**THE DELPHI METHOD**

by Simon Moss

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| **Introduction** |

**Overview**

The Delphi method is a systematic way to extract opinions from experts on a topic and, ultimately, to reach consensus. This method is especially suitable if the topic is controversial or knowledge on this topic is limited and debatable. In essence, researchers

* select a panel of about 20 experts on a topic, such as which policies should governments introduce to diminish recidivism—the likelihood that prisoners will reoffend—in the NT
* distribute an online survey to these experts that includes open-ended questions, like which policies have other jurisdictions introduced to diminish recidivism
* from these results, construct a survey with rating scales, such as “to what extent do you feel community work would diminish recidivism”, coupled with opportunities to justify responses
* then distribute this survey to these experts
* several weeks later, again distribute this survey to these experts, but accompany this survey with the average response of other experts—and prompt these individuals to revise their judgments or to justify responses that diverge from the consensus
* finally, several weeks later, distribute a survey that includes only the questions that generated controversy as well as opinions about these items—again seeking revisions or justifications.

**History**

The Delphi technique was first utilized at the Rand Corporation and popularized by Dalkey and Helmer (1963). Since this time, this method has been used in a variety of fields, primarily to seek and to integrate the opinions of experts on a topic. Many variants of this method have been applied. This document outlines one of the most common variants, comprising four rounds.

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| **Step 1: Select your panellists** |

The first step is to select, and then to invite, the experts—called the panellists. The following table outlines the decisions you need to reach as well as some considerations to help you reach these decisions.

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| Decisions about panellists you need to reach | Some helpful considerations |
| How many panellists do you need to include in your study | * Most studies include 15 to 20 panellists (Ludwig, 1997) * But some studies include as few as 10 and as many as 100 * Typically, if the panellists represent very diverse agendas, more individuals may need to be recruited to reach or to approach consensus * However, if the panellists are not as diverse, or consensus is not as important, 10 to 15 panellists might be adequate |
| Who should you invite to be a panellist? | * Your aim is to invite people who have developed expertise on this topic—although the precise definition of expertise is ambiguous * Nevertheless, these individuals should be highly qualified or experienced in the relevant topic * You should also attempt to invite a relatively diverse sample of panelists, including panelists who are likely to express diverging perspectives and panelists who might represent some minority (Linstone & Turoff, 2002) * Finally, you need to invite people who are interested enough to be likely to persist with three to four rounds of surveys |

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| **Step 2: Recruit your panellists** |

The next step is to recruit your panellists. If you merely send the survey to 20 experts, only a few are likely to respond. The following table offers some insights on how you should first identify these panellists and then invite these panellists.

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| Main activities | Details to help you complete these activities |
| Identify an initial set of obvious panellists | * Consider experts you know * Consider experts who are close colleagues of people you know * Scan relevant websites |
| Ask relevant colleagues or friends to nominate suitable panellists | * Consider academics or employees you know who work in a similar field |
| Initially, personally invite these obvious or nominated panellists—and ask these individuals to consider other possible experts | You could write an email such as  “Dear Dr Jones  My name is Adam Adams. I am a PhD student, completing research into suitable approaches to prevent recidivism in the NT. As part of this research, I would like to conduct a Delphi method—in which I need to send 4 short surveys to relevant experts over a 3 month period—to collate and to integrate their opinions. Each survey would demand about 10 minutes to complete.  Because of your role in corrections, I would greatly value your contributions. If you contributed, you would receive summaries of the insights and opinions of other experts on this topic—and you could also influence these experts. Therefore   * Would you be willing to participate? * Do you know any other experts who might be interested in participating?   Kind regards  Adam” |
| Invite anyone else these panellists recommend, called a snowballing sampling technique |  |
| For anyone who expresses interest, respond immediately | You might write something like  “Dear Dr Jones  I am so pleased that you are willing to contribute. Hopefully, I will send the first survey within the next two weeks. Feel free to call me on 0400 000 000 if you would like further information  Kind regards  Adam” |

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| **Step 3: Distribute your first survey—Round 1** |

After enough panellists have agreed to participate, you are now ready to administer Round 1, the first survey. Typically, especially if the topic has not been studied extensively before, the first survey should be qualitative, comprising open-ended questions rather than rating scales. The following table offers more specific advice about the first survey.

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| Main activities | Details to help you complete these activities |
| Construct the survey | Typical questions might include   * Which approaches have other jurisdictions utilized to stem recidivism? * Which approaches could be effective but have not been attempted before? * What do you think is the cause of recidivism? * How can these causes be addressed? |
| Include additional instructions | The survey should resemble a typical questionnaire but also   * prompt panellists to complete the survey within a specific time if possible, such as two weeks, otherwise the procedure might be delayed * remind participants they will receive two to three more surveys—but the other surveys will include rating scales and, therefore, can be completed more rapidly |
| Distribute the survey using online software | You could use   * Survey monkey * Qualtrics—available to CDU staff and HDR students; for further information, see “Administration of surveys: Introduction to Qualtrics” on the cdu webpage about “Conducting your research” |

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| **Step 3: Distribute your second survey—Round 2** |

**Collate the results of Round 1**

Next, you need to collate the data you collected during Round 1. If possible, you should apply methodical techniques, such as thematic analysis (Braun & Clarke, 2006) or content analysis (Graneheim & Lundman, 2004). These techniques will then generate themes or categories. For example, to diminish recidivism, you might observe that possible approaches might include

* coaching around goal setting
* opportunities to mentor other individuals in detention or prison
* support groups, and so forth

**Construct and distribute the survey**

You would then construct, and then distribute, a quantitative survey. For example

* one question might read “To what extent do you agree or disagree each of these approaches could be useful” and you would then list these approaches
* another question might read “To what extent do you agree or disagree each of these approaches could be feasible” and you would then list the approaches
* after each question, you could write “Write any justifications of your response here”

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| **Step 4: Distribute your third survey—Round 3** |

**Collate the results of Round 2**

To continue, you would

* compute the mean and standard deviation of each item
* organize the justifications; to illustrate, for each question, you could might arrange the justifications in response to disagreement and the justifications in response to agreement separately. You could also summarize and integrate some of these justifications

**Construct and distribute the survey**

You would then distribute the survey again, besides a few amendments. The following table outlines these amendments.

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| Main amendments to  the previous survey | Details to help you complete these activities |
| Inform panellists that you would like panellists to complete the survey again—but after observing the mean, standard deviation, and justifications for each question | You might write  “We would like all panellists to complete the survey again. However, this time, before each question we have presented the average response and the standard deviation—a measure of variability across participants. We have also outlined the main justifications” |
| Then, present the mean, standard deviation, and main justifications for each question | The questions could resemble this format:   |  |  | | --- | --- | | **Last survey**   * Average = 3.51 * Standard deviation = 1.65 | **Main justifications**   * Too expensive and time consuming * Inspiring but unrealistic |   Please specify the extent to which you feel coaching around goal setting is useful and feasible…  **Improvements**   * To present this information, you can enter pictures into Qualtrics * You might decide to integrate information about several questions into one table |
| Omit questions in which almost every panellist chose the same response |  |
| However, rather than invite panellists to justify every response, ask these individuals only to justify divergent answers | “If your response differs appreciably from the average, could you justify your answer, if possible” |

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| **Step 5: Distribute your final survey—Round 4** |

Round 4 mirrors Round 3. However, you would include only the questions that generated reasonable levels of variability—perhaps 3 to 6 of the most controversial items.

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| **Variations** |

The Delphi method varies across disciplines and researchers. For example

* the number of rounds can range from 2 to 10, depending on the importance of consensus
* the statistical tests that researchers utilize vary—although most utilize simple measures of central tendency, like the mean, median, or mode, as well as simple measures of dispersion, like the standard deviation or inter-quartile range
* the purpose could be to seek consensus or to gauge the variability of opinions

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| **References and further examples** |

Adams, S. J. (2001). Projecting the next decade in safety management: A Delphi technique study. Professional Safety, 46 (10), 26-29.

Altschuld, J. W., & Thomas, P. M. (1991). Considerations in the application of a modified scree test for Delphi survey data. Evaluation Review, 15 (2), 179-188.

Anderson, D. H., & Schneider, I. E. (1993). Using the Delphi process to identify significant recreation research-based innovations. Journal of Park and Recreation Administration, 11 (1), 25-36.

Beretta, R. (1996). A critical review of the Delphi technique. Nurse Researcher, 3(4), 79–89.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3, 77–101.

Cunliffe, S. (2002). Forecasting risks in the tourism industry using the Delphi technique. Tourism, 50 (1), 31-41.

Custer, R. L., Scarcella, J. A., & Stewart, B. R. (1999). The modified Delphi technique: A rotational modification. Journal of Vocational and Technical Education, 15 (2), 1-10.

Dalkey, N. C., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. Management Science, 9 (3), 458-467.

Graham, L. & Milne, D. (2003). Developing basic training programmes: A case study illustration using the Delphi method in clinical psychology. Clinical Psychology and Psychotherapy, 10, 55–63.

Graneheim, U. & Lundman, B. (2004). Qualitative content analysis in nursing research. Nurse Education Today, 24, 104-112.

Hackett, S., Masson, H. & Philipps, S. (2006). Exploring consensus in practice with youth are sexually abusive: Findings from a Delphi study of practitioner views in the United Kingdom and the Republic of Ireland. Child Maltreatment, 11(2), 146–156.

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. Journal of Advanced Nursing, 32 (4), 1008-1015.

Hill, K. Q., & Fowles, J. (1975). The methodological worth of the Delphi forecasting technique. Technological Forecasting and Social Change, 7, 179-192.

Jeffery, D., Ley, A., Bennun, I. & McLaren, S. (2000). Delphi survey of opinion on interventions, service principles and service organisation for severe mental illness and substance misuse problems. Journal of Mental Health, 9, 371–384.

Judd, R. C. (1972). Use of Delphi methods in higher education. Technological Forecasting and Social Change, 4 (2), 173-186.

Keeney S., Hasson F. & McKenna H.P. (2001). A critical review of the Delphi technique as a research methodology for nursing. International Journal of Nursing, 38, 195–200.

Keeney, S., Hasson, F. & McKenna, H. (2006). Consulting the oracle: Ten lessons from using the Delphi technique in nursing research. Journal of Advanced Nursing, 53(2), 205–212.

Linstone, H.A. & Turoff, M. (Eds.) (2002). The Delphi method: Techniques and applications.

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology? Journal of Extension, 35 (5), 1-4

Marchant, E. W. (1988). Methodological problems associated with the use of the Delphi technique: Some comments. Fire Technology, 24 (1), 59-62.

Miller, G. (2001). The development of indicators for sustainable tourism: Results of a Delphi survey of tourism researchers. Tourism Management, 22, 351-362.

Murray, W. F., & Jarman, B. O. (1987). Predicting future trends in adult fitness using the Delphi approach. Research Quarterly for Exercise and Sport, 58 (2), 124-131.

Petry, K., Maes, B. & Vlaskamp, C. (2007). Operationalizing quality of life for people with profound multiple disabilities: A Delphi study. Journal of Intellectual Disability Research, 51(1), 334–349.

Stone Fish, L. & Osborn, J. (1992). Therapists’ views of family life: A Delphi study. Family Relations, 41, 409–416.

Sumsion, T. (1998). The Delphi technique. British Journal of Occupational Therapy, 61(4), 153–156.

Young, S. J., & Jamieson, L. M. (2001). Delivery methodology of the Delphi: A comparison of two approaches. Journal of Park and Recreation Administration, 19 (1), 42-58.