Utilizing and Adapting the Delphi Method for Use in Qualitative Research

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Abstract

The Delphi method is a pragmatic research method created in the 1950s by researchers at the RAND Corporation for use in policy making, organizational decision making, and to inform direct practices. While the Delphi method has been regularly utilized in mixed methods studies, far fewer studies have been completed using the Delphi method for qualitative research. Despite the utility of the Delphi method in social science research, little guidance is provided for using the Delphi in the context of theory building, in primarily qualitative studies, and in the context of community-engaged research (CER). This article will emphasize new and modest innovations in the Delphi method for improving the overall rigor of the method in theory building and CER.

Keywords

Delphi method, Delphi methodology, qualitative methods, qualitative analysis, qualitative rigor

Introduction

Qualitative research provides methodological tools for understanding deeper meanings associated with complex phenomena and processes in social work practice (Denzin & Lincoln, 2005). In addition to the more well-known approaches to qualitative inquiry, such as grounded theory, phenomenology, constructivist inquiry, and narrative inquiry, the Delphi method is another approach less often discussed in the literature. The Delphi method is a pragmatic approach grounded in the philosophical assumptions of philosopher and educator John Dewey who believed that social science research should directly relate to and inform real-world practice and decision making (Kirk & Reid, 2002). The Delphi method emphasizes structured anonymous communication between individuals who hold expertise on a certain topic with a goal of arriving at a consensus in the areas of policy, practice, or organizational decision making (Birdsall, 2004; Dalkey & Helmer, 1963).

Despite methodological guidance in the literature for using the Delphi method with quantitative data or in mixed methods studies, far less guidance exists for those wishing to use the Delphi method with solely qualitative data (Fletcher & Childon, 2014). During the course of conducting a study to build beginning-level practice theory in community organizing through the expertise of community organizers, the author experienced several challenges related to the Delphi method. Literature regarding the Delphi method provided little guidance on how to engage in analysis of solely qualitative data, how to promote rigor in a qualitative Delphi method, and what

the final product of a qualitative study might look like. Based on the experiences of the author using the qualitative Delphi method, this article will provide modest guidance on how to use and improve the Delphi method for use in qualitative research. A secondary purpose of this article is to provide some illustration of the benefits of the Delphi method for use in building practice theory and for research taking place in community-based settings.

Guiding Theory and Philosophy of the Delphi Method

The qualitative Delphi method has roots in the philosophy of Locke, Kant, and Hegel (Turoff, 1970). Each philosopher emphasizes the importance of opinions and perceptions of groups of people, alongside other sources of empirical data, in considering what reality is or how to approach decision making. Additionally, because the Delphi method was designed for practical research that could be used to inform practice, the Delphi method was established in accordance with the philosophical assumptions consistent with Dewey's

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pragmatism (Dalkey & Helmer, 1963). Dewey's pragmatism has long been considered a practical bridge between theories and methods stemming from the interpretive paradigm concerned with subjective human experiences and contextual truths and the emphasis on generalizability and objectivity common in the postpositivist paradigm (Fay, 1996; Kirk & Reid, 2002). Pragmatism is evident in the qualitative Delphi method in the following ways: (a) The Delphi method is flexible and can be used with quantitative and qualitative data sources; (b) The Delphi method is affordable, as it incorporates inexpensive questionnaires varying from more open ended to more structured that can be easily disseminated to participants utilizing either traditional or electronic delivery; (c) The Delphi method is not concerned with having a generalizable sample but instead seeks input from a purposive sample of individuals with specific expertise on a topic; and (d) Delphi studies lack the complexity of many other research designs that demand highly specialized education, technology, and knowledge, which makes it a good tool for community-based research and decision making by community researchers and practitioners alike (Skulmoski, Hartman, & Kran, 2007). Finally, research questions and aims in Delphi studies must have direct bearing on informing practice, policy, or decision making (Alder & Ziglio, 1996; Dietz, 1987).

Delphi Method Link to Community-Based Participatory Research (CBPR)

Finally, the Delphi method is a useful tool in the context of community-engaged research (CER) as well as CBPR research, both of which are rooted in empowerment theory (Israel, Checkoway, Schulz, & Zimmerman, 1994). For the purpose of this article, CER and CBPR are both considered approaches to conducting research, characterized by inclusion, collaboration, and varying levels of participation with community groups and members. CER and CBPR provide a less hierarchial and more ethical approach to conducting research that is built upon the principles of reciprocity, relationship building, and translational learning between communities and professional researchers. Theoretically, CER and CBPR are thought to improve the understanding of social issues, processes, and contexts by supporting the development of research questions that better reflect issues of concern to the community being studied (Minkler, 2005). CER and CBPR is also thought to improve the cultural sensitivity, reliability, and external validity of research while serving to increase the relevance of interventions to the communities being studied (Flicker, Travers, Guta, McDonald, & Meagher, 2007). Finally, CBPR and CER are thought to improve research ethics as well, with community involvement improving academic researchers' ability to obtain informed consent and to better evaluate the risks and benefits of research from the communities' perspective (Flicker et al., 2007).

Literature Review of the Delphi Method

The Delphi methodology has been used in an array of different contexts, where expert knowledge is needed to inform decision making or to understand a phenomenon in greater depth. One area that has regularly utilized the Delphi method is public policy. The use of the Delphi methodology in public policy has provided policy makers with a better understanding of policy design and implementation (Alder & Ziglio, 1996; Linstone & Turoff, 1975). In one study, policy makers in California used the qualitative Delphi method to better understand how educators and leaders thought the trend of charter schools would impact the educational access and quality in public education (Alexander, 2004). Additionally, in a more recent study, the qualitative Delphi was used in participatory action research to promote community member inclusion and participation in developing better systems and informed practice for delivery of health care (Fletcher & Childon, 2014).

Delphi studies have also been conducted in the area of information technology (IT) in order to improve the efficiency and effectiveness of technological infrastructure and communications within major sectors such as the armed forces, human services, and government (Alexander, 2004; Birdsall, 2004; Dietz, 1987). One such study helped to identify barriers and deficits in U.S. armed forces IT systems that provided useful insights into potential security risks that were subsequently prioritized and fixed as a result of the study (Birdsall, 2004; Skulmoski et al., 2007). Additional applications of the Delphi method can be found in the areas of management and organizational development as a mechanism for improving working relationships and making group decisions (Hartman & Baldwin, 1998). During one study, the Delphi method was used to help improve hiring and retention of employees at a major corporation, through soliciting the expert opinions of potential candidates and current employees (Roberson, Collins, & Oreg, 2005).

Despite the use of the qualitative Delphi method in multiple contexts and for different purposes, the Delphi literature has several distinct gaps in methodological guidance (Skulmoski et al., 2007). Some of the gaps in the literature for using the qualitative Delphi includes how should researchers approach data reduction and analysis in qualitative Delphi studies? how should researchers promote rigor in these studies? and what types of products can be produced from qualitative Delphi studies? Given the gaps in the literature, the author made modest innovative adaptations in order to better use the Delphi method with qualitative data in the context of a study designed to build beginning-level practice theory, which serves as the basis for this article.

Utilizing the Delphi Method in Practice

This article is rooted in lessons learned from using the Delphi method in a research study with the aim of building beginning-level practice theory in the area of community organizing. The institutional review board at Virginia Commonwealth University approved the study and as meeting the requirements for ethical research involving human subjects. Although several qualitative methods were considered for the research study including traditional grounded theory, interpretive grounded

theory, and constructivist inquiry, the Delphi method was chosen based on the following: (1) participants in this study were spread out across multiple states, making in-person interviews not cost-effective; (2) the participants involved in the study were busy professionals who needed flexibility in when they participated, for which open questionnaires allowed; (3) all participants were experienced community organizers who can often be distrustful and nonparticipatory in traditional academic research that makes undo demands on their time without offering any tangible products useful to their work; (4) and finally, the Delphi method provided a viable tool for learning as much as possible from highly experienced organizing practitioners in the least amount of time. The remainder of this article will focus on providing an overview of the major aspects of the Delphi method for researchers unfamiliar with the method. Additionally, where appropriate for illustration purposes, the article will interweave aspects from the research study it is rooted in to provide readers with a context for how and why adaptations were needed as well as guidance on how to use the method itself in qualitative research.

Overview of a Standard Delphi Method

Although variations in qualitative Delphi studies exist as is the case with most approaches to research (see Creswell, 1998; Denzin & Lincoln, 2005), certain consistent criteria apply to all qualitative Delphi studies including purposive sampling, emergent design, anonymous and structured communication between participants, and thematic analysis (Linstone & Turoff, 1975). The expertise of participants on the topic of inquiry is one of the most important requisites in Delphi studies, which will be discussed in more detail in the sampling section below. The concept of consensus among experts is also highly important and must be properly defined before the study begins (1974). Questionnaires are the traditional data collection tool used in the Delphi method, as they provide an easy tool for soliciting and receiving honest expert opinions on a topic without fear of responses being impacted by unequal power dynamics, in-person group think, difference in social identities and values, or past history with one another (Bolger & Wright, 1994). Delphi studies collect data through questionnaires that may range from more open ended to closed ended, depending upon how much is already known about the topic (Dalkey & Helmer, 1963; Skulmoski et al., 2007).

Most often, Delphi studies begin with open or semi-open questions and as data are collected, the questions become more structured in subsequent waves in order to verify previous consensus, test prepositions, and finalize decision-making models (Birdsall, 2004). Standard Delphi studies typically have three rounds or waves of data collection that begin with a questionnaire developed by the researcher, usually from the literature or what is thought to be known about the topic. The second wave or round in Delphi studies allows participants to provide feedback on all responses from Round 1. Finally, the third wave of the Delphi method uses a questionnaire developed from the previous two waves to find a final consensus on a given topic

of inquiry. If consensus is not found, additional rounds of data collection may follow until consensus is reached.

Justifying the Delphi Method for Building Practice Theory

Building practice theory is an important role in community-based research (Minkler, 2005). The author chose to use the Delphi method to build practice theory in the context of community organizing over other qualitative methods and traditions because of several criteria including low cost, ease of use, access to a sample of expert community organizers, and the emphasis on consensus, which provided for a pragmatic way to develop beginning-level theory that could be testable quanitatively in subsequent studies. The Delphi method is well suited for building practice theory in community and organizational settings due to its emphasis on questionnaires and online data collection, which helps keep study costs low (Skulmoski et al., 2007). More importantly, Delphi studies allow for greater inclusion and participation from groups in lower power positions that are often left out of traditional research. Delphi studies allow for participants to contribute without knowledge of who else is participating, which helps to minimize power dynamics, while promoting participation (Fletcher & Childon, 2014; Holmes, 2005).

In other qualitative methods used for theory building, sampling is often theoretical in nature, meaning the researcher attempts to sample for maximum variation as opposed to obtaining expert consensus. In the researcher's study, theory was constructed starting in the practice literature of community organizing and ending up with a consensus level of agreement from long-term community organizers about how organizing is facilitated, what activities organizers engage in and for what purpose, what goals can be accomplished, and what tensions or conflicts may hinder organizing practice from being successful.

The consensus-focused goal of Delphi studies is beneficial for building practice theory. Through emphasizing points of agreement held by expert practitioners about how to do practice, the Delphi allows for testable theoretical tenets to be formulated, while also identifying gaps of difference that may be better understood through follow-up studies. By emphasizing participant consensus about practice, it allows for data to continually build and progress through subsequent waves of data collection as opposed to stalling as a result of difference between participants, which can be a challenge in theory building research. Give the pragmatic orientation of the Delphi method, it is important for research to progress quickly in order to make use of it in practice with the idea that it should be regularly revisited and amended as needed.

Improving Data Analysis in Qualitative Delphi Studies

While many research texts and articles, both inside and outside the Delphi tradition, are available for researchers seeking guidance on quantitative data analysis, little has been written

Table 1. Example of the Thematic Analysis Process Adapted for Use in a Qualitative Delphi Study.

Example Response	Concepts	Categories	Category Definitions	Relevant Themes
"If people don't trust each other and organizers don't spend time at the beginning to build trust, than the effort will fail"	Raising awareness Knowing community Building trust	Community building	Stage 1 of the organizing process where emphasis is placed on building trust and rapport among community members	Trust versus mistrust

about data analysis within solely qualitative Delphi studies (Brady & O'Connor, 2014; Skulmoski et al., 2007). The Delphi method employs a variety of different analytic techniques depending on the purpose of the research and type of data collected (Dalkey & Helmer, 1963; Skulmoski et al., 2007). In all Delphi studies, analytic techniques are not specifically tied to the method but should be chosen based on the aim of the research, design employed, and type of data collected. In all Delphi studies, analysis is conducted iteratively throughout the course of the study, as prior waves of data collection must be analyzed in order to inform the questionnaires developed for subsequent waves of the study (Turoff, 1970).

Within the methodological literature for the Delphi method, it is widely stated that qualitative Delphi studies should utilize thematic analysis (Dalkey & Helmer, 1963; Linstone & Turoff, 1975). Despite the recommendation for using thematic analysis in qualitative Delphi data analysis, little is written about how to engage in thematic analysis in Delphi studies (Brady & O'Connor, 2014). During the research used for this article, it was determined that careful consideration and thought was needed in relation to how to use thematic analysis most effectively in a qualitative Delphi study, since many variations of thematic analysis exist in the literature (Bazeley, 2009; Charmaz, 2006; Creswell, 1998; Miles & Huberman, 1994).

During the author's research using the qualitative Delphi method to develop practice theory, the work of Bazeley (2009), who was guided by Strauss and Corbin (1998), was utilized to inform the process of thematic analysis employed. Both Strauss and Corbin (1998) and Bazeley (2009) view the process of rigorous qualitative data analysis as involving the identification of concepts and categories in order to move from specific ideas found in participant responses, to less specific but more explanatory ideas found in themes (2009). Table 1 demonstrates an example of how thematic analysis was utilized to analyze participant responses to create concepts, categories, and themes, each of which can be visually seen in the final theoretical model of community organizing practice discussed toward the end of this article.

Participant responses, such as those above, were examined and coded side by side for commonality and consensus. Concepts were identified from participant responses to questions, based on the frequency that participants discussed them. While concepts are the closest unit of analysis to the original raw data, categories are more abstract; however, they provide a greater level of explanation than concepts alone. Categories require the researcher to utilize prior knowledge from the literature and

expert consultation about the data to identify relationships, links, and other ways to organize concepts. In the example above, the researcher deemed that the concepts of raising awareness, issue identification, and knowing community were all tasks and goals related to the category of community building. Finally, the theme of "trust versus mistrust" identified in the example above is the most abstract aspect of the thematic analysis process; however, it provides the most beneficial insights into the process of how community organizing operates in practice. The theme of trust versus mistrust is descriptive of the tension that occurs during the initial community building stage of community organizing practice, where organizers engage in activities and processes with aims of promoting trust between community members; however, if their efforts are unsuccessful, community members may develop mistrust for one another, which can negatively impact the entire effort.

The use of this level of thematic analysis would not have been possible through utilizing existing guidance from the Delphi literature alone; therefore, the addition of rigorous thematic analysis techniques provided by Bazeley (2009 was imperative to the success of data analysis in this study. The final product resulting from three waves of data collection and analysis was illustrated in a visual theoretical model of the process of community organizing as conveyed by expert participants. This final visual model was sent electronically to each participant for final validation that it represented their perspective about how community organizing is used to create social change.

Improving Rigor in the Qualitative Delphi Studies

In addition to identifying more guidance for qualitative data analysis in Delphi studies, measures were taken to improve the rigor of the Delphi method. During the development of the Delphi method in the 1950s, little methodological guidance existed for conducting qualitative research (Skulmoski et al., 2007). In qualitative research, the primary rigor dimension is commonly referred to as trustworthiness (Charmaz, 2006; Creswell, 1998; Denzin & Lincoln, 2005; Miles & Huberman, 1994; Rodwell, 1998). The dimension of trustworthiness relates to the integrity of the research process as well as the final product or products produced (Miles & Huberman, 1994). In Delphi studies, the major rigor control is the ability of participants to extend and revise data during the course of the study, along with the use of consensus in determining what responses

and data are valid (Linstone & Turoff, 1975). While the iterative nature and use of consensus are important for promoting rigor in the Delphi method, other measures were deemed necessary in order to further strengthen the rigor of the Delphi method. In the study discussed here, the researcher borrowed from constructivist inquiry and grounded theory by using a methodological journal during the course of the study to document major research decisions and rules, such as how consensus was defined. Methods journals provide a detailed overview of the entire research process from start to finish through documenting major methodological decisions made during the study (Miles & Huberman, 1994; Rodwell, 1998).

The methods journal is highly important in emergent designs as it provides a means for the researcher to stay organized and a way for others to track the logic and decision-making process over the course of a study (Rodwell, 1998; Strauss & Corbin, 1998). Through maintaining a decision-making trail for others to follow, the trustworthiness of the study is improved as other researchers can follow the logic of the researcher's decisions at every step and stage of the study (Rodwell, 1998). During the author's research using the Delphi method, a methods journal was started before the onset of the study and contained major decision rules, protocols, justification for changes to protocols, and corresponding dates for each major step and decision undertaken in the study.

In addition to the use of a methods journal, a final member check was conducted to verify that the conceptual model illustrated above was a truthful representation of participant consensus about community organizing practice. One hundred percent of participants responded affirmatively that the model represented how they viewed organizing practice and what they believed was the consensus of the group. A final member check is used regularly in other qualitative traditions, primarily constructivist inquiry, as a method for ensuring the integrity and accuracy of results (Rodwell, 1998). While the addition of a member check may seem like a small rigor addition, it provides an essential check for trustworthiness, which the author believes is important for studies seeking to use a qualitative Delphi method.

Conclusion

The Delphi method is a promising method for use in qualitative research studies seeking to inform practice through theory development. Despite the potential of the qualitative Delphi for use in social science, far less methodological guidance exists in the literature for qualitative Delphi studies than in quantitative or mixed method studies. The research that serves as the basis of this study sought to create formal practice theory grounded in the practice experience of community organizing practitioners working in community settings. The final results of this study provided beginning-level theoretical tenets about how community organizing leads to social change, which can be empirically tested in subsequent studies. While theory building can be conducted using many different methods, the qualitative Delphi provides a pragmatic and more inclusive way

for building theory as a result of the anonymous dialogical process that is a hallmark of the qualitative Delphi. Despite the challenges encountered by the author with implementing the Delphi method with qualitative data, small adaptations by way of more rigorous and guided thematic analysis, along with improved rigor through the use of a methods journal and final member check provided modest improvement to the method. Social researchers, community practitioners, and policy makers considering using the Delphi method should consider adopting these adaptations in their own work, while also considering how else the method might be further improved upon.

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