

The Delphi technique

What is it?

The Delphi technique has been described as 'a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem' (Linstone & Turoff page 3)

Where does it come from?

It has its origins in the Cold War in the 1950s when the Rand Corporation, funded by the US Air Force, was trying to find a way to establish reliable consensus of opinion among a group of experts about how Soviet military planners might target the US industrial system in an attack and how many atomic bombs would be needed to have a specified level of impact on US military capability. This was the original 'Project Delphi'.

What is it used for?

Fifty years later, it is widely used for more peaceful purposes, but with the same underlying rationale: to establish as objectively as possible a consensus on a complex problem, in circumstances where accurate information does not exist or is impossible to obtain economically, or inputs to conventional decision making for example by a committee meeting face to face are so subjective that they risk drowning out individuals' critical judgements.

It is a family of techniques, rather than a single clearly-understood procedure, but the typical features of a Delphi procedure are an expert panel; a series of rounds in which information is collected from panellists, analysed and fed back to them as the basis for subsequent rounds; an opportunity for individuals to revise their judgments on the basis of this feedback; and some degree of anonymity for their individual contributions.

How is it used for the ELTons?

The ELTons is certainly a complex problem requiring structured decision-making! The format we have used for the last seven years has a panel of six

or seven judges, working at a distance, with all communication by email through a moderator. There are two separate stages, shortlisting and judging, each consisting of an initial round that elicits panellists' comments on the entries or the products, followed by one, two or three rounds in which panellists nominate their preferred entries. The number of rounds depends on how quickly a consensus emerges.

Panellists send their responses to the moderator, who collates them and circulates them anonymously after each round, as the basis for the next round. The panellists have at each stage a full record of what comments and nominations other panellists have made, but they do not know who made which comment or voted for which entry. Nor do they know the final result; like the rest of the audience at the awards party, the judges themselves do not know the outcome until the envelope is opened!

How else is it used?

The seminal book in the literature remains Linstone & Turoff, which starts with Delphi's philosophical and methodological foundations and goes on to describe a range of applications, models and variations. Although widely used it is not particularly well known, perhaps because it is not exclusively associated with any particular discipline. In UK at least, it is most commonly employed to make decisions or allocate resources in the health service, a classic context in which demand for resources will always outstrip their availability. In a recent and relatively short list of references, Mullen (2000) cites over 30 Delphi studies in medical & nursing contexts, with a dozen more on topics such as transport, environmental and technological forecasting and public administration & planning. A quick search of the Cambridge University library index shows applications in adult education in Europe (Carey); forecasting the local economy (Foley et al); a technological forecast of the textile industry (Rodgers); the environmental impact of phosphates (Wilson); predicting the future of the distributive industry (Gattorna) and of plastic cards and payment systems (Worthington).

It is also often mentioned in business texts under decision making techniques, along with other structured approaches such as the Nominal Group Technique. They allow complex decision-making and creative problem-solving in a way which avoids the drawbacks of conventional meetings with unstructured, free-flowing interaction and minimal direction, such as

- High variability in participant behaviour and group social behaviour
- Discussion falls into a rut or goes off at tangents
- The absence of an opportunity to think through independent ideas results in generalizations
- High status or dominant personalities dominate discussions and decisions
- Unequal participation among those present
- Meetings conclude with a perceived lack of accomplishment

If you're used to attending committee meetings, you may be hearing the sound of bells ringing...

The basic method as described by Delbecq et al is

1. develop initial questionnaire and distribute it to the panel
2. panellists independently generate their ideas in answer to the questionnaire and return it
3. the moderator summarizes the responses to the first questionnaire and develops a feedback report along with the second set of questionnaires for the panellists
4. having received the feedback report, panellists independently evaluate earlier responses and independently vote on the second questionnaire
5. the moderator develops a final summary and feedback report to the group and decision makers

Variations of this basic technique include

- The number of iterations (the more rounds, the closer the consensus likely to be reached)
- The method of selection and size of the panel: anything from five or six to several hundred participants

- The scoring system and the rules used to aggregate the judgements of the panellists
- The extent of anonymity afforded to the panellists
- How consensus is defined and how disagreements are dealt with

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