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Qualitative Delphi Method: A Four Round Process with a Worked Example

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Abstract

The Delphi Method was originally designed to collect data from a panel of experts to aid in decision making in government settings. Delphi has been described as a qualitative, quantitative, and mixed-methods approach. The anonymous collection of narrative group opinion coupled with the tightly structured nature of the process and quantitatively described results renders the approach difficult to situate in a methodological category. The purpose of this article is not to settle the debate. Rather, the aim is twofold: to present a modification of Delphi that is definitively qualitative, and to provide a worked example to demonstrate the proposed method.

Keywords

Delphi Method, Qualitative

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A Four Round Process with a Worked Example

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The Delphi Method was originally designed to collect data from a panel of experts to aid in decision making in government settings. Delphi has been described as a qualitative, quantitative, and mixed-methods approach. The anonymous collection of narrative group opinion coupled with the tightly structured nature of the process and quantitatively described results renders the approach difficult to situate in a methodological category. The purpose of this article is not to settle the debate. Rather, the aim is twofold: to present a modification of Delphi that is definitively qualitative, and to provide a worked example to demonstrate the proposed method. Keywords: Delphi Method, Qualitative

Introduction

There has been much debate about the nature of the Delphi method (Delphi). Some scholars posit that Delphi is a qualitative method, others suggest that it is the purist form of mixed methodology, and still others argue that in the final analysis, literally, Delphi is quantitative (Brooks, 1979; Custer, Scarcella, & Stewart, 1999; Doyle, 1993, Murry & Hammons, 1995). Originally developed by researchers at the Rand Corporation as a method to improve decision making in government settings, Delphi has since been used in corporate and education settings. (Dalkey, Brown, & Cochron, 1969). The anonymous collection of narrative group opinion coupled with the tightly structured nature of the process and quantitatively described results renders the method difficult to situate in a methodological category.

The goal of this paper, however, is not to support or refute any of the positions on how to categorize the method, but to put forward a modification of Delphi that is unquestionably qualitative in its approach with a set of associated steps to guide researchers. Classical Delphi, and most derivations thereof, is valued is for its potential to gather data from the best participants (panel of experts) without regard for location. Data can be collected via e-mail or file sharing software (such as Google docs). This feature of Delphi allows researchers to use a sample that is most appropriate for a study rather than most convenient or cost-effective, a common critique of qualitative dissertations. This paper offers a worked example of the proposed qualitative version of the method.

This modification to the Delphi Method was designed by Dr. Sekayi after advising two doctoral students who proposed the method for their dissertation research around the same time. Prior to this, Sekayi had only general knowledge about Delphi. She read the Delphi literature as her students worked on the early chapters of their respective dissertations and noticed, as the students did, that detailed guidance for the analysis of the round 1 qualitative data was not provided. Both students and advisors consulted studies that used Delphi and collected examples of how various authors approached the qualitative data. It seemed that nearly ever study used a different modified version of the method. At that point, Sekayi concluded that it would be helpful for novices to have step-by-step instructions, with a worked example, for completing a modified Delphi study. After co-authoring her own Delphi study, Sekayi decided to create a fully qualitative modification; this would provide researchers with a detailed example, and it would provide an option for a structured qualitative method that

many of her students craved. Kennedy, Sekayi's graduate assistant, conducted a review of the literature on the traditional Delphi method.

Traditional Delphi is completed using a series of rounds of data collection (Dalkey & Helmer, 1963). The first round consists of open-ended brainstorming that is the basis for the questionnaire that is presented in the form of a series of statements about the topic. The questionnaire passes through participants in several iterations; participants rank the statements by level of agreement, researchers share all of the rankings with the participants, the participants are invited to revise their own rankings, then the researchers reanalyze the data. This is "controlled feedback" wherein Likert-type questionnaire responses are summarized by the researcher and shared with the participants, rather than having participants communicate directly with each other. This too is an area of flexibility in the way the process has been applied; often, however, the participants are asked to give feedback on quantitative results. For example the researcher shares that 25% of participants strongly agreed with the statement, 15% of participants disagreed with the statement, and so on (Meijering & Toby, 2016).

This feedback process continues until consensus is reached. Consensus is defined in advance as a percentage of panelist agreement on rankings. If there are 30 panelists, the researcher(s) might determine that there is consensus on statements when at least 80% or 24 panelists agree or strongly agree with a statement. There are times, however, when consensus is not reached. After several rounds of feedback and opportunity for revision, for example, perhaps agreement on statements never exceeds 50%. This is called stability; the point beyond which panelists no longer revise their rankings. The final rankings, a quantitative compilation of individual feedback to form a group response, are used to inform the decision or topic at hand.

Proposed Qualitative Delphi

While the rounds of classical Delphi are well structured and the feedback is controlled, little guidance is given on interim steps. For example, Round 1 is open ended brainstorming on the topic and the result of this brainstorming is a list of statements. The path between the raw data resulting from the brainstorming and the list of statements is not well defined. This is evident in the diversity of methods of qualitative analysis used in Delphi studies found in the literature (Brady, 2015; Jenkins & Sekayi, 2014; Murry & Hammons, 1995; Skulmoski & Krahn, 2007). A more defined qualitative path will be presented in this paper. A qualitative approach is useful because it preserves more of the nuance from the initial narrative brainstorming about the topic throughout the entire process. The narrative data from Round 1 loses some of its distinctiveness as the data are treated quantitatively for the ensuing rounds. For example, statements on which the panelists do not agree or strongly agree to the extent defined by the researcher are not highlighted as findings. The proposed qualitative modification makes room for a greater range of perspectives about a topic.

As previously mentioned, in Rounds 1 and 2 of controlled feedback, quantitative results are presented on qualitative data. In the proposed qualitative version, narrative feedback is solicited on narrative statements. In the spirit of Thurstone Scaling, a description of each ranking is provided to enhance the consistency in meaning of participants' responses (Thurstone & Chave, 1929). For example the description of the "not endorsed" rating could be complete disagreement and or no experience with the topic. The "moderately endorsed" ranking description could be that there is agreement with minor, but important modifications. Finally, the "strongly endorsed" rating suggests full agreement with the statement as it is written with no modifications necessary. Through these categories of feedback, a greater range of perspectives can be presented as findings; this is one of the benefits of qualitative research.

When to Use Qualitative Delphi

There are numerous research scenarios for which the qualitative Delphi method is appropriate. The qualitative Delphi process results in textual consensus data. Any qualitatively oriented research question that can be answered by group-based data is a candidate for the qualitative Delphi method. Though Delphi had traditionally been used in decision-making and forecasting, the fully qualitative version can be used to gather expert perspectives for a broader purpose. Conversely, qualitative studies that seek distinctly individual perspectives would not be appropriate for the proposed approach.

Participants

As in the traditional Delphi process, the selected participants should be well versed and experienced in the research topic. The number of participants, called a panel of experts, should rarely exceed 30. Numbers much greater than 30 become unwieldy in this iterative process. Furthermore, with careful selection of panelists, 20 to 30 should provide sufficient diversity of perspective on most topics. The following sections of this paper will offer specific steps to complete each round of data collection and analysis in the qualitative version of Delphi. It is advisable to create a list of research-based criteria to define expertise for your topic.

Timeline for Completion of a Delphi Study

The classical Delphi method consists of multiple rounds. The time to complete each round can vary depending on a number of factors. In Round 1, the research has the greatest control over the timeline once the brainstorming step has been completed. A researcher can complete thorough coding in a time frame that is relatively predictable based upon the skills and focus of the researcher. The same can be said for the write-up on the findings in Round 4. Rounds 2 and 3 are where the level of predictability decreases. While the researcher administers the questionnaire and imposes deadlines, adherence to those deadlines is difficult to predict with 20 to 30 participants. For practical purposes, researchers may choose to use a preset number of opportunities to revise statements. If such restrictions are applied, they should be presented in the methods sections and included in the limitations section if this decision proves to be a limitation.

Suggested Rounds for Qualitative Delphi

What follows is a description of the steps involved in each qualitative Delphi round.

1. Round 1 – Individual participant open ended brainstorming on the topic via electronic means.
   a. *Use of open coding to label statements* (Strauss, 1987). This step consists of initial sorting of the data by assigning descriptive labels for small segments of text.
   b. *Use of axial coding to analyze and group statements* (Strauss, 1987). This step becomes more analytical as judgments are made by the researcher about how the descriptive codes fit together to make meaning.
   c. *Generation of a list of statements using the categories generated from the axial coding process*. This step requires some rewording of individual statements to create a composite group response. Researchers

must be careful here not to force statements into categories for the sake of data reductions. The uniqueness of individual statements should not be sacrificed.

2. Round 2 – Presentation of the list of statements to the participants (panel of experts)
    a. *Collection of narrative comments on the statements from participants.* Using electronic communication, send the collection of statements to each participant. Note that all statements are shared with all participants even though every participant did not originally contribute information on every topic. Participants are asked to either leave the statement as is (in cases where they have no experience with or nothing to add to the statement) or to make minor modifications to the statement in a way that makes it applicable for them. It is important to establish deadlines for this process and to be prepared to remind participants to respond by the deadline.
    b. *Compilation of modifications by the researcher(s).* The researcher(s) work with the statements and any modifications for the purpose of generating a clear and inclusive statement that maintain the original meaning or the original meaning with slight modifications.
    c. *Creation of revised and/or new statements by the researcher(s).* If the participants suggest modifications that alter the meaning of the original statement, the researcher(s) create a new additional statement to reflect the new idea while maintaining the old statement.
3. Round 3 - Presentation of the final statements to the panel for endorsement
    a. Using electronic means, send the final statements to panelists for endorsement. Be sure to communicate deadlines clearly.
    b. *Endorsement of statements by panelists.* Panelists would designate statements as strongly, moderately, or minimally endorsed – these designations would each have narrative description to promote consistency in the meaning of the rankings.
4. Presentation of Findings
    a. The final version of the findings would be a list of moderately and/or strongly endorsed statements from panelists.
    b. *Establishment of standards for findings.* There are two options for this step. The first option is to select a minimum percentage for the endorsement of statements to be included in Round 4. For example, if a statement is moderately or strongly endorsed by 75% of participants, it shall be considered a finding of the study. The second option is to use only the statements that are strongly endorsed by all participants to presents in Round 4.
    c. A separate section of the final report, or the appendix, would include compelling findings that were not moderately or strongly endorsed.

Worked Example of Qualitative Delphi

Using data created by Sekayi, Table 1 presents an example of round 1 of the modified qualitative Delphi method. The topic and brainstorm prompt regards how doctoral students experience the dissertation writing process. The responses of the panelists, comprised of doctoral students in a college of education in the midst of writing the dissertation, are presented in the first column of the table; the open code for the response follows in the second column

(one for each response, even if repeated); the third column includes the axial code (which reflects one or more open codes); the final column is the statement that results from the data. This round is qualitative in the conventional version of Delphi, but guidance is not provided on how to analyze the raw data and convert them to statements to be presented for participant feedback. This modification provides instruction on how to reduce the data and create statements that represent the nuance of the original data.

Table 1

Topic and Brainstorm Prompt: How do doctoral students experience the dissertation writing process?

Narrative Responses	Open code	Axial Code	Final Statement
I felt dumb the whole time	Always felt dumb	Feeling of inadequacy	
It seemed that no matter what I wrote, my advisor tore it apart	Constant criticism		
I thought I was admitted to the doctoral program because I was seen as capable	Capable upon entry	Belief in ability before entry to program	I felt confident in my ability and intellect before I entered the program, but the constant criticism throughout the process led to feelings of inadequacy.
Our charge was to write a document that reflected original research. I believed I could do it.	Ability to produce original research		
There was constant demeaning criticism	Constant criticism	Constant Criticism	
My advisor was constantly making notes to cite this or that	Constant criticism		
Am I not capable of an original thought?	Challenge to intellect	Feeling of inadequacy	

In round 2, the statement resulting from the round 1 process is presented to the participants. In this round, participants have the opportunity to offer narrative comments on each statement. Participants' comments are either integrated into the statement or, if different

enough, are developed into a new statement. As in Round 1, narrative feedback allows the preservation of nuance in the qualitative data. Table 2 includes the sample results of this process.

Table 2

Round 2: Sample narrative comments and modifications

Statement	Narrative Comments/ Panelist 1	Narrative Comments/ Panelist 2	Narrative Comments/ Panelist 3
I felt confident in my ability and intellect before I entered the program, but the constant criticism throughout the process led to feelings of inadequacy.	Add "relatively" before "confident"	It wasn't just the constant criticism throughout the process that made me feel inadequate; I found other elements of the structure of the program demeaning. At one point, for example, I had to quit my job to have any real chance of finishing since an internship was required.	The cohort structure was supportive, on the one hand, but made me feel inadequate when I struggled and had to retake one of the classes with a different cohort. Because of the structure, everyone knew I was not in their cohort; they were nice enough, but I felt small.

In round 3, the researcher either integrates the participants' narrative comments into the original statement or uses the comments to create a new statement. All participants are given the revised and/or new statements to endorse. Value is added in this qualitative version of the process as the narrative feedback can result in new and more detailed statements for participants' consideration. This qualitative process results in findings that are more refined. In the original process the feedback for this Round takes the form of participants reviewing one another's Likert-type responses and deciding whether or not to change their own. See Table 3 for sample results of this round.

Table 3

Round 3: Endorsement of Statements

Statement	Endorsement/ Panelist 1	Endorsement/ Panelist 2	Endorsement/ Panelist 3
I felt relatively confident in my ability and intellect before I entered the program, but the constant criticism and/or other elements of the program structure throughout the process led to feelings of inadequacy.	Moderately endorsed (only experienced constant criticism, no other elements of program structure led to feelings of inadequacy)	Strongly endorsed (no modifications)	Strongly endorsed (no modifications)
The cohort structure was supportive.	Strongly endorsed	Strongly endorsed	Strongly endorsed
The cohort structure came with added pressure to perform.	Not endorsed (has no experience with the subject of this statement or does not agree with the statement on any level)	Not endorsed	Strongly endorsed

In the fourth and final round, the first two statements from Table 3 would be presented as findings as they were moderately and strongly endorsed. The third statement should be noted in an appendix to the report for interesting but not endorsed statements or presented as a recommendation for future research consideration. In either case, the explanation for the moderately or not endorsed categories are presented alongside the data; this is value added in this modification of Delphi. Note that each participant is asked to offer an endorsement decision on all statements regardless of their role in providing and/or revising it.

Conclusion

The Delphi method is an effective way of collecting qualitative data from a diverse sample of participants that need not be restricted by location or resources. Google Docs or other document sharing technology can be used to collect and organize the data gathered during each round. Researchers, particularly doctoral students, with limited funding often struggle to gather the best possible sample of participants; they often target samples of convenience in order to complete research in a timely and cost effective manner.

Despite several benefits of the qualitative approach to Delphi, there are also some limitations. The most significant limitation is also present for conventional Delphi; the time commitment required of the participants. Qualitative Delphi requires active participation over the course of four rounds, each of which may take several weeks as the researcher must give participants time to process the data and provide thoughtful feedback. There is the ever-present risk of participants dropping out before the process concludes. Since narrative feedback is required for the earlier rounds, this can be more time consuming for the participant. This limitation should be addressed by clearly informing the participants of the time commitment in advance, and by providing convenient options for the collection of data. For example, providing access to the data through a direct e-mail link so that participants can provide feedback with one click.

Many applications of Delphi in the literature are modified in some way. In fact, the author has advised two dissertations and co-authored a study that employed variations on the Delphi method (Currie, 2012; Dunn, 2013; Jenkins & Sekayi, 2014), none of which were fully qualitative. This paper is intended to add to the limited literature on how to conduct a fully qualitative Delphi analysis.

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Author Note

Dr. Dia Sekayi earned a Ph.D. in the Social Foundations of Education with foci on qualitative research and the sociology of education from the State University of New York at Buffalo in 1996. Dia has held multiple full-time faculty positions, each with a focus on doctoral education and qualitative research. Dr. Sekayi joined Morgan State University as an Associate Professor in the School of Education and Urban Studies in 2016. She has published books, articles, and book chapters in the social foundations of education and has made local, national, and international presentations related to qualitative research. Correspondence regarding this article can be addressed directly to: dsdiasek12@gmail.com.

Ms. Arleen Kennedy is a Middle School Administrator with Baltimore City Public Schools. With over 25 years' experience in K-12 public education spanning three states, aspiring to complete a Doctorate in Urban Educational Leadership was a natural course of action. Ms. Kennedy is currently writing her proposal to investigate whether or not there is a "Glass Ceiling" effect on African American Women Superintendents. Her research is a qualitative study and her methodology intent is narrative inquiry. She has worked with numerous African American women Superintendents and has always wondered the role, if any, the "glass ceiling effect" plays in the experiences of these women. Ms. Kennedy has worked as a school administrator in three states and began her career as a High School Social Studies teacher in South Carolina. She is the mother of one son and has an affinity for writing curriculum.

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