


Methods Moment: The Delphi Method

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Method Name(s): The Delphi Method

Description: The Delphi method is a process used to arrive at a group opinion or decision by surveying a panel of experts. The method was developed in the 1950's and 1960's by the RAND Corporation and since then has been used in many fields, including library and information science. During a Delphi study, selected experts respond to several rounds of questionnaires, and the responses are aggregated and shared with the group after each round. A Delphi study relies on the idea that collective group responses are superior to individual responses.

Purposes: Originally the Delphi method was created as a systematic, interactive forecasting method relying on a panel of experts. Since then, Delphi studies have been used for many purposes: creating policy, establishing guidelines, and identifying trends.

Overview

The Delphi Method is a survey technique used to gain a consensus of a panel of experts in the field through several rounds of questioning. The method was developed during the 1950s and 1960s by the RAND corporation to prepare for national security threats during the Cold War. Since then, it has been used as a research method in a variety of fields, including marketing, advertising, education, and medical science. Other fields, including library and information science, began incorporating the method into their research during the 1970s¹. A typical Delphi study consists of multiple rounds of written questionnaires sent to identified experts. After each round, the facilitator collects and reviews the data and distributes a summary report to each expert who then reviews the report and either agrees or disagrees with the other experts' answers. This cycle continues until a consensus is reached.

The justification for performing a Delphi study lies in the theory that collective group responses are superior to individual responses. The theory suggests that even the most qualified, well-researched individual may have ideas that are not "the best", but when considered as a collective, the best ideas tend to elevate to the top. Niederberger and Spranger's 2020 article² explains that in some fields, such as technical and natural sciences, the Delphi method is used to analyze future developments; other fields, like the health sciences, use it for reaching a consensus. In library and information science, Delphi studies have proven to be a popular research method; library science researchers have used Delphi studies to answer questions, including what are the best practices for collection development or information literacy instruction³. For example, in 2009, a Delphi study about the Medical Library Association's (MLA) research agenda was published in *The Journal of the Medical Library Association*⁴. Delphi studies are valid techniques even though they are considered a lower level of evidence than meta-analyses or correlation studies. Because of this, Delphi studies are less suited for research questions about intervention effectiveness and more suited for questions about practices or trends. Often, the results of a Delphi study are used to draft

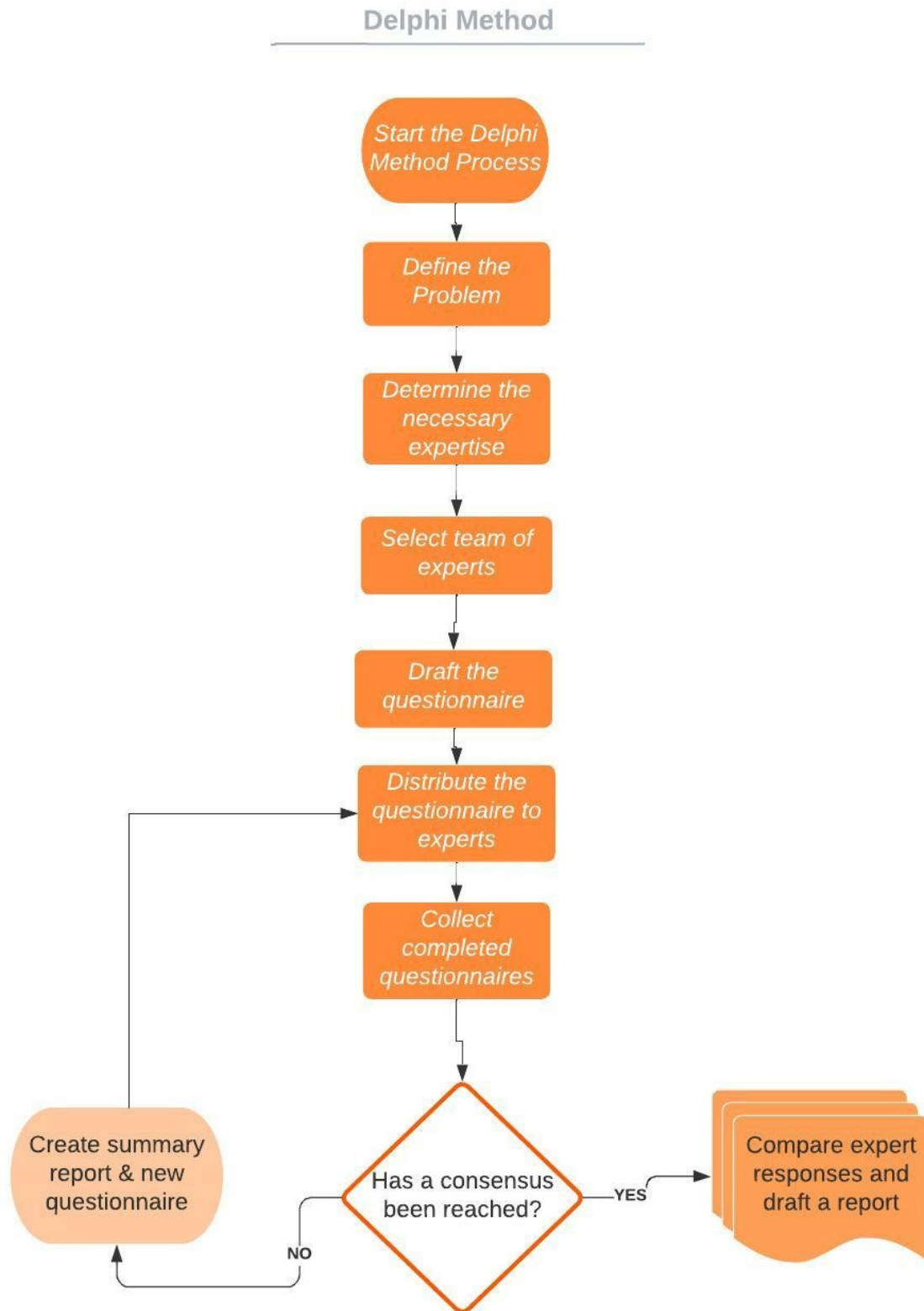


Figure 1: The step-by-step process of conducting a typical Delphi study

white papers, techniques, or guidelines. They can also be used as a preface to another research method.

Carefully selecting a team of knowledgeable experts who are well-versed in at least one aspect of an issue is the most critical step of a successful Delphi study. The team of experts does not need to be representative of every population, but the selected qualified participants should be knowledgeable of the issues and viewpoints related to the topic being studied. The strengths, weaknesses, and biases of the expert panel will determine the strengths, weaknesses and biases of the findings. Okoli and Pawlowski's 2004 article designates the selection of experts as the most critical step of a Delphi study. For their study, they carefully determined the research questions they were trying to answer and then designated four distinct groups of experts that would be beneficial to include in their study design: academics, practitioners, government officials, and officials at non-profit organizations⁵. The types of experts required varies depending on the research questions, but the initial determination of who will be part of the panel is critical to creating a study with minimal bias and viewpoints representative of the whole community.

As the Delphi method is a survey technique, bias is a common limitation that researchers need to be aware of and carefully consider. Melander's 2018 article explains that desirability bias is a major limitation of Delphi studies. The article notes that desirability bias, or social-desirability bias, means survey respondents tend to answer questions in a manner that will be viewed favorably by others or lean towards a favored projected outcome⁶. A straightforward approach to minimizing desirability bias is simply to include survey questions asking the experts to rate the desirability of their projections. By doing so, the researcher is able to reflect on and account for desirability bias in the study as much as possible. The most common way of minimizing bias in the broader consensus is to ensure that experts are diverse and that they have been chosen based on their expertise and in reference to the research question(s).

The best way to select a diverse group of qualified experts is for the researcher to take time at the start of their study to create a balanced Knowledge Resource Nomination Worksheet (KRNW). A KRNW is a helpful tool for identifying the necessary experts for a study (see Figure 2⁷). The first step, as defined by Okoli and Pawlowski, is to create a list of the necessary disciplines and skills, relevant organizations, and relevant literature needed for the research study⁵. The initial list is populated with the names of specific individuals at relevant organizations, or authors who have published relevant work on the subject matter. In the next step, the researcher should begin contacting individuals who have been identified. In addition to inviting these individuals to be part of the panel, the researcher may ask for the recommendation of additional experts. Once a list of experts willing to serve on the panel has been created, the experts are then categorized based on their qualifications and expertise. The target size for an expert panel will vary depending on the expertise required, though Sekayi and Kennedy, in their 2017 article, suggest that twenty to thirty panelists is ideal for a Delphi study. If more than thirty experts are used, then the process may become too unwieldy and repetitive to be of any real value⁸. The average Delphi study consists of two or three rounds of surveys and typically takes four to six months to complete.

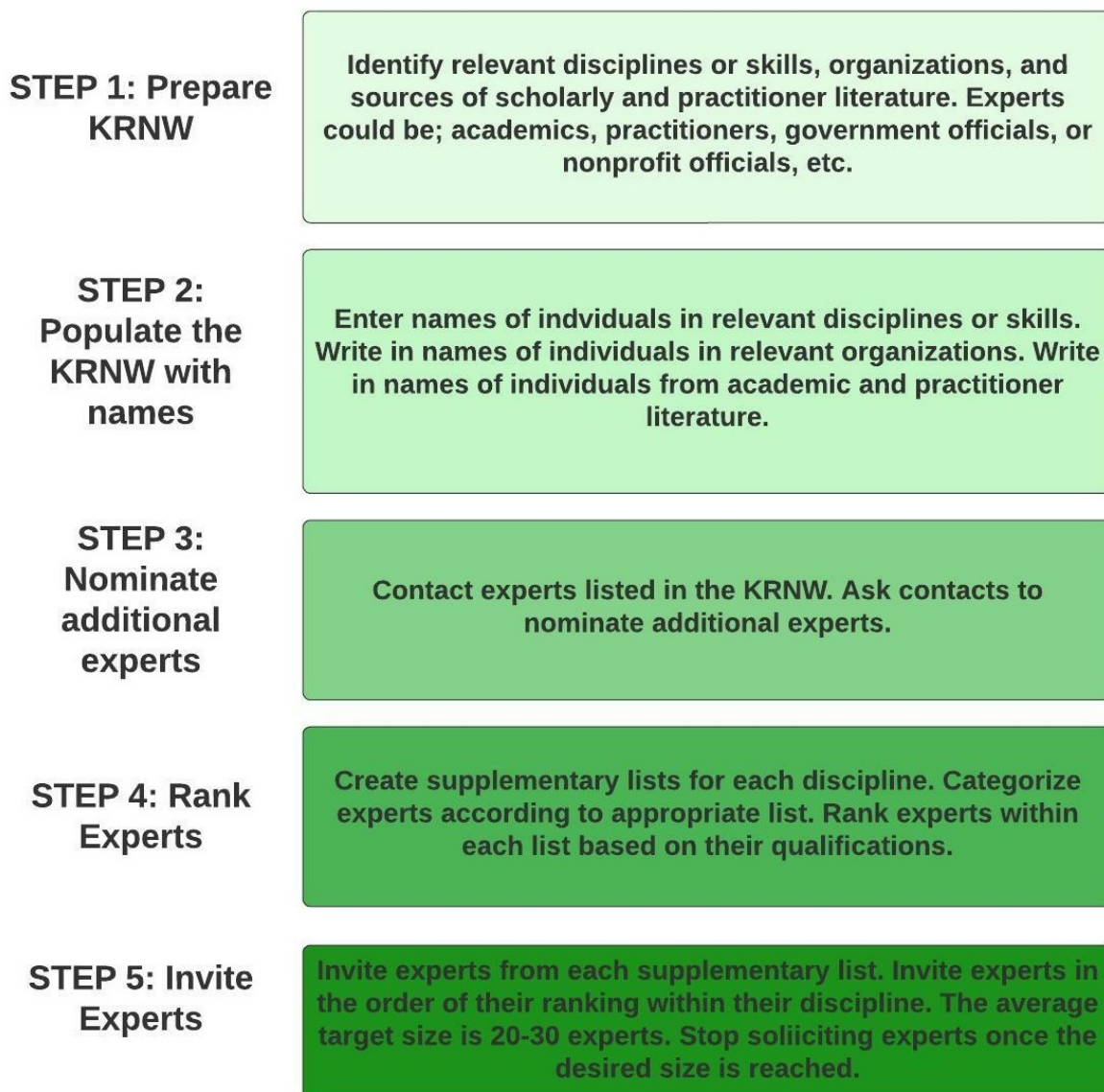


Figure 2: The process of creating a Knowledge Resource Nomination Worksheet. Adapted from Okoli and Pawlowski.⁷

The major strength of performing a Delphi study, as noted in Lund's 2020 article, is that no one subject can dominate the conversation, as can sometimes happen in a focus group³. Responses to Delphi surveys that are less popular to the group of experts will be eliminated during the process, as opposed to a traditional survey where all responses are given equal weight. The major weakness, however, arises when the researcher conducting a Delphi study does not want to eliminate responses that are less popular. Lund explains that the researcher may consider these less popular responses to be important pieces of data because, while they are not common, still represent some of the total responses³. However, in a Delphi study it is not ethical to use researcher's personal preferences for a less popular piece of data to sway the trajectory of the study. The strength of a Delphi study is the focus on consensus agreements among available experts. If a researcher needs to consider all viewpoints equally to adequately answer their research questions, a Delphi study is not the ideal study design for the project. Delphi studies are best used in situations where the collective group responses are superior to individual responses.

Example

Rarian, an instructional librarian, needs to develop assessment guidelines to determine the success of their first-year information literacy class. Being new to the job, they are unsure of the best way to measure the students' learning. After doing some online research, Rarian discovers that there are different instruction assessment methods used by librarians but no clear answer exists about which one is the most effective. Rarian speaks to a colleague for advice on the best course of action. Their colleague agrees that the research does not show a consensus on the best practices for assessment, and suggests that performing a Delphi study could be a helpful starting place. Being unfamiliar with the term, Rarian asks for clarification, and their colleague proceeds to explain the basic mechanics of Delphi study. Rarian agrees that receiving input from a diverse panel of experts would be beneficial for determining the most common methods of assessment and reaching a consensus on the most effective methods. Rarian and their coworker decide upon the following research question: What methods of assessment are most effective for information literacy instruction sessions?

Knowing that the selection of experts will be critical to the success of the study, Rarian takes the time to prepare a Knowledge Resource Nomination Worksheet (KRNW) to identify qualified experts. The first step is to determine how to categorize the backgrounds and subject areas required before selecting participants. Rarian creates a chart listing the skills and disciplines necessary, and also notes libraries and educational organizations with potential experts. With the list in hand, they begin searching for and contacting individuals with the necessary skills and populating the KRNW with names. Rarian is also sure to ask the recruited experts to nominate additional experts who could be an asset to the project.

Once Rarian has twenty-five confirmed experts to participate in the study, they begin drafting the first survey. For the first round of questions, Rarian focuses on asking general questions to gain a broad understanding of the types of assessments the experts used and which they found most effective. As the surveys progress, the questions become more specific, based on the past responses. For example, after noting in the first round that a significant number of experts mentioned course surveys as an assessment method, they were sure to include questions in round two regarding the types of questions, survey length, and distribution method of the survey. Rarian uses the strongest answers from the second round to create a summary report for the experts and a new questionnaire. The experts then rate and comment on the third set of assessment methods with guidance from the information in the report of the previous round. After the third survey, Rarian has narrowed the questions enough to receive a consensus on the most effective form of assessment for library instruction. Next, Rarian writes up and further analyzes their findings by testing the selected assessment method in the classroom. After testing the results, they may find that further study or an additional research method is necessary. In some cases, this can lead to a second Delphi study with a different panel of experts; in other cases, a different research method will be required to expand the research.

Resources

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Further Reading:

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