Government of South Australia

SACE
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STAGE 1 AND 2 PSYCHOLOGY

TEACHING AND LEARNING STRATEGIES

How to Conduct a Study Using the Delphi Technique

Introduction

The name ‘Delphi’ refers to the city in classical Greece that was home to the temple of Apollo. The Priestess at this temple was known as an ‘oracle’ and she made predictions about the future and announcements that were always true. The first major use of the Delphi technique as a research method was in 1963 when the RAND Corporation described the method they used for systematically obtaining informed judgements from a group of ‘experts’ on specific questions, ideas, or issues. The main function of Delphi Technique in research is to seek interpretations, predictions, or recommendations from a group of people considered experts in the area under investigation.

The Delphi Technique begins with the development of a set of open-ended questions on a specific issue. These questions are then distributed to various ‘experts’. The responses to these questions are summarised and a second set of questions that seek to clarify areas of agreement and disagreement is formulated and distributed to the same group of ‘experts’. The cycle of formulating further questions based on the answers given in the first set of questions is termed an ‘iteration’. Often the Delphi Technique repeats this process of iteration until consensus is reached. Sometimes this can mean as many as thirty iterations are performed. However, for the purposes of the SACE-approved research programs the Delphi Technique will consist of one iteration. The aim is to identify both divergent opinions and opinions that share a common ground.

Studies that use the Delphi Technique vary in the number of participants (experts), questions, and iterations. Choices about these factors depend on the research program undertaken. Within the SACE research program the Delphi Technique employed will be a shorter version than one that may be generally used in psychological research. The process used here will involve sending out an initial set of two questions to a maximum of six participants. Participant responses to these questions will be collated and analysed for their thematic content. There reformulated responses will be sent back to all participants who completed the first set of questions. Participants will be asked to review all themes identified and indicate to what extent they find each of these themes important.

Why use Delphi Technique?

Advantages of Delphi Technique

Delphi Technique:

- is conducted in writing and does not require face-to-face meetings:
  - responses can be made at the convenience of the participant;
  - individuals from diverse backgrounds or from remote locations to work together on the same problems;
  - is relatively free of social pressure, personality influence, and individual dominance and is, therefore, conducive to independent thinking and gradual formulation of reliable judgments or forecasting of results;
  - helps generate consensus or identify divergence of opinions among groups hostile to each other;
- helps keep attention directly on the issue:
- allows a number of experts to be called upon to provide a broad range of views, on which to base analysis—“two heads are better than one”:
  - allows sharing of information and reasoning among participants;
  - iteration enables participants to review, re-evaluate and revise all their previous statements in light of comments made by their peers;
- is inexpensive.

Disadvantages of Delphi Technique:

- Information comes from a selected group of people and may not be representative;
- Tendency to eliminate extreme positions and force a middle-of-the-road consensus;
- More time-consuming than group process methods;
- Requires skill in written communication;
- Requires adequate time and participant commitment.

Important! Start early!

As pointed out above, one of the disadvantages of the Delphi Technique is that it can be time consuming. The technique itself is not difficult but it does involve many small steps that are spread over a longer period of time. The secret to conducting a successful Delphi Technique is careful planning. The following is a brief outline of a timeframe of each of the steps that need to be taken to conduct a successful Delphi Technique within the SACE research program. Each of these steps is outlined in more detail in the next section.

Set aside a minimum of one week for steps 1 – 3.

1. Select the questions;
2. Choose a panel of 'experts';
3. Make contact with the 'expert panel' and get informed consent;

Set aside a minimum of two weeks for steps 4 and 5 (includes one week for participants to respond).

4. Supply the panel with questions;
5. Receive their responses;

Step 6 is the most time consuming step and you need to set aside a minimum of two weeks for analyses and reformulation of responses.

6. Analysis and reformulate responses;
7. Feed reformulated responses back out to the same panel;

Allow a minimum of one week to receive responses.

8. Receive responses to second set of reformulated responses;

Allow two weeks for steps 9 and 10

9. Analyse responses, and
10. Write report.

It is estimated that it will take a minimum of 8 weeks to complete these steps, so it is essential to make an early start. It is recommended that steps 1 – 3 be undertaken before any other aspects of the research program under investigation.

The following details what is involved in each of the steps to enable you to *work out a time frame to suit your schedule*.

Step One—Selecting the initial research questions

Each research program will consist of two rounds of questions.

Initial questions

The first set of research questions for the SACE research programs using the Delphi Technique have been written. Two sets of questions are available for each research program. Each set consists of 2 questions. The students, in consultation with the teacher, will select one of the two sets of questions to submit to 'experts'.

Each set of questions opens by presenting a problem statement reflecting an issue confronting contemporary Western society (conformity, violence, crime, civil rights, welfare, or race relations, etc.,) followed by two open-ended questions specifically formulated to suit the SACE approved research program under study. Each question requires a short written response from the expert (about ½ a page on each question).

Step Two—Choosing a panel of experts

Students, together with the teacher, should identify a number of experts whom they think will be able to provide information on the topic selected. Aim for diversity in the list and in the final choice of the group of 'experts' as this may help provide more diverse and interesting opinions. From the list of experts named select a group of 6 people with whom you can establish contact. Select 6 as maximum number of contacts—too many responses will generate too much data. You may receive responses from all six members of your expert panel, but sometimes people fail to respond in time (or at all). However, starting with six will give you a good chance of ending up with data from a minimum of three experts who have answered both questions. Keep the list of experts you have identified on hand; they can be drawn on as 'reserves' in case some of the experts contacted cannot participate.

Contact with each expert can be via email, fax, or post. Email is recommended for the following reasons:

- faster turn around of responses;
- easier an quicker for participants to respond;
- manipulation of electronic text means any identifying information is more easily removed—computer can be used to search responses (e.g., 'Find . . .') for any information that might identity the participant (include addresses, tags, signature clauses etc);
- responses can be 'cut and pasted' into documents that can be made available to students—again, the 'Find . . .' function can be helpful.

Step Three—Contacting the 'expert panel' – getting informed consent

Once suitable experts are identified they are contacted individually and invited to participate. Each participant is contacted by the teacher and is sent an information sheet and a consent form. Only participants who sign a consent form may participate in the Delphi Technique.

Step Four—Supplying the panel with questions

The same set of questions is then either emailed or mailed to each of the experts (emailing is recommended—refer to step 2). Each participant is asked to provide an answer (refer to step 1) to each question in the space provided and return the question sheet within a specified timeframe. If you have not received a minimum of three responses within the specified time frame, choose more experts from your list and contact them urgently. If you have received the minimum of three responses at the end of the time allocated then proceed to the next step.

Step Five—Receiving responses – collecting and collating data

Ensuring Participant Anonymity

The teacher is responsible for removing any information from the responses received that may personally identify any participant (refer to step 2). Each respondent is then allocated a number. The number allocated will enable the students to identify responses made by the same participant in the second round. An example, of numbering would be: participant 1 round 1; participant 2 round 1, and so on.

Step Six—Reformulating responses and designing a second set of questions

Once anonymized the answers from the first set of questions are then distributed to the students. Students, in consultation with their teacher, summarise the responses by identifying both common and divergent themes contained in the answers. The process of categorising or characterising participant responses to help identify common threads or elements (i.e. all answers to do with various aspects of same theme) can be time consuming. It is recommended that teachers and students read 'Content Analysis' provided in the support materials.

Once you have identified common and divergent themes, these themes will used to formulate the second set of questions.

Your panel members have been chosen because you consider them to have some particular experience that makes them experts in some way on the topic of choice. Sometimes those very same life experiences (or areas of expertise) can lead us to take certain things for granted. When we are presented with new information or ideas, particularly if they are presented in a non-threatening way (as they are in the Delphi Technique), we may see things from a different point of view and we may adjust our view accordingly. One of the purposes of the second set of questions is to identify areas where participants may have changed their views.

The second set of questions opens with a statement thanking participants for their responses to the first set of questions. Participants are then informed that the students have summarised of all themes identified in the responses from all participants in the first set of questions.

These opening comments are followed by a list of all the themes identified. Each theme will have a five point Likert Scale below it. Participants are asked to review each theme and rate their importance on a five point Likert Scale.

Step Seven—Send questions back out to the same panel

The second set of reformulated responses should only be sent to those who responded to the first round. Again participants should be asked to respond within a given time frame.

Step Eight—Receiving responses to second set of questions

The responses to the second set of questions are collected by the teacher, who again engages in the same process of anonymising responses before distributing to students (refer to step 2).

Step Nine—Preparing data and analysing responses

The students and the teacher engage in the same process of identifying common or divergent themes contained in the responses (refer to Step 6 above). Although the main aim is to identify common ground and differences, it could also be interesting to go back and see whether those who identified a particular issue in the first set of questions now rate the same view highly in the second set of questions. Students are encouraged to make some comment on the issues of common ground found in responses as well as make some comment on areas where people approached issues from a different perspective.

Step Ten—Presentation of findings – report writing

Content analysis and summary

When writing up their report students can choose to focus on all the answers to one question or they may choose to look at all the responses. Remember this is a small sample so the answers may not be representative.

The main aim of the report is to come up with interpretations of the differences and commonalities and make some comment on what may be associated with these differences and commonalities.

Prepared by Victoria Dennington, Lance Storm, and the representatives of SACE Board, 2006.