

Data Collection Methods Using Group Communication

Group communication can be an insightful method of data collection as it brings together individuals with a shared interest or experience in a defined area. Here we compare the benefits and limitations of using: concept mapping, Delphi, and focus groups, as methods of group-based data collection. Each of these methods gathers a group of purposively sampled participants to focus on a specific topic and uses the expertise of participants to foster levels of agreement (e.g. group norms, consensus) and/or rationales for agreement and disagreement. Participants have the opportunity to formulate and reconsider their own opinions and rationales after being exposed to the rest of the group's input and ideas through either real time discussion or organized feedback loops.

Concept mapping (CM) is a collaborative group method used to generate, analyze and represent ideas in pictures or maps. Diverse groups of *stakeholders* are brought together to contribute in a structured process that can be used for planning and evaluation. CM facilitates the creation of a common framework through conceptualization of a topic of interest. This method begins with brainstorming ideas relating to a specific focal question and after completing a series of additional steps - including statement analysis, synthesis, sorting, rating and cluster analysis - interpretable maps and data displays are generated.¹

The **Delphi** method is a multi-staged survey to query and aggregate judgments that can be used to inform decision-making or priority setting. This method involves a panel of *experts* who are selected based on their knowledge and engagement with the topic of investigation, as well as their special skills. This method begins with independent generation of ideas, with the next round used to evaluate and argue the generated items. Through a series of subsequent surveys, participants ultimately narrow down the list of items to produce the most supported ideas and the consensus of the expert panel, with opportunities for experts to reconsider their own initial thoughts.²

Focus groups (FGs) are collective discussions that explore a specific issue by involving a group of participants that have at least one unifying characteristic (e.g. doctors, newcomers, neighbourhood residents) focused on a collective activity. The homogeneity of the group is determined by participants' background with a particular topic of interest. FGs provide data that is highly influenced by group interactions, as participants can formulate and reconsider their own opinions based on the views and rationales presented by others. Data provides insights into *group norms* and areas of disagreement, in rich detail.³

¹Kane, M. and Trochim, W.M.K. (2007). *Concept Mapping for Planning and Evaluation*. SAGE Publications: Thousand Oaks, USA.

²Adler, M. and Ziglio, E. (1996). *Gazing into the Oracle: The Delphi Method and its Application to Social Policy and Public Health*. Jessica Kingsley Publishers: London, England.

³Morgan, D.L. (1997). *Focus Groups as Qualitative Research*. SAGE Publications: Thousand Oaks, USA.

General Overview: Concept Mapping versus Delphi versus Focus Groups

	CONCEPT MAPPING	DELPHI	FOCUS GROUPS
Main objective	Framework development	Consensus building	Multiple perspectives exploration
Participant interaction	During different phases, groups work both asynchronously and together to organize and conceptualize brainstormed ideas that capture a variety of perspectives	Asynchronous effect: participants presented with other participants' input and given opportunity to reconsider or maintain support for their own responses, through data feedback processes in subsequent rounds	Synergistic effect: participants respond to the contributions of others, explore different points of view and reconsider or formulate their own opinion in group setting
Privacy and confidentiality	Some stages <i>can</i> be anonymous except map interpretation.	Participants are anonymous to each other, but not to the research team	Participants are not anonymous to others in the same group, but are anonymous to other focus groups in the study
Duration of data collection	Varies widely depending on study complexity, number of participants involved and participant availability (e.g. min: one month; max: three years)	Ranges (e.g. min: four weeks; max: one year); <i>traditionally</i> there are four rounds but depending on consensus amongst the participants, more or less may be needed	Ranges by the way the groups are scheduled (concurrently versus consecutively) and how quickly data saturation is achieved

	CONCEPT MAPPING	DELPHI	FOCUS GROUPS
Sample	<ul style="list-style-type: none"> • <i>Stakeholders</i> that strive to attain a common understanding of a topic • Heterogeneous group to involve a variety of views • Size of group: highly variable; around 30 participants for in-person and as many as needed for online (e.g. can be 100+ participants) 	<ul style="list-style-type: none"> • <i>Experts</i> with relevant skill and/or experience with topic • Heterogeneous group to involve entire spectrum • Size of panel: highly variable; depends on purpose and time frame of project 	<ul style="list-style-type: none"> • Each group is composed of participants with at least one shared characteristic • Groups can differ from each other by some defining character • Size of group: Between 4 and 10 per group; too small can limit the discussion and too large restricts time for all to participate
Data analysis	<ul style="list-style-type: none"> • Starts with idea synthesis • Responses are ranked on a Likert scale (no overall ranking) • Data sorting conducted by participants • Multi-dimensional scaling and cluster analysis • All participant input is weighted equally • Participants collaborate on map finalization 	<ul style="list-style-type: none"> • No standard method of analysis to condense data from each round; but generally begins with content analysis in first round and Likert scale ratings in subsequent rounds • Data sorting conducted by research team 	<ul style="list-style-type: none"> • Moderator begins to interpret, clarify and confirm meaning while with group and highlight contradictions for group to address (e.g. analysis can begin during data collection) • Thematic coding of focus group transcripts • Researcher sorts relevant points for each question and highlight areas of agreement and disagreement
Data output	<ul style="list-style-type: none"> • Visual maps and comparison graphs that can be used for planning and/or evaluation • Output shows relationships between ideas • Results show participant majority support for ideas and relationship between concepts • Output uses language of participants (not research team so accessible to community) 	<ul style="list-style-type: none"> • Results show top rated ideas and overall expert consensus (collective agreement) • Reported on by the extent to which participants agreed with the topics and the extent to which they agreed with each other 	<ul style="list-style-type: none"> • Variety of opinions on a specific subject providing rich detail • Initial opinions that may evolve later in data due to group influence • Results show general trends, strength of feelings about topic, and areas of group divergence • Multiple meanings uncovered • Group, not individual, is unit of analysis
Challenges	<ul style="list-style-type: none"> • Brainstorming is best when in-person but much more expensive and less convenient for participants • For practical reasons, a maximum of 70 brainstormed statements in the initial step is optimal – this can be challenging depending on the area of focus • Sorting round can be challenging for some participants and may take a long period of time 	<ul style="list-style-type: none"> • Number of rounds needed to reach consensus may only be apparent after data collection begins • Consensus may not always be reached by the end of the last round • Ensuring all participants understand the specific objective of each round as process moves from initial brainstorming to rating final list of ideas on Likert scales • Participant retention from round to round 	<ul style="list-style-type: none"> • Dominant voices and personalities may prevail and not give all participants opportunities to speak • Selecting participants for their specific background may result in the inclusion of participants that know each other and may potentially hinder openness of some • Moderator must find balance between encouraging in-depth responses while also completing entire schedule of questions

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