Understanding the Roles of Artifacts in Democratic Deliberation From the Citizens' Initiative Review

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ABSTRACT

The emergence of social media–based online discussion forums creates new opportunities for engaging citizens in the policy making process, but such forums rarely produce public opinions of a quality that is usable for policy decisions. Facilitated online deliberation holds potential to structure deliberation for high quality outcomes, but it is not clear what tools are necessary to support healthy interaction patterns. We conceptualize online deliberation systems as a set of artifacts embedded within the political process of public decision-making. To gain insights about artifacts to be included in deliberation and how they should be configured to serve a particular role, this paper reports an ethnographic study of the Oregon Citizens' Initiative Review (CIR) as a reputable practice in democratic deliberation. By examining an observed session of this review of legislation by citizens, we identified three families of interrelated artifacts in the CIR. The first artifact family involves establishing a solid information base necessary for the analytic process. The second artifact family facilitates deliberative dialogues within the democratic process. The third artifact family facilitates collective claim-making (through the creation of a voters' guide) by identifying, categorizing, consolidating, and finalizing statements of pros and cons on an issue. These findings inform the design of social-media-based eParticipation tools by instituting the basis of design artifacts that may regulate the process of online deliberation.

KEYWORDS

Deliberative Democracy; Large-Scale Citizen Engagement; Online Deliberation.

INTRODUCTION

The emergence of Web 2.0 and the associated social media technologies has renewed the idea of open and democratic governments that expect agencies to be open, accessible, and transparent to the governed (Dawes, 2010). On December 8, 2009, the White House issued an Open Government Directive requiring federal agencies to take actions to implement principles of transparency, participation, and collaboration (United States Executive Office of the President, 2009). The increasingly pervasive and instantly interactive capabilities of social media technologies can create new types of democratic participation (Bertot et al., 2010, 2014). Based on this broad initiative, federal, state, and local governments have since taken steps to build a smarter social infrastructure to meet these directives. In particular, governments have adopted lightweight social media technologies (such as blogs, Twitter, Facebook) as a method to advance open democracy at a large scale beyond the limited attendance of public meetings (Bonsón et al. 2012; Davies, 2009; Sæbø et al., 2011). However, the adaptation of social media technologies for citizen engagement has had limited success. Fundamental to this difficulty is the clash between the free-form nature of social media and the bureaucratic nature of most government rules and policy-making processes (Mohammad, 2010). It is apparent that traditional social media technologies are inadequate for enabling broad democratic participation and engagement in public-policy processes; research is necessary to guide systematic design of online participation tools.

This paper focuses on the roles of social media in the production of decision-relevant public knowledge that is fundamental to the goal of open and participatory government. We argue that online political discourse must enhance two important aspects to produce high quality outcomes. First, political talks need to empower deliberants with more relevant, informative, and complete information for citizens to engage meaningfully and intelligently (Bertot et al., 2010, 2014). Second, political opinions produced from deliberation must have democratic, deliberative, and collective quality to be useful in decision-making (Dutwin, 2003; McCoy, 2002). Meeting both of these two requirements imposes a major challenge to the design of online deliberation systems. Many of these

features are still missing from existing online deliberation tools that have been developed and used in recent years (Davies, 2009), and have not been translated into common design considerations (Towne, 2012). This highlights the need for research to develop a deeper understanding of democratic deliberation in the areas of policy development, governance, and civic engagement.

We conceptualize online deliberation systems as artifacts embedded within a structured deliberation process for public decision-making. These artifacts must have a purposeful design to play expected roles in mediating human cognition and social processes (Berlin et al., 2010; Woods, 1998). The central research question of this paper is: *what artifacts should be included into the design of online deliberation systems?* To answer this question, we use the human-artifact model of Bødker and Klokmose (2012) as a framework to recognize and interpret artifacts through an ethnographic study of small-group deliberation. The sample was carefully chosen to be a good approximation of the normative and ideal forms of public deliberation processes prescribed by theories of deliberative democracy. Gastil (2008) identified ideal analytic, democratic, and decision-making processes that can be used as the standard against which to evaluate the quality of democratic deliberation. One such government practice is the Oregon Citizens' Initiative Review (CIR), which has demonstrated success by generating high quality policy-making outcomes according to recent reports (Gastil and Knobloch, 2010; Gastil et al., 2014; Knobloch et al., 2013). We choose to study the CIR because it is a well-established engagement process that has been put into practical use in a variety of applications over the past 30 years (Crosby and Hottinger, 2011; Health Democracy, 2014).

In this paper, we report our findings of a set of purposefully designed families of artifacts used in the CIR, a reputable standard for applied democratic deliberation. We examine the roles of each artifact in the CIR in its ability to contribute to high quality deliberation. The results contribute to understanding the roles of criteria for evaluation and offer grounded guidance to designing computational artifacts in an online deliberation environment.

RELATED WORK

Social media and eParticipation in open government

The democratic process in the United States permits citizens to vote on legislation directly through initiatives and referenda, but it remains problematic that voters often experience an information deficit (Owens and Driffill, 2008) or communication deficit (Meyer, 1999) when deciding whether a particular piece of proposed legislation is right for their community. Challenges faced by government agencies when trying to engage citizens include difficulty informing voters on issues, incorporating engagement into established decision-making processes, and participation costs necessary to become informed and involved. Many voters assign judgment based on advertisements made by special interest group campaigns and political elites because they lack the time and resources to research, understand, and decide upon a policy issue (Gerber, 1999; Gerber and Lupia, 1999). For better legitimacy in government decisions, it is desirable to engage citizens more directly in the decision-making process with regard to the policy development of their society. Traditionally, public meetings have been the primary setting for government agencies to hear from citizens during democratic decision-making. These meetings commonly start with a presentation of information about an issue, followed by heavily facilitated conversations that often limit citizen contributions to short statements (Tracy, 2010). Recent research and policy directives aim to improve the quality of communication among decision-makers and the public to enable collective decision-making by reducing information deficit (Campbell, 2012; Owens and Driffill, 2008; Sprain et. al, 2014).

With the advent of social media technologies, citizens have explored new platforms for expanding their participation in political processes. Much of the research into systematic use and assessment of social media in participatory government is found in eParticipation literature (Sæbø, 2010; Sanford, 2007). eParticipation is the extension and transformation of participation in political deliberation and decision-making processes through information and communication technologies (ICTs) (Linders, 2012). ICTs can be used as an interactive channel for policy making (Bekkers, 2004). The Knight Foundation took a step toward mapping civic technology systems using a network analysis that links projects by their similarity to identify clusters (Patel, 2013). Their results show community action projects clustered by peer-to-peer local sharing, community organizing, neighborhood forums, information crowdsourcing, and civic crowdfunding. Open government projects are clustered by data access and transparency, visualization and mapping, resident feedback, data utility, public decision-making, and voting. These technologies

include discussion forums, blogs, wikis, chat rooms, geographical information systems, decision support systems, voting systems, and podcasts, in addition to the standard website and email services routinely provided.

eParticipation activities in government are highly driven by decision outcomes or effects. These effects can include improved engagement in the democratic process, better quality of political deliberation, inclusion of marginalized groups of citizens, and transfer of elements of policy making to citizens, among many others (Linders, 2012). While the benefits of the large-scale political discourse through social media-based participation technologies are widely recognized (Stromer-Galley et al., 2012; Thakur, 2011), others suggest that the online environment has the potential to undermine deliberative democracy (Wojcieszak, 2009). Given the desire to scale-up deliberation while ensuring a high quality of communication, government agencies are still looking for new methods that balance scale and quality of citizen engagement. Many efforts fail to attract widespread interest among citizens or politicians (perhaps the majority), are not representative of the target population (Dahlberg, 2001, Schneider, 1997), lead to poor information (Davies et al., 2009) or poor quality of debate (Cavalier et al., 2009), or are monopolized by a few vocal contributors (Cavalier, 2009). More research is needed to mitigate these problems inherent to online deliberation.

Democratic deliberation: Theory and practice

Democratic deliberation is a theoretical ideal of discourse that fulfills the requirements of Habermas' deliberative democracy and public sphere wherein the discussion of individuals is instrumental in the identification of societal problems and resulting political actions (Habermas, 1984). Although difficult to produce in practice in its ideal form, deliberative democracy has served as a benchmark in civic and political engagement practices. Civic engagement practitioners prefer the high quality outcome of democratic deliberation over simple polling or voting, due to the perceived legitimacy of the legal decision-making process (Gastil and Levine, 2005; Gutman and Thompson, 2004).

According to the theory of deliberative democracy, for a democratic decision to be legitimate, it must be headed by authentic deliberation of evidence-based reasoning when expressing opinions, instead of the aggregation of preferences that occur in voting (Gastil and Levine, 2005; Gutman and Thompson, 2004). This type of process is not one that comes naturally to humans. Theorist Robert Dahl wrote, "One of the imperative needs of democratic countries is to improve citizens' capacities to engage intelligently in political life," (pp. 187-88, 1998). Based on observations of small scale, face-to-face deliberations, researchers found that democratic deliberation processes tend to produce better outcomes (i.e., less partisanship, more sympathy for opposing views, more respect for evidence-based reasoning rather than opinion, a greater chance of widely shared consensus, and social cohesion between people from different backgrounds) than in other forms of democracy (Cohen, 1998; Dahl, 1989, 1999; Fishkin and Luskin, 2005; Fishkin, 2011; Gastil and Levine, 2005).

Fishkin (2011) identified five characteristics that are essential for a legitimate deliberation: (1) information, (2) substantive balance, (3) diversity, (4) conscientiousness, and (5) equal consideration. These characteristics are common indicators of the quality of deliberation along three dimensions: information base, democratic process, and collective decision-making. Each of the three dimensions of deliberation quality presents unique challenges in practical implementation of deliberative civic engagement as reflected in literature.

Information base. Accurate and relevant information must be made available to all participants in a deliberation in a way that portrays all of the diverse opinions relevant to the policy issue being considered (Fishkin and Luskin, 2005; Fishkin, 2011). Small group deliberations have successfully met these criteria (Cohen, 1998; Gastil and Levine, 2005), while online deliberation technology has struggled to match similar levels of quality of information. Typical problems with large-scale online deliberation technology are: scattered and overwhelming content, low signal-to-noise ratio, and bias- rather than evidence- or logic-based reasoning (Davies et al., 2009; Klein, 2012). Although online technology can increase participation given the many strengths of this format (i.e., reducing participation costs, increasing voluntary contributions to problem solving, and using the wisdom of the crowd) (Davies et al., 2009; Klein, 2012), it creates another problem in that large aggregations of contributions can contain more isolated ideas than collective opinions.

Democratic process. To guide the process of shared understanding and negotiation, participants are expected to follow the communicative norms of the democratic process. This is often achieved through two complementary efforts: (1) illustrating the desirable behaviors of democratic discourse prior to engaging in the process, and (2)

moderation of the discourse by trained facilitators. Participants are not limited by any distribution of power, resources, or pre-existing norms (Cohen, 1998) and have equal opportunity to speak (often through turn-taking facilitation). Van Gelder (2012) criticized online deliberative tools in their inability to be taken up by the public to any degree when imposing too much structure on deliberative discourse. This is confirmed in the work of Rhee and Kim (2009), who examined moderation in an online deliberation about the 2004 Korean General Election and found that the presence of an active facilitator decreased message postings in forums while anonymity produced more engagement. Gilly Leshed (2009) found similar results in an organization that removed anonymity from a corporate online community after a series of posting were deemed inappropriate and found both the number of postings and the amount of dialogue decreased. Developing an appropriate facilitation strategy is a major challenge for online deliberation.

Collective decision-making. Legitimate decisions must be made based on collective views of all parties that have stakes in an issue. The quality of a public deliberation exercise is ultimately judged by the degree of collectiveness of the opinions it generates. Van Gelder (2012) suggests that perhaps online deliberative tools are asking too much of participants by aiming to improve the quality of deliberation, and instead proposes a system wherein access to key arguments on major issues could simply be used to help share the "collective wisdom" and then be considered a collective view. This suggestion is problematic in that it devolves a system into online aggregation of facts and opinions. Information seeking tools in online deliberation environments tend to find similar (rather than diverse) opinions, which is counter-productive in forming collective opinions. For example, when it comes to seeking forums to engage with, people tend to filter out opposing content when they are easily able to do so (McPerson et al., 2001; Lev-On and Manin, 2009; Sunstein, 2001, 2006).

The success of democratic deliberation has been limited to small scale, face-to-face deliberations where coherence among all members in the discussion is relatively easy to maintain through good, human facilitation. In contrast, large-scale online deliberation is of a magnitude more difficult due to the loss of attentional focus necessary for building collective opinions. Although practical solutions to such challenges do not yet exist, there are promising proposals and experiments under way. Pingree (2006) proposed to combine decision-structured deliberation with large-scale argumentation systems to reduce redundancy and encourage clarity. Klein (2012) recommends personalized attention-mediation suggestions concerning which parts of the argumentation map they should view, add to or rate, and why. His suggestion of computer-generated metrics does not restrict the contributions of a user, but instead are intended to help them apply their unique skills and perspectives to promising regions of the map to maximize the collective intelligence of the user community (Klein, 2012).

Online technologies have been used to overcome the challenges of balancing unity and disagreement, as well as organization and facilitation (Dalisay et al. 2012; Kriplean et al., 2012; La Due Lake and Huckfeldt, 1998). However, large scale online deliberations have struggled when it comes to registering participants to moderated forums (Leshend, 2009; Rhee and Kim, 2009; Trénel, 2009) and achieving ideological integration of groups in forums (Kelly et al., 2009; Sack et al., 2009; Sustain, 2006). Design of online deliberation can be informed by studies that identify, facilitate, and/or analyze compelling examples of large scale and successful deliberations, but such studies are rare in the literature. Filling this knowledge gap will help designers overcome weaknesses in existing practices while maximizing deliberative quality in online environments. Next, we present an ethnographic study of the Citizens' Initiative Review as our strategy to address this challenge.

CITIZENS' INITIATIVE REVIEW

The Oregon Citizens' Initiative Review (CIR) is an active model of democratic deliberation that was adopted into Oregon State Law in 2011 and is currently being considered by Colorado and Arizona (see http://healthydemocracy.org/). It is a unique practice of civic engagement that uses public deliberation of a panel of citizens to create voters' pamphlet material about a particular ballot measure that is then used to improve the quality and levels of public participation in mass legislation and elections (Gastil et al., 2014). The CIR utilizes a random selection of citizen panelists to review a ballot initiative in depth and ask questions of subject matter experts in their review. In a way, the citizen panelists act as a jury that is putting the ballot initiative on trial, but rather than determining innocence or guilt of the issue, the value of this process is to create a summative document that can be distributed to inform all voters about the issue. The way that the voters' pamphlet is utilized by the mass electorate is

quite interesting but not a focus of this study; instead, we focus on the creation of the voters' pamphlet by the panel of citizens. We are specifically interested in the structure of this process and what artifacts are used to facilitate the process.

The panelists' creation of the voters' pamphlet during the CIR is a structured process that has been carefully crafted to allow a group of ordinary citizens to take part in a panel that makes informed choices about what will be included in the voters' pamphlet by accessing resources and evaluating in-depth knowledge about the particular issue (Gastil and Knobloch, 2010). A CIR panel review of the issue is organized as a face-to-face deliberation among twenty to twenty-four citizens that takes place over the course of four or five days. An example of the organization of the process over a four day period is described briefly here and in greater depth through our ethnographic analysis. *Day 1* is used for panelist orientation to the CIR and ballot measure. On *day 2*, proponent and opponent subject matter experts are invited to give presentations to the panelists that are followed by expert rebuttals from the opposing viewpoint. There is time for questions from panelists immediately after the presentations, but a longer period of deliberation follows the presentations in which panelists are asked to assess their information base on the issue and prepare additional questions for experts to fill in the information deficit. Experts are called by the panel to provide additional information until the knowledge base is complete, and small group discussions begin the process of prioritizing and eliminating claims from the information base (*day 3*). Final proponent and opponent presentations are held as panelists begin drafting Key Findings/Policy Considerations (*day 4*). On the final day, panelists draft pro and con arguments, review the citizens' statement, and are invited to attend a press conference. (Here, we are using the word "claims" as it is used by the proprietary process created by the CIR rather than by scholarly discourse or argumentation theory. Claims in this case simply refer to nuggets of information identified in documents that may be relevant information to share in the citizens' statement.)

Although the voters' pamphlet provides an effective summary of information, the details of where each statement originated can be lost in the process of quickly moving panelists through this process. In addition, this is a costly process that is time consuming for organizers to prepare and citizen panelists to attend, which is why it has primarily been used for large state-wide ballot initiatives rather than smaller local issues.

The quality of this process has been assessed using an evaluative model of democratic deliberation using three main criteria for evaluation: analytic process, democratic process, and decision-making process (Gastil et al., 2012; Knobloch et al., 2013). The analytic process promotes rigor in the creation of the information base among deliberants by ensuring a mutual understanding of basic issues, underlying values, a range of alternative considerations, and weighing of the pros and cons of the policy issue. The democratic process facilitates discussion that relies heavily on equal opportunities to participate in conversational turn taking. The democratic process requires a social sensitivity to the comprehension of information, consideration of different viewpoints, and mutual respect for participants while they take part in winnowing down the breadth of claims into a concise, summarized report of findings from the deliberation. The decision-making process relies on informed decision-making that follows from the information base, and also requires a social sensitivity to a noncoercive process. Though the CIR panels of twenty-four participants have been rated positively on these criteria for deliberative quality, the voters' pamphlet extends the effects of the deliberative quality beyond the small-scale interaction. This paper critically examines a unique combination of deliberative practices in an observation of this model of face-to-face democratic deliberation in an attempt to use lessons learned to optimize the scale and quality of citizens interacting with government entities.

While online democracy platforms (such as PeakDemocracy and e-Democracy) have been used in practical community engagement exercises, none of them have systematically utilized analytic, democratic, and decision-making artifacts from practices of known success such as the CIR. Here we highlight some of the unique features of CIR practices.

CIR combines small-scale deliberation with ballot voting

The CIR was a process developed in Oregon using an adapted version of the Citizen Jury (Broder, 2000; Crosby and Hottinger, 2011). The CIR allows time dedicated to researching and understanding the ballot measure through a process similar to jury duty wherein each ballot measure is put on trial. Rather than asking participants to state favor or disfavor as an end result of the trial, at the end of their deliberations, each panel of citizens writes a page long

analysis about their assigned initiative for the official Oregon State Voters' Pamphlet, which the Secretary of State delivers along with mail-in ballots to every registered voter in the state (Gastil and Knobloch, 2010). This pamphlet can improve information to voters because as many as eighty percent of voters report using the Voters' Pamphlet when making voting decisions (Gastil and Knobloch, 2010). The CIR connects small-scale deliberation with large-scale electoral decision-making and is the best example of a tool to sort information and questions about ballot measures that we can observe in action. Due to its success in providing voters with high-quality information about initiatives, the CIR was adopted into Oregon law during the 2011 legislative session.

CIR provides a strong information base for mass decisions

From a theoretical standpoint, Gastil and Knobloch (2010) suggest three potential means by which the CIR statement could influence voters: (1) the recommendation of the majority of CIR panelists could serve as a heuristic for initiative voting, (2) the CIR's pro/con statements could influence readers' values tradeoffs and, consequently, their voting choices, (3) the neutral CIR statement could improve the accuracy of voters' understanding of empirical issues relevant to the initiatives and thereby influence votes. The neutral Key Findings helped voters understand the context of the proposal while pro/con statements aid in forming an opinion.

CIR ensures adequate exploration of diverse values and solutions

The use of a stratified random sample increases the opportunity to consider other ideas and experiences. The process brings together a randomly selected, demographically balanced panel of citizens and gives them the time and resources to fairly evaluate a statewide ballot measure. Today, contemporary interest groups that include members of the public tend to focus on specific policies or events rather than balanced communities (Berry, 1999; Bimber et al., 2003; Skocpol, 1999; Wuthnow, 2002), thereby limiting the extent to which other ideas and experiences are considered and, instead, reaffirming shared beliefs. This depletes opportunities for diverse individuals to discuss public affairs and formulate collective expressions of public opinion. We believe the CIR is an important model that should be carefully analyzed to guide future work in deliberation. Direct observation of the CIR can be used to identify artifacts that show promise for further development of deliberative tools to allow increased access to useful information and a well-structured deliberative format to be available to a wider audience which may also be capable of evaluating claims on a larger scale.

METHODS

We explore the artifacts used to mediate deliberative activities in the practice of CIR. Through a field study observing the actual working of a CIR session, we interpret the various uses of physical instruments by CIR participants and facilitators. Our analysis adopts the human-artifact model (Bødker and Klokmose, 2012) as a theoretical lens and focuses on the multiplicity of artifacts, leveled analysis, and dialectical thinking. In particular, our analysis recognizes that individual interactive artifacts exist within a larger ecology of artifacts. With the artifact ecology of CIR, we identify several families of artifacts according to the role that they play in analytic, democratic, and decision-making processes in high quality deliberation. Through a deeper understanding of the roles of artifact families observed, we attempt to design future artifacts in an online deliberation environment.

We specifically highlight analytic process, democratic process, and decision-making process artifacts from an observation of a four-day CIR. Data from the observation are analyzed on six tangible elements: the context of the event, the project design and setup, its structural design, the discussion itself, subjective experiences of the participants, and the output or product (Gastil, 2008; Gastil et al., 2012; Knobloch et al., 2013). The next section begins by providing the context of the event. The other tangible elements of the CIR are used in the following section to consider how these artifacts or combinations of these artifacts contribute to the quality of the CIR, and propose parallels of these artifacts (or parallels of the effects of these artifacts) for transferring this process to an online environment.

Structure of observation

In April, 2014, Healthy Democracy, in conjunction with the Jefferson Center, convened the first CIR to evaluate an Oregon county (rather than state-wide) ballot measure. Twenty panelists were selected from a stratified random sample of all registered voters in Jackson County, Oregon. This county CIR was a unique opportunity to observe the

four-day CIR under conditions that may apply to municipal rather than statewide conditions. Prior to observing this case study, our research team was given access to all recordings, transcripts, reports, and researcher notes and evaluations from previous CIRs. Through a review of previous empirical work regarding the CIR and in-depth conversations with researchers, moderators, and members of Healthy Democracy, we believe that our observations of important artifacts are representative of other real experiences of the same process.

Direct observation consisted of ethnographic fieldwork to witness the practices and practical understandings of the situated actors (Greenbaum and Kyng, 1991; Suchman, 1987). Audio and video recordings were used to capture transcripts of the entirety of the county CIR, and two researchers provided additional field notes of interactions that could not be perceived in recording transcription due to their non-audible nature, for example gestural or other nonverbal interactions. Gastil (2008) developed methods of deliberative coding (see Table 1) which have been used during the CIR to identify the presence or absence of deliberative processes that occur during specific segments of the CIR (Gastil et al., 2012; Knobloch et al., 2013). Table 1 briefly summarizes ideal analytic, democratic, and decision-making processes that were used as the standard against which to evaluate the CIR proceedings. This coding has been refined over several iterations of CIR research.

Table 1. Deliberative process codes by Gastil (2008) used to evaluate quality of deliberation

Analytic Process	
Create a solid information base.	Combine expertise and professional research with personal experiences to better understand the problem's nature and its impact on people's lives.
Prioritize the key values at stake.	Integrate the public's articulation of its core values with technical and legal expressions and social, economic, and environmental costs and benefits.
Identify a broad range of solutions.	Identify both conventional and innovative solutions, including governmental and nongovernmental means of addressing the problem.
Weigh the pros, cons, and trade-offs among solutions.	Systematically apply the public's priorities to the alternative solutions, emphasizing the most significant trade-offs among alternatives.
Democratic Process	
Adequately distribute speaking opportunities.	Mix unstructured, informal discussion in smaller groups with more structured discussion in larger groups. Create special opportunities for the reticent.
Ensure mutual comprehension.	Ensure that public participants can articulate general technical points and ensure that experts and officials are hearing the public's voice.
Consider other ideas and experiences.	Listen with equal care to both officials and the general public. Encourage the public to speak in their authentic, unfiltered voice.
Respect other participants.	Presume that the general public is qualified to be present, by virtue of their citizenship. Presume officials will act in the public's best interest.
Decision-Making Process	
Base decision in information and reflection.	Identify the solution that best addresses the problem, potentially drawing on multiple approaches when they are mutually reinforcing.
Use a fair and equitable decision-making mechanism.	Use a means of decision-making that relies on a majoritarian voting mechanism and ideally allows individuals to disagree or dissent.

Two coders were trained using a handbook for CIR quality evaluation. The coders evaluated each 2-3 hour session in the CIR. Each session was rated for each of the items in Table 1, and the activity in that period of time was assigned a score from 1-100 by each coder. When the score of a segment differed substantially among coders, the difference was discussed to reach agreement. Although the scores are not reported in this article, we utilized the scores as a criterion to identify the artifacts that contributed most to the presence of deliberative processes. In the next section, we articulate the presence of artifacts from each of the three categories evaluated and articulate how they contribute to deliberative processes.

ARTIFACTS AND THEIR ROLE IN CIR

While the above deliberative process codes can be used to help us understand the role of artifacts, the human-artifact model addresseses the analysis of individual interactive artifacts that exist within a larger ecology of artifacts (Bødker and Klokmose, 2012). In addition to structuring the interconnected levels of artifacts necessary for action, we also utilize the human-artifact model, which focuses on the why, what, and how each artifact plays a role in deliberation. This robust perspective of each family of artifacts provides a method to analyze present artifacts and help us to design future ones.

We have identified three families of interrelated artifacts in the CIR. The first involves establishing a solid information base, which is related to the analytic process; the second family pertains to deliberative skills that are related to the democratic process; and the third family facilitates collective claim-making through categorizing, consolidating, and finalizing, which is related to the decision-making process. After presenting each artifact individually, the summary of each artifact family (in terms of the way each artifact is used to enable phases of activity) is summarized to gain further understanding of the role of each artifact in online deliberation.

Artifact Family 1: Artifacts to establish a solid information base to aid in the analytic process

We identified three analytic artifacts contributing to the quality of information available to panelists and voters. Below we describe the artifacts in detail as they relate to deliberative criteria.

Text in binder (measure, proponent and opponent statements). In this observation, each panelist received a binder that included printed materials with the definition of the issue in the form of the full text of Measure 15-119 together with the proponents' and opponents' statements about the measure. The panelists took their time, carefully reading the text. They were given the option to either read by themselves or attend a reading group where the measure was read aloud. In this observation, no panelists chose to partake in the reading group. Presentations of information by proponents and opponents were given an equal degree of consideration throughout the CIR. The moderators were present to ensure equality in the presentation of each side of the issue, and to monitor the degree of balance through a daily survey of perceived adequacy and balance of information from panelists.

Subject matter expert presentations and rebuttals. Over the four-day review, the panel heard directly from campaigns for and against the measure and called upon policy experts to provide first-hand knowledge from the source. Experts volunteered to provide 30-minute presentations that were in favor or against the proposed measure and used PowerPoint presentations, videos, or other visual aids. Experts provided initial presentations and then engaged the panelists in a short question and answer session. Panelists were asked to generate questions about what additional information was needed. These questions were then given to subject matter experts during a second session that day. The panelists then mined this information for claims that would provide clear, useful, and trustworthy information for voters at election time.

The information base was evaluated each day by researchers observing the practice. The scores were high each day, but dropped slightly on Day 2. During this day, experts from the proponent and opponent sides gave presentations to panelists and initiated rebuttals to one another. Panelists were given time for questions and answers, but limited time was available, and only a few panelists were able to ask questions. On the evaluations that were completed at the end of the day, panelists indicated that they would have liked more time for questions and answers with the experts.

Claim extraction (which serves the role of monitoring panelists' understanding) and questions to subject matter experts. In general, the Oregon CIR creates an efficient strategy for keeping the deliberation on track by focusing the deliberation on the particular outcome of creating a citizens' statement for the voters' guide that

consists of twenty claims of no more than 50 words each. Ten statements are claims confirmed by findings (these are claims that define the issue or state why it is important that voters consider this issue), five are the strongest arguments in favor of the measure (these claims are at the core of the proponent subject matter experts' case in the proponent statement and presentations), and five are the strongest arguments against the measure (likewise, these claims are at the core of the opponent subject matter experts' case in the opponent statement and presentations).

For every session we observed where new information was presented, a list of claims was extracted from that information session. When panelists initially proposed claims, they were not restricted to the word limit or categorization of the claim; they simply proposed the potential item, and the formatting, rephrasing, categorization, and reducing to twenty statements took place later in the process. CIR staff compiled lists of all claims proposed by panelists and printed each claim on a paper card. Each paper card was presented to a small group of 4-5 panelists to evaluate the quality of the claim.

Following the creation of a list of claims, panelists were asked to discuss any questions that were raised in the reading of the materials or questions about particular claims. These questions were not answered at that time; they were instead discussed among panelists. This process began a discussion to create a common understanding about the measure that included what was known and what was not known. When questions were agreed upon, expert experts provided answers. The panelists were asked if they believed the information base was complete before they moved forward with the deliberation. If it was not complete, further questions were raised to subject matter experts. When a majority of panelists believed that the information base was complete, the next phase of deliberation took place.

Artifact Family 2: Deliberative skills artifacts to aid the democratic process

Ground rules in binder and presentation. The binder that panelists received provided ground rules that spoke to deliberative democratic principles. This review of ground rules in the binder was paired with a presentation that described the importance of following these ground rules for the duration of the CIR.

Mock deliberation. After becoming familiar with the ground rules, panelists were asked to practice the rules and the CIR activities through a mock deliberation using an issue and its very short description.

Design and setup of democratic facilitation. Professional moderators trained in positive communication strategies and conflict resolution were hired to facilitate the Jackson County CIR. A local company called Mediation Works was selected because the agency was familiar with the southern Oregon region through working with people in Jackson County specifically, and one of the moderators had also moderated the statewide CIRs since their inception. The moderators attended additional two-day training in the strategies used for the CIR process. In general, it is the moderators' role to provide fair and balanced process guidance and management. One of their responsibilities is to ensure respectful behavior at the hearings. In all instances, they do their best to give a prior warning to any person about inappropriate behavior, but they also have the responsibility to alert the executive director and process manager to remove someone (or terminate the hearings) in circumstances where any immediate danger might be posed to those present. Over the course of the four days of our observations, panelists were generally agreeable and motivated to fulfill a civic responsibility to inform fellow voters, however attentiveness waned at moments due to disengagement or impatience.

Panelist and facilitator evaluation. Each day of the CIR, a research team distributed brief questionnaires to panelists. This subsection provides a simple summary of our assessment and the panelists' self-evaluations. These questionnaires have shown improvement in scores in many areas over time (Knobloch et al., 2014). Improvements in the process design highlight inclusion of values in the panelist discussions and in the ability of advocates and panelists to provide more feedback on draft versions of the Citizens' Statements. The latter process improvement was especially important to protect the CIR process against insularity or drifting into groupthink (Street, 1997) during its panel deliberations.

During the observed sessions, the strengths and weaknesses of the process according to panelist evaluations and researcher observations were announced at the beginning of each day along with a strategy to improve upon the weaknesses and gratitude for actions that contributed to the strengths. The comments from individual participants were kept anonymous to enable everyone to contribute freely without fear of reprisal.

Artifact Family 3: Facilitating collective claim-making to aid the decision-making process

Small group discussion. Each CIR panel follows the same general process design that allows for structured information gathering and evaluation. Moderators probe panelists for reason-giving when consensus was not reached in the identification of claims confirmed for findings. After reading the text of the ballot measure and the proponent and opponents statements, the panelists are asked to identify claims within the text that might be selected for the voters' guide. The criteria for identifying claims is made very clear in advance of this activity. Panelists are asked as a group to deliberate on the criteria that they will use to identify good information to be shared with their neighbors.

In this observation, the panelists agreed that the information should be based on reliable facts rather than opinion and articulated a list of other criteria that were written on a list and hung on the wall for the duration of the CIR. Each time panelists were given new information, they were asked to identify new claims within that information that met the criteria for good claims. Although the presentation of information was provided in equal balance, the number of claims for or against the measure was not considered in the early days of the deliberation: the claims were simply identified as statements that were related to the issue and were matched to evidence-based facts that were later categorized.

Categorizing, claim-prioritization, and elimination protocols to create deliberation output. The panel drafted a citizens' statement highlighting the claims that they believed to be the most important findings of the measure. This process required the prioritization and elimination of claims from larger lists of claims. The first physical circulation of information was a thick binder that contained information about the CIR process, the ballot measure text, arguments from proponents and opponents, as well as other supporting resources. The winnowing down of information moved from individual judgment of a list of claims on paper, to collective decision-making in four small groups using index cards that were evaluated by a group one at a time. The four small groups reported back to the larger group and advanced claims that were judged to be in the upper tier of the rankings of all four groups. This process ensured mutual comprehension, allowed for consideration of other ideas and experiences, necessitated respect of other participants, and utilized a fair and equitable decision-making mechanism. The agreed-upon statements were then moved to a wall of claims to be further reduced to twenty statements overall.

Not much time was available in the four days to discuss each claim in detail during every phase of elimination, and thus early elimination resorted to reading claims aloud and polling panelists to keep or reject the claim via voting using hand raising. Later in the process, the claims were evaluated by panelists and ranked during a process of eliminating claims that were less useful and retaining those that were judged to be strong and reliable according to the collective criteria. Perhaps the most challenging portion of this activity was the final decisions to either move a claim forward to a final selection or eliminate or merge two claims to create a more informative claim. The task of merging statements took some coordination to perform with equal input from all panelists. In general, similar statements were identified by the group as a whole and then one or two panelists took the time to rewrite the statement. The entire small group then voted on the question of whether the merged statement should be moved into the final list of statements. The full list was voted on by consensus among the larger group. Adequate distribution of speaking opportunities was made possible by allowing participants to evaluate a list of claims on their own, process their own thoughts and opinions, voice those opinions by adding markers to the same claims hanging on walls around the room, and then engage in a small group deliberation to eliminate further claims and consider the claims identified as most popular by the group.

Consolidating claims through agendas and timeline. Great care went into designing a process that would create reliable, trustworthy information. The overall structure of the process for "Generating Information Your Neighbors Can Trust," taken from the panelist binder, is seen in Figure 1.

The creation and evaluation of claims can be rather time consuming. The more information that is presented, the longer the list of claims becomes, and the more time will be necessary to identify the quality of each and then winnow down the list to the most important twenty statements. On a daily basis, the panel identified the key facts and arguments about the measure and, as a group, sorted through the information they had gathered to highlight the most important points to share with voters of the ballot measure. Stacks of cards containing claims were used to process claims one by one, and larger sheets of paper containing temporarily accepted claims that were hung on the

walls of the rooms were updated by CIR staff. Over the course of the review, panelists had the opportunity to directly ask questions of the subject matter experts, prioritize what they wanted to learn about, and deliberate together.
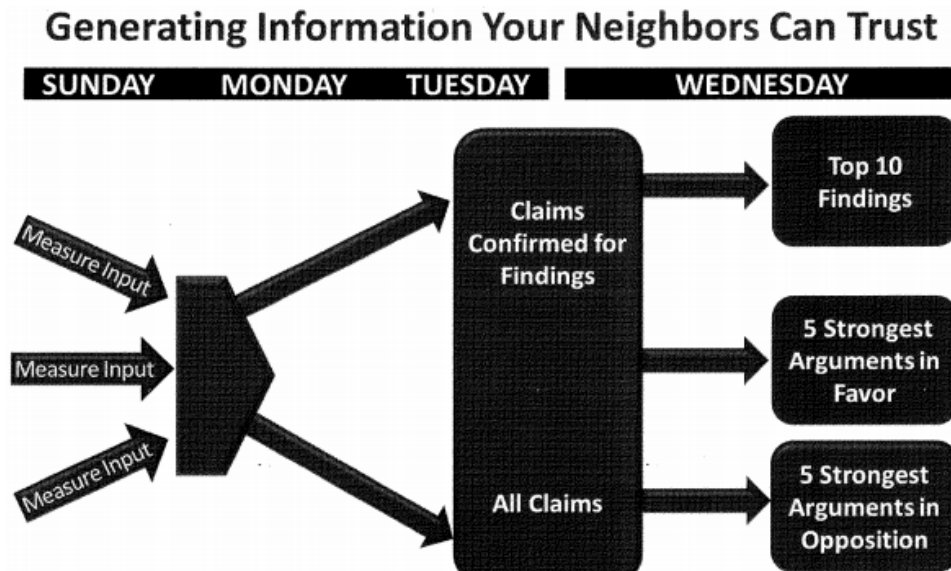

Figure 1. CIR agenda and timing of four-day deliberation

Conceptualizing the roles of artifacts in the CIR

In this section, we further articulate the roles of the CIR artifacts in producing quality deliberation outcomes. Observational data was analyzed using the human-artifact model to examine the way each artifact was used to enable phases of activity (the why, what, and how) and the multiplicity of artifacts (Bødker and Klokmose, 2012). We first identified artifacts that contributed to high scores in the deliberative quality coding criteria (Gastil, 2008; Knobloch et al., 2013) in the analytic, democratic, and decision-making processes of the observed process of CIR . The deliberative quality coding criteria, which were first described in Table 1, are marked in italics in the discussion below. The three quality features that contribute to deliberative quality were with observed artifacts in order to understand the role of each artifact family. The findings are presented in Table 2, which summarizes the role of each artifact in the CIR deliberation.

The first artifact family is directly related to deliberative quality by *establishing a solid information base*. Establishing a solid information base ensures that participants are introduced to the issue through equal access to clear, unbiased information about the measure itself, and then are introduced to statements written by proponents and opponents about the measure. The text in the binder is presented in such a way that is accessible to all participants by taking into account different literacy levels or disabilities. After being read, the information must be solid enough to extract claims that voters should be aware of when learning about this issue. The information base is constantly evaluated by the panelists and serves the role of monitoring panelists' understanding of the issue. Voting during this process *uses a fair and equitable decision-making mechanism* that relies on majoritarian voting while allowing individuals to disagree or dissent on an issue if they so choose. In addition, the binders not only *create a solid information base*, but they also allow panelists to *base decisions in information and reflection* by allowing panelists to take the binders home or make their own notes on the information packet.

Table 2. Roles of Artifact Families in the CIR

Artifact Family	Artifacts	Role
Establishing Solid Information Base	Text in binder (Measure, Pro, Con) Experts presentations and rebuttals Claim extraction (serves the role of monitoring their understanding) and questions to subject matter experts	<u>Why</u>: Create a solid information base from which to extract claims. <u>What</u>: Items were added to binder over time, experts were called back for additional questioning. <u>How</u>: Hand raising was used as a faster method to reach majority opinion of claims and solid information. Each group of panelists adapted the process of handling materials slightly to fit needs, some conferred more in dyads and others in small groups.
Deliberative Skills	Ground rules in binder Mock deliberation Design and Setup of Moderation Panelist and Facilitator Evaluation	<u>Why</u>: Create common ground by establishing good habits and norms for later communication. <u>What</u>: Created a solid information base from which to extract claims. <u>How</u>: Panelist assessment and researchers' feedback to facilitators was adaptive.
Facilitating Collective Claim-Making	Small group discussion about claims on index cards, colored stickers used to categorize as finding, pro statement, or con statement Consolidated similar claims by overlapping papers on wall, prioritized claims that panelists stated were most important by majority hand raising, eliminated claims that were not voted on by majority Rewording and merging	<u>Why</u>: The end goal of the process is to create a voters' guide to inform others about an initiative. <u>What</u>: Panelists underwent phases of addressing claims by first categorizing claims, then consolidating similar claims and finalizing claims. <u>How</u>: Panelists were guided through activities that helped them to identify relevant content through phases that allow them to process information differently (categorizing, consolidating, and finalizing).

Experts presentations and rebuttals not only allowed panelists to hear information directly from the source, but also created a strong validation of this legislative process. This process of allowing time for opinions to form new questions contributed to deliberative quality by helping to *identify a broad range of solutions.* In addition, hearing from experts and being able to ask questions directly allowed panelists to *weigh pros, cons, and trade-offs among solutions.*

The democratic process is reflected in the second family of artifacts identified, which includes the deliberative skills enabled through this process. Moravcsik states that, "Applied democratic theory must work with individuals as they truly are – inattentive, inexpert, uncertain about the future and unequal – not as one might wish them to be" (p. 344, 2004). A key to the facilitation process is to begin by introducing citizens to deliberative ground rules presented in their binder, then training deliberants to deliberate in a way that is evidence- rather than opinion-based and considers others' *ideas and experiences* in a mock deliberation. This is further cemented by the design and setup of moderation and regular evaluations. The process is reviewed and evaluated to improve the practice of both moderators and panelists over the course of the CIR. Because organizers circulate a summary of participants' views about the process, whether they are good or bad, the panelists seem to become further interested in the day-to-day success or failure of the process itself in addition to the creation of the output. This is one of the ways that open and

transparent deliberation stimulates interest not only in the policy issue, but in civic participation more generally among the participants (Fishkin and Luskin, 2005; Fishkin, 2011; Gastil and Levine, 2005).

Simply providing time for panelists to read the text in the binder is helpful for engaging this small group, but the larger contribution of this democratic process is facilitating the collective claim-making necessary for the voters' guide, which is the core of the third artifact family. A key challenge to open democracy has been information deficit among voters (Owens and Driffill, 2008). Many voters do not read the full text of state laws or amendments prior to voting at the polls. Instead, voters rely on newspaper summaries or interest group campaigns and political elites to form preferences about legislative issues in an upcoming election (Gerber, 2011; Gerber and Lupia, 1999). Citizens are guided through a process of informing their neighbors through small group discussion about claims, categorizing claims, and prioritizing/finalizing claims.

The process of identifying relevant claims uses evidence instead of opinions, and aids panelists in focusing on one statement at a time prior to a review via small group discussion. This method is preferred to *ensure mutual comprehension* rather than using a large and unwieldy compendium of the items for and against the ballot measure that can be attacked from many viewpoints. Instead, a comprehensive list of claims to be considered are enumerated by panelists and then eliminated through a slower process. The creation of a voters' guide is both a strategy to unify panelists in a common goal, as well a simple way to disseminate the information mining performed by the panelists. The voters' guide represents the distilled legislative information found to be most relevant to the *creation of a solid information base* while *prioritizing key values*.

The categorization of claims and the structure of the decision-making process through agendas and a timeline effectively keep the process on task to complete the voters' guide in the allotted time. The CIR is a data rich process in the intermediate phases, although the final voter's guide to the public only contains twenty statements. To create this short document it is necessary that citizens merge some statements, reword others, and eliminate many statements. While the overall process touches on each of the criteria for quality deliberation, it contributes most to *the creation of a solid information base*, *weighing the pros, cons, and trade-offs among solutions*, and *identifying a broad range of solutions*.

IMPLICATIONS FOR DESIGN

The observations of the Oregon CIR raise a question of whether this process can be used to allow more citizens to participate in the process to invoke even more citizen-generated policy ideas, produce more valid assessments of ideas, and strengthen democracy by allowing a greater collective to participate in this process. This fieldwork was useful to guide our ongoing iterative design of an online deliberative democracy system. The first phase of the iterative design was simply to identify appropriate artifacts to attempt high quality online facilitation. After assessment of deliberative quality, future research will build on these families of artifacts in a way that improves the deliberative quality during online deliberations. Artifacts of the CIR provide evidence for the potential to allow a greater collective to participate in this process given that these artifacts, or the effects of these artifacts, may be paralleled in an online environment. Table 3 summarizes online parallels of artifacts in each artifact family.

Table 3 highlights how the families of artifacts lend themselves to online parallels of artifacts, wherein groups must concentrate on fine-tuning not only interpersonal communications, but this design analysis must also examine social and technical efforts for facilitation strategies such as the personalized attention-mediation suggestions designed by Klein (2012) or structured methods to ensure coherence on a large scale. Through the design of an online tool that tests these online parallels, we also envision opportunities to conduct a CIR based on a local issue rather than large statewide ballot initiatives.

GeoDeliberator is a web-based application that can be configured to host one or more forums which may effectively facilitate online interactions (Cai and Yu, 2009). In the following section, we utilize GeoDeliberator as a test bed to recreate artifacts in an online environment. GeoDeliberator supports deliberative dialogue threads, provides a rich and interactive depiction of geospatial issues as well as baseline geographical information. It also provides visual-computational enablers for sense-making of large public discourses.

Table 3. Online parallels of Artifacts

Artifact Family	Online Parallel of Artifact
Establishing Solid Information Base	Text from binder may be displayed as documents in online system
	Presentations from experts and rebuttals may be recorded and submitted as videos
	Documents from binder may be highlighted for claim extraction, panelists may submit questions while reading, facilitators observe equal contributions to information base
Deliberative Skills	Ground rules established in video or online document rather than presentation or binder
	Mock deliberation may be part of activity training panelists to use online system as well as deliberation rules
	Moderators may use a dashboard to facilitate initiation of deliberative phases in process
Facilitating Collective Claim-Making	Claims previously written on index cards may simply be separated text items in a list in online system and subsequent categorization may take the form of +, -, and findings symbols rather than stickers
	Voting and prioritizing may take place asynchronously as users read claims and upvote/downvote claims
	To consolidate similar claims, items may be highlighted and then reworded into a new claim or reworded to create a new statement and copy edited

Employing the CIR facilitation strategy in GeoDeliberator may be an effective means for communities that wish to become more robust and more effective in successfully deliberating and negotiating the decision-making process. Deliberative dialogues about local issues should work to bring geospatial planning issues to the forefront, showing a greater understanding of best democratic practices and encouraging participation from all parties with an interest in the matters at hand. Researchers may use geographical information tools that capture, represent, and store spatially-anchored annotations, but this information must be aggregated and displayed in a way that represents collective opinions rather than many individuals' thoughts.

Artifact family 1: Establishing a solid information base in online deliberation

The artifact family that aims to establish a solid information base is among the easiest to replicate in an online environment. In our design, the same informational artifacts used in the CIR populate a list of documents in GeoDeliberator (see Figure 2). This includes similar legislative artifacts relating to the deliberation issue, including the ballot measure question, ballot measure text, and statements from proponents and opponents (i.e., subject matter experts). The use of geospatial anchoring of location-based information and summative tools helps users sort through this vast amount of information quickly. To create claims relating to the issue after reading the documents, panelists are invited to evaluate information and generate claims from the materials. As they do so, panelists are asked to submit questions to subject matter experts in discussion forums (see Figure 2), and later vote on the quality of the information base before moving forward toward the next phase of deliberation.

The presentation of issues in the deliberative forum is through the full text of the measure. This artifact can be replicated almost exactly; however, there is no guarantee that a participant will read the measure if it is available in an online document. To some extent, there is also no guarantee that participants attending the face-to-face CIR have read the document either, but an allotted time period whose sole purpose is to read the measure is ensured in the face-to-face environment. Participants are able to make notations on individual information sources using bookmarks or favorites, while a separate view may be used to create a collective information base. Tools to summarize deliberative metrics and content (Klein, 2012; Pingree, 2006), such as a list of which participants have logged in and the amount of time each participant has spent reading documents, may improve the ability to facilitate a large-scale discussion online.
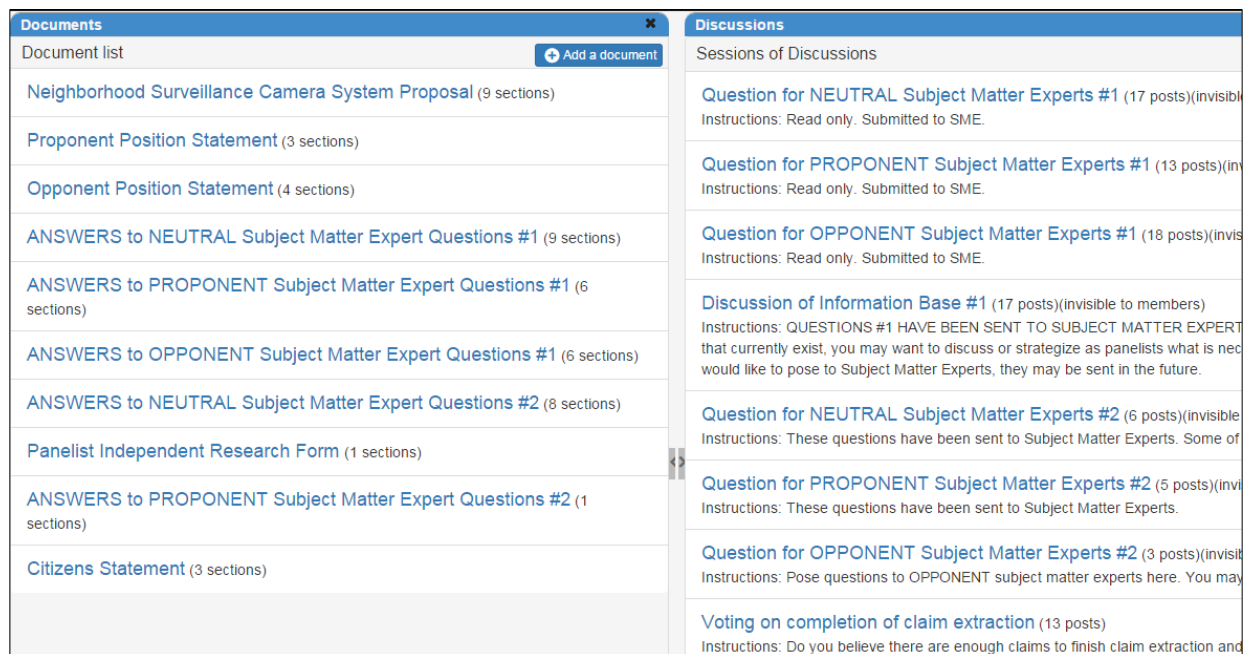
Figure 2. Information in binder posted as documents is shown on the left; questions about documents for subject matter experts is posted in discussion forums shown on the right

Design and setup of the experts' presentations and rebuttals will be modified in an online environment to be an asynchronous exchange. The presentation of experts may take the form of a recorded video or a written response (both may be preferred to maximize review of this information by participants). Questions from panelists would need to be extended to a 1-2 day period rather than a matter of 10-15 minutes to allow for asynchronous responses from the larger group of panelists. Given that panelists in the observation requested additional time for this process, this schedule change would prove beneficial to the process. The experts may have limited time; therefore selection criteria, for which questions are to be answered, would need to be developed (i.e., selection by facilitators, selection by experts, or ranking of questions by participants).

Artifact family 2: Deliberative skills in online deliberation

This family of artifacts includes support for establishing ground rules, undergoing a mock deliberation, and designing and setting up democratic facilitation. Professionally trained moderators who have participated in the face-to-face deliberations will be ideal for this process. Such a requirement for professional moderators can be gradually made unnecessary as online systems are increasingly enhanced by facilitation tools that are simple to use (Murray et al., 2013). As proof-of-concept, Figure 3 illustrates how a moderator's control panel can be designed to allow a moderator to control and monitor each part of the democratic process. Instructions for panelists along with deliberative ground rules may also be established in the system so that the facilitator may focus efforts on monitoring ongoing discussion.

Artifact family 3: Facilitating collective claim-making in online deliberation

As previously mentioned, in the online system, the structure of the decision-making process (both the agenda and timeline) will require new allotments of time through three rounds of claim organizing to account for the scale of participation and time necessary to read new information. Claim categorization, consolidation, and finalizing through prioritization and elimination protocols will also be modified.
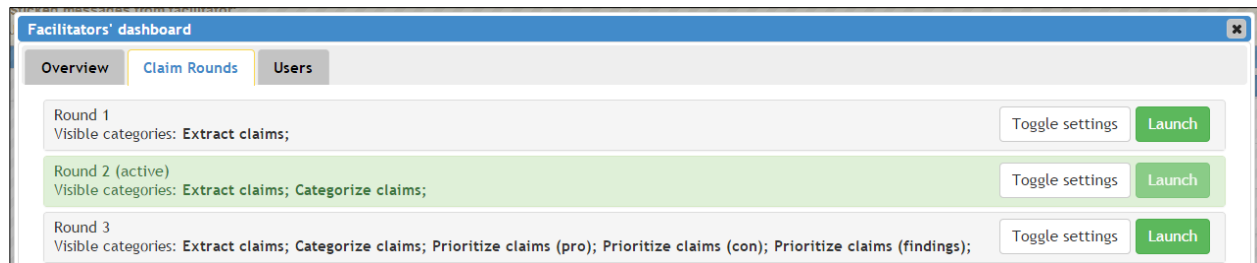
Figure 3. Portions of CIR process that may be launched by a facilitator

The design should ensure that all claims from documents are easy to review by each panelist. After a defined period devoted to claim extraction (round one of organizing claims), claims may be categorized by their position as a pro, con, or neutral statement (round two of organizing claims) such as panelists had performed as individuals during the CIR. This categorization may be easily done by clicking on icons beside each statement rather than placing stickers on pieces of paper on the wall as seen in Figure 4. After claims have been categorized, they may be sorted into forums by majority vote of category label.

To begin winnowing down claims, panelists can rank claims through like/upvotes and assign top facts and top pros and cons. The email integration system designed by Davis (2009) may be an effective method for encouraging participation at this phase. For the final creation of the voters' guide, the system may allow a second opportunity to revote, make adjustments, or propose a merge of two similar top tier statements.

Of all extracted claims, only 20 claims will be a part of the citizens' statement, therefore rounds of elimination will be necessary. Facilitation will be necessary to avoid attrition during these rounds of refinement. While facilitation was found to decrease levels of participation (Rhee and Kim, 2009; Leshed, 2009), the use of email integration, for posting and notifying (Davies et al., 2009) and for voting on decisions crucial to deliberation (Davis, 2009), was shown to increase contributions to deliberative forums. Ranking and online voting can be used to replicate the prioritization and elimination of claims from larger lists. In addition, the materials in the virtual binder of information may be updated quickly in an online environment with little effort.

Future research to assess artifact design

Given the online parallels of these artifact families, the above sections provide a more specific design to facilitate this process online. The technologies used in this design are existing ones, but their combination in making the digital artifacts that fulfill the roles of CIR artifacts is novel and has unique utility to support citizens as they collectively review an issue and produce a summary statement for large-scale consumption. This paper is our initial step of discovering such artifacts. More iterative refinement and evaluation of the CIR artifacts (following the iterative design process recommended by Rosson and Carroll [2002]) are required before they are translated into design principles in online deliberation environments.

We are developing a field experiment to test the effect of introducing CIR artifacts into online deliberation to address a local issue. The experiment considers a local municipal government's plans to install surveillance cameras in a neighborhood that has been prone to vandalism. The government is unsure if the advocates of that project are a "loud minority" or a representative voice of the neighborhood. We have designed a CIR experiment to organize a randomly sampled group of citizens from the neighborhood to review the camera proposal and statements by a proponent and opponent, and then extract, categorize, consolidate, and finalize claims into a citizens' statement that can be used by other citizens from the area to become more informed about the history of the issue and why the proposed solution is being considered. In an online environment, the final claims may be traced back to the documents and subject matter expert statements that they originated from so that citizens interested in digging deeper into an issue through the online system may find where statements are linked before voicing concerns to elected officials.
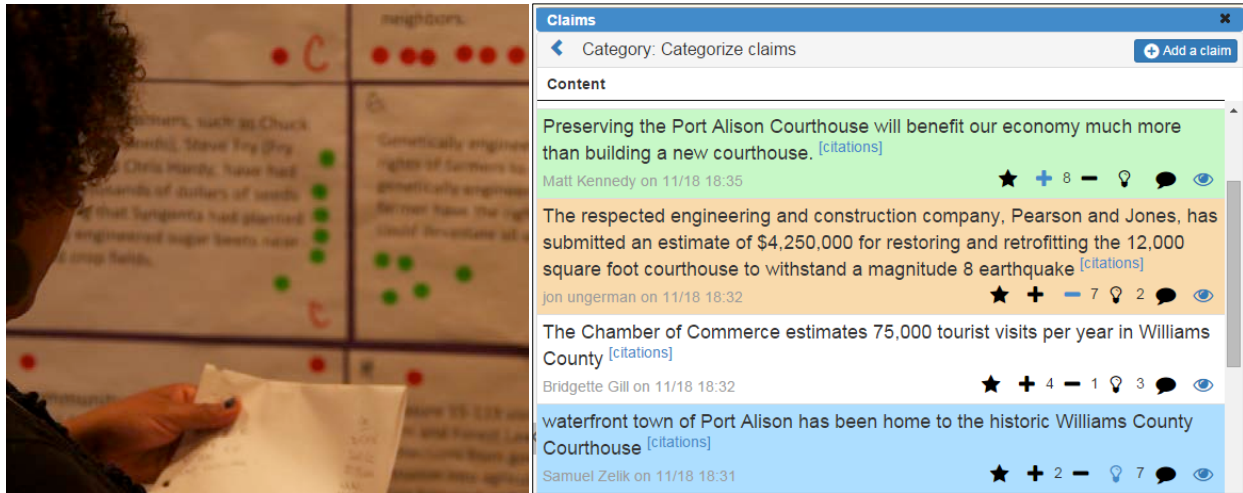
Figure 4. Categorizing claims: panelist in-person using stickers to categorize claims during CIR is shown on the left; online categorization with icons is shown on the right

To test the design of the online tool to facilitate the online CIR, we plan to follow the method used to examine the deliberative quality of the in-person CIR (Gastil, 2008; Knobloch et al., 2013). That method used daily evaluations during the event to identify the presence or absence of deliberative processes that occur during specific segments of the CIR. Findings from such a test can inform the iterative design and refinement of the online deliberation artifacts. We are also incorporating lab studies to discover any disconnects between what the system supports and the desired capability for panelists to deliberate effectively. Early iterations of the tool evaluation can benefit from open-ended interview questions that allow citizens to express their ability to use the system to perform various deliberative tasks such as: access necessary information, deliberate with other panelists, maintain an adequate level of moderation, and follow instructions of the moderators at each stage in the process.

CONCLUSION

The challenge that this work attempts to address is to scale up the effects of the CIR while preserving the quality. On a large scale, social media has shown unparalleled opportunity to engage citizens, experts, and stakeholders but lacks systematic contributions necessary for deliberation (Gastil and Levine, 2005; Klein, 2013). Scholars have noted benefits that new communications technologies hold for practical deliberative implications. An example is community engagement, such as public crowdsourcing of information and ideas (Bimber et al., 2005; Forte, 2008; Howard, 2006). O'Doherty (2013) suggests that deliberants should produce thoroughly considered opinions and become increasingly informed over time, which is the aim of the method presented in the Oregon CIR. Given the previous success of the CIR process and taking into consideration the potential challenges, we propose the following steps to transfer this process to an online environment and retain participation and quality of informational and process artifacts.

Using a combination of direct observation and researcher evaluation of deliberative criteria, we studied the role of analytic, democratic, and decision-making processes in the CIR. Thus, the CIR appears to provide a viable model for empowering citizen-centered deliberation online. In the case of the Oregon CIR, panelists took responsibility for creating informed voters within their community by identifying and selecting appropriate, reliable facts about the ballot measure. Managing political information and encouraging citizen participation is important to a healthy local democracy. We believe this paper presents a promising approach to leveraging the CIR process in an online environment in addition to improving upon online deliberative support tools.

The e-government paradigm (Tat-Kei Ho, 2002) is one of network building, external collaboration, and customer services—a shift from the traditional bureaucratic paradigm of government, which emphasizes standardization and departmentalization. With the development of social media technologies (online deliberation technologies, in

particular), large crowds of citizens around the world are now able to engage in political discourse by reporting on events using social media, voicing opinions on blogs, connecting with likeminded others who share concerns, and contributing to crowdsourcing platforms. Democratic decision-making online includes not only increasing information sharing and government transparency but also creating an engaging process for citizens to generate opinions and share new ideas.

The new richness of data in society has allowed citizens to improve knowledge of societal issues (Petland, 2014). This abundance of data allows new opportunities to reduce the information deficit. Even at the neighborhood level, community members have begun using social media to talk to one another outside the traditional face-to-face interactions. Some of those neighbors have established themselves as community hubs who publish and curate timely and useful information. Researchers have capitalized upon these hubs to create neighborhood trending topics similar to those produced at the city scale by Twitter (Hu et. al., 2013). Hu and colleagues identified two extremes of hyperlocal information. The first is traditional news sources that offer little participation and are slowed by the process of fact checking and editing. The second extreme is fast-paced and uncurated social media. Leveraging social media as a source of information appears chaotic, noisy, and overwhelming for those users seeking to distill high quality content about their community. Given that the majority of the electorate is now using social media as a source of political information, it most likely contributes to the widespread claim that voters do not have sufficient accurate information to make satisfying voting choices (Canary, 2003), and voters who lack political knowledge and partisan allegiances can be particularly rudderless in initiative elections (Gastil, 2000).

The strong structuring practice included in the design of GeoDeliberator and the smaller, in-depth, high quality deliberation of panelists that is scaled up to a larger community for participatory decision-making is what sets this work apart from the inclusion of social media tools in eParticipation. The inability to attend long public meetings, information deficit, and lack of motivation are often key factors that inhibit open and participatory decision-making in local communities. Through the creation of an online participatory platform where strong structuring for high quality facilitation is built into the system, new venues may take advantage of this in-depth citizen review process by making it more accessible and more available to a greater number of people.

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