Mini-Public Approach for Co-Creation of Policy Knowledge

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Abstract. Municipal governments often struggle to inform and engage citizens around local issues. Due to complexities of local politics and the diverse expressions in public and private spheres, citizens face a huge information barrier towards meaningful participation. To overcome such barrier, we explore a solution to provide citizens with clear, useful, and trustworthy information. We describe a method for creating crystallized public policy knowledge, called Community Issue Review (CIR). CIR is a structured deliberative process that use a citizen panel to conduct analysis of data relevant to a pending issue. We evaluated the use of CIR in real community policy analysis, and reported a number of observations for enabling collaborative decision analysis.

Introduction

Using information and communication technologies to improve democratic decision-making process is one of the important but unfulfilled promises of digital government research [6, 12]. Democracy empowers the public through their influence on political decisions [8]. However, meaningful participation of public decision-making is premised on the ability of the participants to produce reasonable, well-informed opinion in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants [2]. Such ability is often hindered by the lack of exposure to a diverse marketplace of ideas [19]. Informing the public with adequate knowledge about policy issues is hard for many reasons. First, the public needs to be informed by good science that characterizes the potential consequences (benefits and risks) of any policy option [3]. Second, it must give all stakeholders an opportunity to express their social, economic, and ethical concerns. Third, it must be informed by understanding the institutional, political, legal, and operational contexts of decision-making. Such knowledge can be buried in a plethora of online and offline information sources. With the advent of user generated content and social media platforms, citizens have much broader spectrum of channels for public expressions, but in the same time, it has become increasingly difficult for interested citizens to identify and track all the appropriate information of interest and citizen comments or other responses to a specific issue.

Recent proliferation of online participation platforms has significantly enriched the channels of expressing opinions on public matters [7], but at the same time, it creates information glut to citizens’ use. Typically, information about a policy issue is buried in new media, community forums, government web pages, documents, and reports, community meeting notes, as well as in the minds of experts, residents, and other stakeholders. There is a huge information barrier for individuals to understand a policy issue before they can articulate their preferences [10,18,21]. To address this problem of the wide dispersion of local knowledge, various computer-mediated systems and data mining techniques have been developed to automatically discover and aggregate diverse sources. Kavanaugh et al [13] developed a Virtual Town Square (VTS), a local news aggregator that affords civic interaction through tagging, commenting, and sharing insights. The harvested news can be further analyzed to understand trends and events in social contexts. Automated textual analysis tools have been used to detect important messages and alert analysts. Hagen et al [11] automatically analyzed thousands of petitions to generate more concise reports for decision makers. Topic modeling methods [24] are useful here because it summarizes the most popular topics that appear in news articles and blogs and representing them together in an intuitive way.
Automated methods, such as news aggregation and topic modeling, can improve the accessibility of community information sources. However, they are far from providing actionable knowledge to citizens. Useful knowledge has to be discovered from the data and be contextualized for certain tasks [22]. It remains to be the burden of citizens to analyze a large number of documents, comments, and claims, along with other materials to gain insight that informs opinions. Besides the volume and speed of data streams, real life data tend to be messy (inconsistent, incomplete, and duplicate), which further complicates the problem [23]. It is cognitively difficult and time-consuming for a person to make sense of large and complex data.

This paper argues for the need to communicate policy relevant knowledge more effectively to the public by taking into account their limited cognitive capacity and attentional resources. This need can be met by incorporating an explicit phase of “knowledge crystallization” before engaging the broader public for their policy preferences. We present a conceptual framework for structuring knowledge crystallization task, and propose a concrete process, community issue review (CIR), that can be practiced as a policy-public communication tool in a variety of policy-decision contexts.

**Issue-Based Knowledge Crystallization**

We define knowledge crystallization as a process that aims to produce a most insightful and compact description of the relevant content of a data set for a given task without removing crucial information. Examples of knowledge crystallization tasks include writing a business intelligence newsletter, reporting on the analysis of a business strategic management practice, or a scientist writing a literature review article [1]. Knowledge crystallization takes all the data that we can collect about a particular issue or subject, and puts them through a systematic process of distilling relevant nuggets, purifying, abstracting, and compacting to create a best and most accessible “form” of knowledge for human consumption.

We have implemented the above idea into a practical method for crystallizing knowledge about a pending community issue. Community Issue Review (CIR) [14] is a community-level panel-based deliberation process that is specially tailored to the need of informing the public on local policy issues. CIR guides a group of panelists to review an issue relevant to the community through a multi-day public review process. Panelists are either randomly or strategically selected from a community. As representatives of a community, panelists are given access to a large amount of data from various sources concerning a given issue. CIR aims to generate an informative briefing of the issue, called Citizens’ Statements, to provide the community with insights concerning the issue so that everyone in the community is able to form opinions effectively and efficiently.

In the rest of the section, we describe CIR process in terms of phases and relevant activities as an instance of IBKC. We will also identify the challenges users may face and show how technical support can contribute.

**Community Issue Review**

When a local government has a pending issue looking for a policy solution, a “Community Issue Review” panel can be organized to conduct a thorough analysis of the information related to the issue and produce a concise report called “Citizen’s Statement” for broad distribution in a community. This is a complex process that consists of a number of phases:

**Recruiting Citizen Panel**

To ensure trustworthy knowledge about a policy issue to be created, CIR is done by a small group of citizens to ensure both in-depth analysis and democratic assessment. We follow the work of a small group deliberative democracy process [9], which selects panelist from the relevant population through stratified random sampling as representatives.
**Assemble Information Package**

For the pending issue. The ideal input to CIR is to include all the information that can be found about a community issue (proposals, ordinances, reports, and news articles) into the information package for each panelist. We identify and invite subject matter experts and government officials to help organize and structure the information into a collection of documents. The contents usually include neutral descriptions of proposals/ordinances and evidence supporting/against an issue, and panelists are allowed to add more materials later if necessary.

**Issue Briefing**

Before moving to the first phase, the panelists will get together and learn about the community issue through a briefing. They will have a chance to get to know each other as collaborators. Tutorials for the online system will be provided that enables them to work on it during the four phases before the final-day meeting. They can also communicate with experts directly to resolve quick questions. Last but not least, as the panelists have a basic understanding of the community issue, they will be asked to come up with a knowledge scheme used for the following phases.

**Nugget Extraction**

In CIR is aimed at reliably recognizing and collecting all nuggets relevant to the pending issue, and it is the prerequisite for subsequent tasks of knowledge crystal formation, refinement, and compaction. During this first phase of CIR, a citizen panel gathers information nuggets relevant to a policy issue through an online analytic forum where individuals can access all the documents to be analyzed, extract nuggets, and tag them by a particular theme. The collected nuggets are expected to cover all the information that can be found.

**Assemble Claims**

The purpose of Claim Assembly in CIR is to transform collected information nuggets into claims, which should be relatively well-written, self-contained, and based on facts and evidence. There are two kinds of claims: findings (objective facts) and opinions (facts with implicit position). The opinions can be further decomposed into two categories: substantiate and refute, depending on the position. A claim is informed by one or more information nuggets.

**Generating Statements**

Claims might still be reduplicated, conflicting and redundant and thus cannot meet the requirements of the compactness. This phase improves the qualities of claims and makes them more compact, defensible, and understandable. Once claims are of high quality that meets the requirements of the task, they are considered to be exquisite statements. Several operations can be done upon such claims, such as rewording, merging, splitting. Panelists discuss, categorize, and prioritize statements according to their relative significance. A knowledge schema is used to ensure that each dimension of the issue is fully reviewed and covered by the final statements.

**Communicate Statements**

Claims are compiled into a set of statements of manageable length. These statements must be presented in a way that is easily accessible and available to local citizens, enabling them to acquire necessary issue-relevant knowledge to participate. The final statement contains ten statements that summarize the issue and why it is important to the community, five statements are the strongest arguments in favor of the issue and five statements are the strongest arguments against the issue. Considering the audiences are the general public, technologies such as visualization and storytelling, could be adopted to make statements more accessible, interactive, and easy to understand.
Implementation and Experimental Evaluation

Working with State College Borough (www.statecollegepa.us), we conducted a CIR process on a real policy proposal which put forward a motion to allow the borough government to raise property tax rate automatically each year inline with the inflation in order to generate revenue sources for public services. We recruited fourteen participants as the citizen panel. Most of them were recruited via mailings that were sent at random based on the addresses provided the borough office. Three of them from specific student organizations were recruited via targeted email. The experiment implemented CIR in a hybrid mode where the panel meets face-to-face only in the first day and the last day of a 1-day process. During day 2-day 9, panelists worked online using a carefully designed group support tool, IssueDeliberator. This tool provides many features that can enhance the cognitive capability of the CIR panelists in managing deliberative artefacts, facilitating communications and negotiation, and maintaining coherence among diverse efforts.

The experiment was managed by an expert facilitator and assisted by an online deliberation tool. A facilitator serves as the “conductor” that herds the panel through the complex CIR process. He/she mediates the conflicts among views on issue-relevant information, and manage different understandings, values, and knowledge [16]. The facilitator could also coordinate with the panelists and experts in terms of information exchange and take care of all other things irrelevant to the issue. In short, facilitation is an essential component to ensure the effective implementation of CIR.

Discussion and Conclusion

Based on the participants’ feedback and our observations, we were able to derive a few insights.

[Finding 1] The Choice of Knowledge Schema is Critical

In this study, we adopted a set of themes as the knowledge crystallization schema. Each theme represents one important aspect of the issue and is shown as a phrase with detailed explanations on demand. For example, “Affordability” was used in the study as a theme, which indicates how a tax increase affects the price of owning and renting properties. All the participants reported that the themes were not very useful after the first phase to organize extracted nuggets. Panelists suggested that several guiding questions would be more helpful for all phases. We have taken this suggestion to explore the use of six decision-making related questions as the knowledge schema.

[Finding 2] Collaboration, Coordination, and Communication Happened Mostly During Face-to-face Meeting

Our observations show that participants communicated a lot in face-to-face meetings while they worked almost individually in the online environment, though a variety of communication channels were provided. One participant believed it is due to time delays in asynchronous communication while people do expect immediate responses or in-time notification. This was explained by [4]. One improvement is to provide subscription/notification service: Once a participant makes a contribution to an entity, he/she is considered to subscribe to the related thread. Whenever there is an update, e.g., another participant leaves a comment, the participant will be notified. The idea of the private and public workspace was also mentioned by some participants, which allows the participants to work in their private workspace and share with others only when necessary.

In summary, we identified the challenges caused by information overload and knowledge deficit that prevent ordinary citizens from participating public life effectively. Drawing from observations of how local government decision-making works and theories of public opinions, we proposed CIR as a practical method for overcoming information barriers in public policy making. The idea is to delegate the task of analyzing policy-relevant information to a small group of citizens so that the broader community can get involved with less amount of time [15].
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References


