

Data volume

Pressure from outside organisations

Pressure from within the organisation

Pressure from participants

*4) Is the site deliberately **designed** to encourage specific behaviours?*

Replies

Ratings

Conversation

Click-through

How did you inform this design?

How successful do you think the design has been?

5) Have you changed the design of the site?

What notable changes did you make?

Why – stimulus, goals, informed by what?

Have redesigns been successful?

6) Do you participate on your own site?

How about on other sites?

Do you take part in online discussions elsewhere on the web? If so, why do you choose other spaces rather than discussing things in your own forums?

Are there any rules about reputation/identity management to adhere to?

7) Have you done any research with your users to shape the product/rules?

8) Do you have access to any user groups that I could contact?

I'd really like to talk to discussion participants

I am a member, so can contact people through the system, but are there other ways?

Appendix 2.3: Sample Interview Transcript

Selected content from an interview with a Product Manager at the Guardian Online Discussion Team:

Q: What does your site aim to achieve?

Why did you add a commenting system? Do you have idealistic aims about public conversation? Or are there commercial reasons for getting participation?

A: The Guardian needs users, and it needs happy users. Commenters register, and this starts an ongoing dialogue – they become more than just a cookie ID. This provides commercial opportunities, such as invitations to subscribe.

It is also part of the editorial goals, though – as stated in the 10 principles of mutualisation (which are available on the Guardian website). One of the editor's aims is to expand journalism beyond the journalist. Everyone has information, not just the journalists. We actually invite responses; sometimes corrections but also responses, different opinions and different perspectives. One example, on a thread about Fukushima, we asked for expert comment and ended up with nuclear scientists proposing solutions in the comments thread.

"In the old days the journalist wrote and published an opinion; this doesn't work online. Now the story has a life; readers react to it and contribute and this changes the story. We accept and encourage that.There are experts out there and being open to participation improves what we are writing about.

"We try to encourage interaction between users".

Q: How successful are you in achieving these aims?

A: Commenters are a small, niche, group. 90/9/1 – 1% comment, 9% read comments, 90% just want the story "the Guardian view". The numbers are inversely proportional to engagement – the commenter is much more engaged.

There is value to the reader in having comments, seen in data and user testing: we usually get 5-6 recommends per comment.

"Users often say 'I love reading the comments but would never post, as I don't want to be personally involved"….

"We know that there is something in the nature of learning the Guardian view on a subject and then carrying on to learn the views of others"

Q: Have you encountered any problems while operating the site?

A: "It is more interesting from a journalism perspective if users respond to the story itself. It is hard to ensure this as users can drift off, off topic, or can start to take two sides and debate, which can become quite divisive. Left to their own devices, commenting is not healthy or productive. People need to have the impression that the space is cared for, that we'll look after the conversation and make it productive. We know that from testing. Users don't like it if the conversation is descending into chaos."

There are sometimes particular commenters and individuals that are hard to moderate. Sometimes this is for personal reasons, sometimes for ideological ones. So we employ both human and automatic moderation. A kind of scripting of comments onto the site.

It is much easier when we work with professional networks, which we do, raher than the public pieces. It is much easier to moderate as people are there in a professional context.

Q: Which features make the site successful?

User behaviour can be difficult and having a staff member in the conversation can help. When the author of the piece is active, behaviour is different. When no-one is involved the community goes in its own direction; when the journalist is involved discussion is more on topic with higher quality of response. So we encourage writers to be involved in the discussions.

The community also moderates, though. We have community moderators that remove comments that are outside of the guidelines.

Another good feature is the Guardian pick which is a high quality contribution that we put at the top of the comments. This helps the visitors that are in quick read mode get an idea of the opinions present in the comments.

We also employ two other types of intervention. We put prompts on our stories – ask for particular contributions such as the personal experience of a story. This means we are inviting a particular type of response and we usually get that type of response. We also employ polling as we know that commenting can be intimidating for many. We know there is a difference in contribution based on gender and other things. Men are more comfortable.

We try to create a balanced community and this requires a mixture of things. Journalists to be active in the thread; inviting particular types of responses from particular people (done by the community team); and quick and effective moderation.

Q: Is the site deliberately designed to encourage specific behaviours? Have you changed the design of the site?

A: We give the interface lots of consideration and change it occasionally based on our research. One example of a big change was the introduction of threading to the comments boards. This was controversial, changing the experience from a timeline to help users to get involved. The timeline works very well for very engaged users, but most users want to "see" the conversation, see the opinions, rather than interact with each one. The regular engaged users hated this change and they let us know. But the threaded interface was created for the reader, not for the commenter. We were aware of the impact and made the change deliberately. This has created "better" interaction with replies contained to a thread

Q: Have you done any research with your users to shape the product/rules?

We have a user testing studio, custom built for this purpose. We use it regularly to test the products. But the comments themselves are feedback. We can see how people are behaving and the level of satisfaction that they display".

Appendix 2.4: Survey Structure

Online surveys were carried out with participants of selected online spaces. The surveys consisted of the following questions, which each permitted free text responses:

- How often do you contribute to the forum?
- Why you use this space to talk about politics?
- Do you use any other online spaces to talk about politics?
- Which site features are valuable to you in your discussions?
- Which features of the site are less satisfactory?
- Do you like to interact with other users on the site?
- Do you interact in this space with anyone from your everyday life?
- Do you behave differently in this space than in other spaces?
- Are there any things that you would like to change about the forum?

Appendix 2.5: Sample Online Focus Group Transcript

Online focus groups took place in the form of discussions in the case study spaces themselves. The sample below was generated in a focus group conducted within the UKClimbing.com forum:

> chrisbirchall - on 06 Feb 2015
> Hello everyone,
>
> I'm a researcher from the University of Leeds interested in online political conversation. I'm looking for a little bit of help with my latest research project and I'm hoping some of you will be kind enough to spend a couple of minutes to tell me a bit about what you do on this forum.
>
> During the European elections and Scottish referendum last year I did some research into where people were discussing the issues online. Identified through a series of web searches, this discussion forum was one of the most vibrant spaces in the UK for conversation related to the TV debates between party leaders. There are a number of other political topics on the forum, too. I'm really interested to find out why this community of political chatters has developed on this forum. There are lots of available spaces for political conversation online, but there seemed to be more of it going on here than most other places.
>
> So, I'd like to ask you: what makes you come to this space to talk about politics? Is it to do with the community of individuals present on this forum? Or do you contribute to lots of spaces? Is it the website itself: the design or the rules?
>
> I'd be very grateful to any input any of you may have. Any posts to this thread, long or short, would be welcome; emails to me are fine or, spend a few minutes filling in this survey: http://chris.leedsnewmedia.net/surveys/ukclimbing/
>
> All data collected will be anonymised and destroyed after the end of the project. It certainly won't be shared or sold to anyone!
>
> Thanks a lot!
>
> Chris Birchall
> Research Associate
> School of Media and Communication,

University of Leeds
http://chris.leedsnewmedia.net/surveys/ukclimbing/

xxxxxxxx on 06 Feb 2015
In reply to chrisbirchall:

Your request seems a bit one sided to me, you ought to contribute something back, *quid pro quo* and all that. So Chris, what's your favourite biscuit?

7

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

So Chris, do you like owls or are you more of a tapir man?

What have you ever done on grit?

10

xxxxxxxx on 06 Feb 2015
In reply to xxxxxxxx:

*Chris, survey, done.
*xxxxxxxx, Jaffa Cakes.

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

> **Chris, survey, done.*

> **xxxxxxxx, Jaffa Cakes.*

Nonsense, everyone knows a Jaffa is a cake and not a biscuit! Goodness me, you'll be saying that gritty stuff in t'Peak is limestone next.

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:
> *Nonsense, everyone knows a Jaffa is a cake and not a biscuit!*

Only for tax purposes. A Jaffa Cake does not count as 'cake' in any other sense. Not even if you ice it and put a candle on top.

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

> *Your request seems a bit one sided to me, you ought to contribute something back, quid pro quo and all that. So Chris, what's your favourite biscuit?*

Yes, definitely squid pro roe, what are you wearing?
xxxxxxxx on 06 Feb 2015
In reply to xxxxxxxx:

> *Nonsense, everyone knows a Jaffa is a cake and not a biscuit! Goodness me, you'll be saying that gritty stuff in t'Peak is limestone next.*

Legally a cake, I agree!!! But actually a biscuit, I put it to you!!!! I'll take it to the House of Lords!!!!!! (The case - not the cake. Or my excessive use of exclamation marks).

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

> *Not even if you ice it and put a candle on top.*

Good idea. Off to try that now.
Its as sensible a cake as those renamed fairy cake monstrosities.

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:
I've done it, but Just a thought - have you cleared this with the mods, they can be a bit possessive about *their* forum!

Post edited at 15:08
xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

Stay away from this site, it's full of trolls who like Jaffa biscuits.

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

Typical UKCmadness. brillaint reponses guys

A jaffa cake is defo not a biscuit. There's got to be some sort of crunch to be a biscuit

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

oatcakes. There's your staffordshire pankake, and then there's the cheese biscuit.

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

These are definitely the cakier side of the cake-biscuit spectrum...
http://www.tesco.com/groceries/product/details/?id=253806558

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

Course they are - no crunch whatsoever
xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

Done.

And although Jaffa Cakes are very fine they don't quite match the smooth exotic fruity richness of fig rolls. Or wholesome perfection of plain chocolate hobnobs.

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

The site was originally created to address one of life's greatest unanswered conundrums

The first was "Three Pebble Slab - HVS or E0"?

The second was "in a knife fight would an eagle owl knock the face off a tapir or a moderately ill tempered narwhal".

The questions to both remain unanswered.

finally

my couzin Mick Ryan made $3.46 in his first month as an itinerant topo maker. Since losing his job at the pigeon reconditioning factory he has bought a new bobble hat form earning $$$ by drawing topos of Hodge close with his felt tips. Earn more $$$each month by clicking www.micksmagiccrayons.com

1

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx

You're forgetting the whole plane-on-a-conveyor-belt conundrum.

2

xxxxxxxx - on 06 Feb 2015
In reply to xxxxxxxx:

And, of course, "Is Kinder Downfall in nick yet?"
xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

Here's where being able to tag people would be really useful - I've pointed Toby A and Erik B at the thread via Facebook, in case they miss it. As Toad says, have you spoken to the mods about it? You never know, they might let you make it a premier post or something...

I'd fill in the survey but I don't tend to get involved with the political side of things on here.
xxxxxxxx on 06 Feb 2015
In reply to chrisbirchall:

Survey done. Good luck with the research.

xxxxxxxx on 06 Feb 2015
In reply to chrisbirchall:
I hope you find the responses useful. If ever you choose to conduct a survey of anarchic behaviour in on line forums then UKC must be your first port of call. Long may it continue!
PS What we really want to know is 'What is your favourite biscuit?'
Post edited at 20:29
xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

If you are suggesting that this forum actually has some influence on internet opinion formers, then maybe those posters that consider me a paid shill of the oppressive state were right...

Watch out for the black helicopters....

Now where did I put my overtime claim form?

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

This confirms what we've always known about UKC being the greatest place for decent online discussion. I'm feeling all warm and fuzzy about it actually.

My only disappointment is that nobody has thought to mention biscuits.

xxxxxxxx - on 06 Feb 2015
In reply to chrisbirchall:

I come on here for sensible, intelligent conversation about mountaineering, go on Cycle Chat for the same about cycling and I go on Singletrack for a laugh and good advice on just about anything in life.

xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:
I think it's the humour. A laugh a minute guaranteed. Someone with warped senses will post if you wait long enough. The whole range to infinity of human intelligence and real or imagined experience is represented. I wouldn't miss my daily fix!

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

> *My only disappointment is that nobody has thought to mention biscuits.*

That's in case the Tapirs try to steal the biccies!

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

Well, I'm concerned that if we've appeared on Chris' radar*, that we may soon be overrun by professional 'opinion farmers'...

* being a cynic, I fear we're being 'fluffed', and that there are similar threads appearing on a random selection of forums... I don't recall all that much discussion of the televised debates. Lots of Scottish referendum threads, yes, and quite passionately, but amicably discussed.

1

xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:
Birdie Numnum is the main attraction, closely followed by darren and his owls, and alyson's behind, and the abilty of some posters to start an arguement in an empty room
Post edited at 01:40

1

xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:

Where else can you converse with a, sorry The, Lemming?

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx

> ... , and the abilty of some posters to start an arguement in an empty room

No it isn't.

P.S. Ability. Argument.

L xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:

I think it was more by chance.. the forum had one of the most passionate pro-Yes men in the world on it..

Had he been on flyfishing weekly you'd have had that..

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

and the abilty of some posters to start an arguement in an empty room

I think you'll find it's closer to contradiction than argument... (A biscuit of choice to the person that gets the obscure reference).

xxxxxxxx on 07 Feb 2015
In reply to xxxxxxxx:

> I think you'll find it's closer to contradiction than argument... (A biscuit of choice to the person that gets the obscure reference).

I get the reference.

You owe me a biscuit of choice - a chocolate digestive [I now accept that the Jaffa Cake is a cake [sob-sob-sob my whole world view and philosophy, not to mention teatimes, are ruined.....]

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:
Obscure? Well, knock me into a lock with a fish!

It's the rational, intelligent, dim-witted, belligerent, tangential nature of the discussions wot does it. Not forgetting DJ Viper and his ilk.

And it's plain choccy gessies as any fule no.

Nice survey BTW
Post edited at 08:29

xxxxxxxx on 07 Feb 2015
In reply to xxxxxxxx:
> being a cynic, I fear we're being 'fluffed', and that there are similar threads appearing on a random selection of forums...

Well, of course we are: it's all a gigantic pile of cut and pasted, generic smoke up our arse. He couldn't even be bothered to substitute 'UKC' for 'this forum'. Knittingdotcom and Lettucechat are probably going ballistic right now.

I once had a call from somebody who told me they wanted to use photos of my house in a style magazine. It *is* quite a pretty house - for an ex-council property.

So I suspect the real purpose of the experiment is to observe the effects of unwarranted flattery on the self-absorbed piece-of-my-mind donors who populate chat forums, convinced that they're talking sense. At least all he's getting off here is biscuit advice.

Tunnocks caramel wafers, or 1970s Wagon Wheels - the ones that were bigger than your head, not the new, digestive-sized embarrassments.
Post edited at 08:23

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

> And, of course, "Is Kinder Downfall in nick yet?"

How dare you even suggest such a thing!

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:
> Tunnocks caramel wafers, or 1970s Wagon Wheels - the ones that were bigger than your head, not the new, digestive-sized embarrassments.

1970s Wagon Wheels, or those pink wafer biscuits which only grans are allowed to purchase.
Post edited at 08:26

xxxxxxxx on 07 Feb 2015
In reply to xxxxxxxx:

> 1970s Wagon Wheels, or those pink wafer biscuits which only grans are allowed to purchase.

You know they're not actually biscuits, right? Old ladies buy them to scent their underwear drawers. And then feed them to small boys when the smell's worn off .

Did your gran used to give you little blue 'cakes' as well?

1

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

Well, unless the surveys are being done serially, this suggests our cynicism is unfounded:

http://chris.leedsnewmedia.net/surveys/
xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

Either a Rich Tea or a Nice dunked in good strong tea. And before someone says they don't stand a good dunking, I say have a good hard look at yourself and your technique.

xxxxxxxx - on 07 Feb 2015
In reply to xxxxxxxx:

> Well, of course we are: it's all a gigantic pile of cut and pasted, generic smoke up our arse. He couldn't even be bothered to substitute 'UKC' for 'this forum'. Knittingdotcom and Lettucechat are probably going ballistic right now.

I suspect you are right. The unexpected popularity of Scots devolution discussion on Facebook even made it into a discussion on Radio 4 this morning.

I answered the questionnaire out of a possibly misplaced sense of academic solidarity, although the temazepam and fentanyl afterglow of minor outpatient procedure may have had something to do with it.

chrisbirchall - on 07 Feb 2015
Hi everyone,

Firstly, thanks for your posts and survey entries - I wasn't expecting such a lively response! It's been great, keep it coming!

I did speak to one of the moderators/site owners a while back to get permission so hopefully this is fine. Everyone seems to be enjoying it, so I doubt anyone will mind. You're not really being 'fluffed' - UKC forum genuinely did appear in my initial research as source of lively political discussion. There are other places, of course, where I will post a similar message, which is why it sounds a bit generic, but it is not just random selections.

So, down to the important stuff:
- chocolate digestives, especially the ones with caramel under the chocolate. Great dunkers;
- a difficult choice, but I'll plump for owls as I just read this: http://www.theguardian.com/environment/2015/feb/06/owl-attacks-joggers-and-steals-their-hats ;
- as for grit, I tend to run under, over or around the crags but have occasionally been know to have a play on it in Yorkshire and Derbyshire.

Seriously, though, there have been some very interesting comments and I really appreciate you all giving a little bit of your time to my academic foibles.

Looking forward to some more, Cheers,
Chris
http://chris.leedsnewmedia.net/surveys/ukclimbing/

2

xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:

Hi Chris

I'm really glad to hear that this is a good place for political chat looking across the internet, always suspected that to be the case. In addition to the comments I've made on the survey, I think what makes UKC good is that it isn't people who live and breath politics - that's not what climbers are like (those people tend to consider "eating out" to be a hobby IME). I imagine somewhere primarily for political debate would just be full of aspiring politicians and folks with massive axes to grind. On here, we've all got proper lives - we go out climbing, we have jobs and families, and we're not people who consider that they are or will be part of the political world. I can't imagine anything worse than having a political debate with a bunch of PPE w*nkers, failed journalists/"bloggers" etc for example, which I would have thought is what you get on a site specifically for political debate.

It's great having a discussion in which a naive view can often be countered with "well actually I work in that industry, and the regulation means that the whole story is completely impossible and made up" rather than endless theoretical drivel based on high falutin political philosophy (or worse still, party polictics and the loyal line to take). There's such a variety of social backgrounds that a discussion can be really enlightening about how things work in another bit of society. It can of course also be frustrating to hear the same people trotting out the same tired old crap no matter how many times it's been shown beyond all doubt that it is false and nonsensical. (Example/aside, right-wingers who talk about "no limit to spending other people's money" POST 2008! Those nobel wealth creators who we should all aspire to be had absolutely no problem with spending a trillion pounds worth of "other peoples money" just because they were too greedy and incompetent not to f^ck up, did they? And where's it all gone? It beggars belief that people still trot out that shite, week in week out. Rant over.)

And of course it's not just the political debate that's great. I've had fascinating

discussions on AI, philosophy, consciousness, the scientific endevour to pick a few things I'm interested in.

5

xxxxxxxx on 07 Feb 2015
In reply to xxxxxxxx:

ditto. [well phrased - I can't write that coherently!] And good luck with the PhD, Chris. Hang around for a few years here. You learn a lot and possibly become a better person for it.

xxxxxxxx - on 07 Feb 2015
In reply to chrisbirchall:
> this discussion forum was one of the most vibrant spaces in the UK for conversation related to the TV debates between party leaders. There are a number of other political topics on the forum, too.

If you want to see some really fierce, frank, but well-supported discussion, the Thatcher death thread was a classic (and was always going to be - it was if UKC had been preparing for years...). The Isreal/Palestine discussions can be circular as we have the odd very vocal person with an extremely entrenched view on the matter, plus at least one outright racist (he's an Israeli by the way)...but by identifying the good quality posts and clicking on the links posted it can really help understand different sides of the argument. And that's the whole point.

Appendix 3: Content Analysis Coding Procedure

Coding procedure for individual messages:

Initial basic elements				
Platform/space				
Conversation/topic				
Message title				
Post date				
Rating-up				
Rating-down				
Author/username	**Social network elements**			
Content	Reply to user (multiple)			
	Quote of user (multiple)	**Argument visualisation elements**		
		Response to previous message		
		Discursive equality	Degrading	
		Discursive equality	Neglected	
		Discursive freedom	Curbing	
		On topic	Yes	
			No	
		Message type	Initial assertion	
			Response (non-claim response)	Commissive
			Response (non-claim response)	Directive informative
			Response (non-claim response)	Expressive: acknowledgement
			Response (non-claim response)	Expressive: emotional
			Response (non-claim response)	Expressive: humour
			Response (non-claim response)	Usage declarative
			Response (non-reasoned claim)	Affirmation
			Response (non-reasoned claim)	Counter-assertion
			Response (non-reasoned claim)	Rebuttal
			Response (non-reasoned claim)	Refute
			Response (reasoned claim)	Affirmation
			Response (reasoned claim)	Counter-assertion
			Response (reasoned claim)	Rebuttal
			Response (reasoned claim)	Refute