Qualitative Research Method «Delphi Method»

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Abstract: One of the group knowledge acquisition methods is the Delphi technique, which is a structured process for forecasting and aiding decision-making through iterative phases, information collection, and ultimately, group consensus. The Delphi method is primarily used in futures studies. The application of the Delphi method is generally aimed at discovering innovative and reliable ideas or providing appropriate information for decision-making. The Delphi method is a structured process for collecting and classifying existing knowledge among a group of experts through distributing questionnaires and controlled feedback of the received responses and opinions. The Delphi method is based on the dialectical research approach, which involves: thesis (formation of opinion or view), antithesis (contrary opinion or view), and synthesis (new agreement and consensus), leading to the development of a new theory. The Delphi technique was initially based on individuals' guesses, judgments, and inspirations, but gradually evolved into a scientific method. It was first used in the late 1950s by the RAND Corporation to scientifically examine military experts' opinions, though it was not published for 12 years due to security reasons. Its first non-military application was suggested in economic development planning. Overall, since the mid-1960s, Delphi has been recognized as an important scientific method and is now used for a wide range of future-oriented and complex questions across various fields.

Keywords: quantitative research methods, qualitative research methods, Delphi technique

Introduction

The rapid and significant growth of science and technology in human societies over recent decades, coupled with the uncertainty of its future, has led to the emergence, development, and refinement of techniques and methods to help researchers make predictions about future issues. Since two minds are always better than one, it is essential to seek the perspectives of others, especially experts and specialists, regarding future scenarios. The Delphi technique, as one of the futures research methods, has consistently addressed many future concerns. This method focuses on the opinions of experts. According to the Delphi method, human judgments are considered legitimate and valuable inputs for making predictions. This technique is a structured process for forecasting and aiding decision-making through iterative

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rounds, information collection, and ultimately, group consensus. While most surveys attempt to answer the question of "What is?", the Delphi method addresses questions like "What could be?" and "What should be?".

Nature of Paradigms

Guba and Lincoln (1989) claim that four main paradigms form the philosophical foundation of social science research. These four paradigms are: positivism, post-positivism, critical theory, and constructivism.

These paradigms are applicable across various disciplines, especially in management research. A paradigm is defined as "a set of beliefs and assumptions that guide the personal and scientific actions of researchers." A paradigm is a set of fundamental beliefs that determine the ultimate or primary principles of research and education (Lewis, 1999; Dillon, 2000; Garwick, 1999). A paradigm represents a worldview that defines the nature of the "world," the individual's place within it, and the scope of potential relationships between the individual, the world, and its components, much like theology and cosmology do (Dillon, 2000). The beliefs within paradigms are fundamental and foundational because they must be accepted with faith, as there is no way to prove their truth. Research paradigms provide frameworks for researchers. The fundamental beliefs defined by research paradigms can be articulated through the responses to the following three basic questions posed by the proponents of each paradigm:

1. What is the nature of reality? Is its existence external or internal? (Ontology).

2. What is the nature of the relationship between the researcher and the phenomenon under study? (Epistemology).

3. What is the process of conducting research? (Methodology).

Therefore, paradigms are human constructs, and these constructs have their own specific ontology, epistemology, and methodology (Danaii Far, et al., 2012, p. 15).

Table 1: Comparison of Paradigms and Their Components (Danaii Far et al., 2012, p. 19)

Elements of Paradigm	Positivism	Post-positivism	Critical Theory	Constructivism
Ontology	Natural Realism	Critical Realism	Historical Realism	Relativism
	- Realities are real and comprehensible.	- Realities are real but can only be understood partially and probabilistically.	- Social, political, cultural, and economic values surround reality and become clearer over time.	- Realities are constructs of local and subjective minds.
Epistemology	Dualism/Objectivism	Modified Dualism/Objectivism; Critical Tradition	Interactionism/Subjectivism	Interactionism/Subjectivism
	- Findings are correct.	- Findings are potentially correct; tradition and society are critical.	- Findings are influenced by values.	- Findings are constructed.
Methodology	Experimental, Quantitative,	Modified experimental and manipulative;	Dialogical/Dialectical	Hermeneutic and Dialectical

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Manipulative; Hypothesis testing, use of quantitative methods.	Critical pluralism; Falsifiability; may use qualitative methods.		
- Hypothesis validation, use of quantitative techniques.	- Use of both quantitative and qualitative techniques with a focus on critical pluralism.	- Emphasizes dialogue and dialectical methods.	- Emphasizes hermeneutic (interpretive) and dialectical methods.

In this table, each paradigm's approach to ontology (nature of reality), epistemology (nature of knowledge), and methodology (research methods) is compared, reflecting the distinctive characteristics and assumptions underlying each paradigm.

Table 2: Comparison of Paradigms and Their Components (Kozar, 2006)

Aspect	Positivism	Interpretive Paradigm	Critical Paradigm	Participatory Paradigm
Objective of Theory Development	Discovering laws and conducting experiments for prediction and control	Description and explanation for understanding	Description, critique, and creating change	Creating guidelines for action and change
Theoretical Issues	Relationships, causality, and generalization	Social construction of reality and interpretation	Social construction of reality, power, dominance, and liberation	Practical experience and knowledge
Theoretical Perspective	Refinement through causal analysis	Analysis of experiences, abstract thinking, and imagination	Critical analysis and abstract thinking	Working with communities and engaging in practice
Levels of Theory	Universal theories are preferable	Mid-range and especially local theories are preferable	Major and global theories are generally preferable	All levels of theory are equally important
Role of Context in Theory, Laws, and General Principles	Theory is separate from context and based on general laws and principles	Importance of context in theory development; theory is context-dependent, human behavior does not become law-like	Theory is often context-independent, often focuses on general laws	Importance of context in theory development; theory is context-dependent, human behavior does not become law-like
Theory Validation	Vital importance in theory development	A set of important theoretical standards	Not crucial for theory development	Not crucial for theory development
Values and Objectivity	Objective and value-free theory	Contains value-laden, subjective, and relational elements	Sometimes value-laden, subjective, and relational elements	Contains value-laden, subjective, and relational elements

This table provides a comparison of different paradigms based on their objectives for theory development, theoretical issues, perspectives, levels of theory, the role of context, theory validation, and their treatment of values and objectivity.

From Kozar's perspective, hermeneutics or interpretivism is considered a paradigm. The historical development of science shows a significant emphasis on quantification. Some scholars have referred to mathematics as the "queen of the sciences" and have categorized disciplines like physics and chemistry, which strongly emphasize quantification, as "hard" sciences. In contrast, disciplines such as biology and especially social sciences have been labeled as "soft" sciences, often perceived as lacking scientific precision. As a result, the debate over the unity of sciences emerged. Positivists, who emphasized the confirmability of research, and post-positivists, who

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stressed the falsifiability of pre-determined hypotheses, argued that all sciences should adopt such methods to be considered scientific. This led to the formation of two significant poles in science: one advocating naturalism and the other anti-naturalism. Naturalists believed that social sciences should employ empirical and positivist research methods, while the anti-naturalists claimed that social sciences inherently require their own unique methods (Little, 1994; Danaii Far et al., 2012). Over time, there was a movement toward developing specific research methods for social sciences, and discussions about the differentiation between quantitative and qualitative methods in social sciences took root. Therefore, the discussion of quantitative approaches in social science research implies a different perspective on human behavior compared to quantitative approaches (Oji, 1970). However, the history of science indicates that quantification or quantitative orientation has been a central claim of social sciences to demonstrate their commitment to scientific methods (Hallway, 1991). Over time, due to criticisms of positivism, this claim has become less pronounced (Danaii Far et al., 2012, p. 12).

Quantitative and Qualitative Orientations to Research

Quantitative and qualitative research have significant differences, but they also complement each other in various ways. All social researchers systematically collect and analyze empirical data, carefully examining internal patterns to achieve an understanding and explanation of social life. One of the differences between these two approaches stems from the nature of the data they examine. Qualitative data, which is often in the form of texts, words, sentences, images, symbols, and similar elements, requires different research strategies and techniques for data collection compared to quantitative data, which is numerical. Another difference between the two approaches is that qualitative and quantitative researchers typically have different assumptions about social life and different ultimate goals.

Recognizing the strengths of each approach is important for understanding the distinctions between researchers' orientations. Almost all quantitative researchers rely on positivist approaches to social science. They adopt a technocratic view, use "reconstructed logic," and follow a linear research path. They speak in the language of "variables and hypotheses." Quantitative researchers emphasize precise measurement of variables and testing hypotheses linked to comprehensive causal explanations. In contrast, qualitative researchers often rely on interpretive or critical social science perspectives. They tend to adopt a more transcendental view, use "logic in practice," and follow a non-linear research path. Qualitative researchers speak in the language of "cases and contexts." They focus on detailed examinations of cases that occur in the natural flow of social life and usually aim to provide valid interpretations sensitive to socio-historical contexts (Danaii Far et al., 2010, p. 305).

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Table 3: Differences Between Qualitative and Quantitative Research (Danaii Far et al., 2010, p. 305)

Quantitative	Qualitative
- Testing hypotheses that the researcher starts with.	- Gaining and discovering meaning through researcher immersion (deep engagement) in the data.
- Concepts are defined as specific and separate variables.	- Concepts are expressed as themes, recurring themes, generalizations, and categorizations.
- Metrics are constructed and standardized before data collection.	- Metrics are often created temporarily and are usually specific to a particular context or researcher.
- Data are in the form of numbers obtained from precise measurement.	- Data are in the form of words and images derived from documents, observations, and field notes.
- Theory is primarily causal and deductive.	- Theory can be causal or non-causal and is often inductive.
- Procedures are standardized and repeatability is assumed.	- Research procedures are specific and repeatability is rarely considered.
- Analyses are conducted using statistics, tables, or charts, and discussing how they relate to hypotheses.	- Analyses are conducted by inferring themes or generalizations from evidence and organizing data to present a coherent and unified picture.

Table 4: Differences Between Qualitative and Quantitative Research (Sarantakos, 1998: 14; Danaii Far et al., 2012, p. 214)

Aspect	Qualitative	Quantitative
Research Approach	Inductive	Deductive
Ontological Perspective	Multiple realities	Causal relationships
Nature of Truth	Rooted in the real world	Hypothesis testing
Epistemological View	Subjective	Objective
Researcher's Position	Internal	External
Research Design	Unstructured, emergent, specific to the study	Structured, systematic, replicable
Focus of Research	Discussion topics during research	Variables
Participant Selection	Non-random	Random
Data Representation	Textual	Numerical
Analysis	Themes	Statistical analyses
Presentation of Findings	Narrative	Statistical tables and charts
Researcher's Voice	First person, active tone	Third person, active tone
Reflection of the Real World	Part of life	Representative

Research Methodologies

Management and organizational research can be broadly categorized into quantitative and qualitative research based on their capacity for quantification or lack thereof. There is also a third category known as mixed methods. While the fundamental paradigms for quantitative research are positivism and chaos theory, qualitative research is rooted in interpretive paradigms, critical theory, feminist theory, and postmodernism. Major strategies in quantitative research include survey strategies and experimental strategies, while case studies, grounded theory, ethnography, and action research are key strategies in qualitative research. For implementing qualitative research strategies, methods such as interviews, participatory observation, focus groups, Delphi techniques, and documentation are used. In contrast, quantitative research relies more on various types of questionnaires, observation, quantitative Delphi techniques, and archival or documentary methods. The choice of a quantitative, qualitative, or mixed-method approach depends on the nature of the research, the

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research environment, potential limitations, and the underlying paradigms that inspire the research (hypothetical-inductive and generalist-deductive) (Danaii Far et al., 2012, p. 207).

Delphi Technique

According to Helmer (1997), the Delphi technique is a useful communication tool among a group of experts that facilitates the formulation of the group's opinions. Wisma (1982), emphasizing the importance of the Delphi method, refers to it as a method for "a univariate exploration" for predicting future technologies. He adds that the Delphi technique is designed to enable discussions among experts while preventing the influence of social interactions that typically occur in group discussions and can hinder the formation of opinions and ideas. Baldwin (1975) believes that when decision-makers lack sufficient knowledge, they are compelled to make decisions based on their direct perceptions or the opinions of experts. The goal of the Delphi technique is to collect information and opinions from experts to facilitate problem-solving, decision-making, and planning processes. This is achieved without requiring physical meetings of individuals, as information is transmitted via mail, fax, or email. This technique is designed to maximize the benefit of expert opinions and ideas, and to address intra-group dynamics. It is based on enhancing the group's problem-solving capacity and reducing its weaknesses.

History of the Delphi Technique

The development of the Delphi method began with the rise of activities related to future technology forecasting, which started in 1944. At that time, the U.S. Navy commissioned a project called RAND (an acronym for Research and Development) at the Douglas Aircraft Company to forecast future technologies with military applications. This project focused on intercontinental ballistic weapons. In 1959, Helmer and Rescher, two researchers from the RAND project, proposed in their paper "Philosophical Theory of Knowledge in Indeterminate Sciences" that in areas where scientific laws have not yet been developed, reliance on expert opinions is permissible. The question was how to effectively utilize these expert opinions and, in particular, how to formulate a useful statement by integrating the views of a group of experts. According to the Delphi method, human judgments serve as legitimate and useful inputs for making forecasts. Individual experts can sometimes be prone to bias, while expert groups might be influenced by the group's leader, potentially leading to reluctance to revise earlier ideas. To overcome such shortcomings, the Delphi method was developed with theoretical foundations and methodological guidelines during the 1950s and 1960s at RAND. The term "Delphi" refers to a sacred place in ancient Greece where prophecies and statements from Greek gods were delivered through high priests. It seems that the use of this name was not endorsed by the founders of this method, Helmer and Dalkey. According to Dalkey in 1968, the term "Delphi" somehow implies

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a mystical connotation of their method related to divination. However, what they presented was a method to improve forecasting by making full use of available incomplete information (Ahmadi, 2006).

When is the Delphi Technique Useful?

The Delphi technique is mainly used when evaluating long-term issues. This method simplifies complex and implicit knowledge, making it possible to judge it. Therefore, using this method in combination with other methods, such as scenario planning or technology lists, can be beneficial. On the other hand, in highly complex issues, when the topics are overly simplified, or when the goal is to think and discuss under different conditions, the Delphi method might not be the most suitable choice. This method is also appropriate in situations where there is a political effort to include a large number of individuals in the process.

The goal of future-oriented research is to gain insights into interpretations, alternatives, and decisions regarding future matters. This helps us understand alternative paths or prioritize potential future developments and plan for a desirable future. The roots of future-oriented research can be traced back to the 1960s and 1970s. Although initially associated with the complex military industry in the West, the benefits and advantages of this type of research were soon recognized across various fields, quickly becoming a tool for both the private and public sectors. Today, we have a comprehensive set of these research methods to aid in future planning (Lang, 1994).

Due to the importance of the initial Delphi study, subsequent efforts were made by various individuals to apply this method in non-defense fields. Since then, Delphi has appeared in non-military literature and has seen increasing use in defense-related areas, including aerospace and military services. The rapid growth of aerospace and electronics technologies and the exorbitant costs allocated to research and development, which led to the creation of new systems in these fields, provided significant opportunities and capacities for industrial and defense planners. Forecasting plans and allocating research and development resources, and predicting trends based on insufficient evidence, became essential. Consequently, the Delphi method has become a fundamental tool in technological forecasting and is now widely used in many technology-driven companies. Even in traditional management science and operations research, there has been a notable increase in the application of this method to integrate mental information with evaluation samples for examining complex societal issues, environments, health, transportation, etc. In recent years, Delphi has spread from the U.S. to Western and Eastern Europe and even the Far East. The largest Delphi study to date has been conducted in Japan, and it is anticipated that in the coming years, experimental psychologists and other academic professionals will actively employ this method (Linstone & Turoff, 2002).

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Types of Delphi

In most sources, this technique is categorized into three types: political, classical, and decision.

Classical Delphi: Features include anonymity of experts, iteration or repetition, controlled feedback, statistical reporting of group responses, and a focus on consensus.

Modified Delphi: Characteristics include group interactions without the anonymity of panelists, no requirement for consensus, open/closed question types, and qualitative or quantitative analysis methods.

Political Delphi: Used as a facilitation tool, with verbal data and no requirement for consensus or expert status of participants, aiming to select the most suitable policy.

Decision Delphi: Involves panels of decision-makers (real-time).

Additionally, Delphi can be divided into numerical, historical, modified, and real-time types, reflecting interpretations and applications in various contexts (Ahmadi, 2006).

Requirements

The Delphi technique requires a coordinator to organize information request forms and collected data. This individual is also responsible for communicating with the target community. The technique necessitates a strong communication channel between the coordinator and each member of the community. While postal communication is common, fax and email can reduce the completion time of the Delphi process. The time required for this technique from start to finish via mail is 44 days, whereas email and fax can reduce this time to 5 days. However, the working time of the coordinator is the total actual time for the work. According to experiments, coordinating between 20 community members with 3 questionnaires takes approximately 30 to 40 hours.

Steps for Implementing the Delphi Method

1. Identify the Topic and Idea:

Example: “Designing a Policy Model for the Implementation of a Federal System in the Islamic Republic of Afghanistan.”

Prepare and send the first questionnaire, which requests each member of the panel to engage in brainstorming individually and generate as many solutions as possible for the problem.

2. Response to the Initial Questionnaire:

Each participant anonymously lists their ideas briefly in the first questionnaire. These ideas should preferably be stated in single sentences. Explanations and justifications are not required.

3. Prepare and Send the Second Questionnaire:

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The coordinator prepares the second questionnaire, which includes all the ideas collected in the first round. Below each idea, space is provided for participants to analyze the idea.

4. Response to the Second Questionnaire:

Each participant fills out the second questionnaire without mentioning their name and submits it to the coordinator.

5. Prepare and Send the Third Questionnaire:

At this stage, the coordinator prepares the third questionnaire and sends it to the members. This questionnaire summarizes previous content and asks members to expand and elaborate on it, as well as to provide new ideas.

6. Continue the Process:

If desired, you can repeat the previous steps as many times as necessary until you are confident that no new information or ideas are being added.

7. Analysis:

The analysis of the collected data can be performed using one of the following methods:

a: If the majority's opinions are clearly identified as the main causes, it is declared that the process is complete. List the factors agreed upon by the group along with their strengths and weaknesses.

b: If the coordinator determines that the collected information lacks a single estimate and various factors have been identified, members can be asked to rank the identified factors from (0) to (7), where (0) indicates no impact and (7) indicates maximum impact. The coordinator should collect these rankings from all members and announce the final result.

c: Another method is using a simple voting technique. In this case, the coordinator asks members to list the five most important factors in order. The coordinator then collects the votes and presents a report showing the total scores for each factor and the number of votes it received (Torkman, 2011).

Fowles' Ten Stages of a Delphi Group Method:

1. Form a Delphi group to execute and oversee the project.

2. Select one or more groups to participate in the execution; these participants are usually experts in the relevant field.

3. Design the first-round questionnaire.

4. Test and review the questionnaire for clarity (avoiding ambiguity and double meanings).

5. Send the first questionnaire to the group members.

6. Receive and analyze responses from the first round.

7. Prepare the second-round questionnaire.

8. Send the second-round questionnaire to the group members.

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9. Analyze the responses from the second round (steps 7 to 9 are repeated until responses stabilize).

10. Prepare a report of the results by the analyst (Delphi method).

Bousha and Hatter (1980) Outline Sample Study Stages:

1. Phase One:

Select a group (panel) of experts who are capable of providing opinions on the relevant topic. Explain the rationale and logic of the study to them and request their participation anonymously as independent group members.

2. Phase Two:

Request each participant to provide a list of value judgments, forecasts, or opinions about the specified issues or topic (in some cases, respondents may be asked to respond to a list of statements previously selected by the examiner).

3. Phase Three:

Collect the responses and integrate them into a questionnaire for use in the first round of the study. Then, ask the members of the same group to rank the recorded statements by priority or importance.

4. Phase Four:

Once all first-round questionnaires are received, analyze the data statistically (e.g., determine the median and range of quartile responses). Reorganize the statements based on their ranks and prepare them in a new questionnaire for the second round of the study.

5. Phase Five:

Send the second-round questionnaire along with a summary of the first round's statistics to the group members and request them to respond based on it.

6. Phase Six:

Repeat Phase Five for the third-round questionnaire. Participants whose opinions are still outside the quartile range of the third-round results are asked to explain why their opinions have not changed. At the end of the third round (or when consensus is reached), the examiner prepares a report on the ranked statements, indicating the extent of changes in opinions. The consensus opinions, along with other relevant recommendations from participants, are summarized and presented to stakeholders for decision-making.

Klein (2000) Lists Ten Steps for Prioritizing This Method:

1. Select a Facilitator.
2. Select a Panel of Experts.
3. Determine a List of Criteria for the Group.
4. Rank the Criteria by the Group.
5. Calculate the Mean and Deviation.
6. Rank the Criteria.

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7. Identify the Limitations and Advantages of Projects.

8. Rank the Projects Based on Limitations and Advantages.

9. Analyze the Results and Provide Feedback to the Group Members.

10. Re-rank the Projects Until Stability is Achieved.

Criticisms of the Delphi Method

The Delphi method has faced various criticisms, with some of the most prominent critiques including:

1. Sackman's Critique: Sackman's main criticism is that the Delphi method is considered unscientific. According to Sackman, the approach lacks scientific rigor in its implementation.

2. Martino's Perspective: Martino points out that the Delphi method is a last resort for dealing with highly complex issues when no suitable examples exist. It is not necessarily the first choice for problem-solving.

3. Helmer's Observation: Helmer notes that relying on intuitive judgments is sometimes not just a convenience but a necessity, implying that the Delphi method may overly depend on subjective insights.

Major Complaints About the Delphi Method:

a. Low Reliability of Judgments: There are concerns about the reliability of judgments among experts and how forecasts can depend on the specific individuals chosen.

b. Sensitivity to Ambitious Questionnaire Design: The results are sensitive to how questionnaires are designed for each round, and assessing the level of expertise required for forecasts is challenging.

Martino's Major Criticisms of the Delphi Method:

1. Neglect of the Future: The importance of future events may not be adequately considered, leading to a focus on current or past issues rather than future developments.

2. Oversimplification: Experts may tend to view events in isolation rather than in relation to broader trends, making it difficult to capture comprehensive impacts. A holistic view of future events, where changes have a widespread effect, is not easily demonstrated.

3. Unrealistic Experts: Some experts may be poor predictors, which can undermine the validity of the forecasts.

4. Superficial Execution: There are many ways to execute the Delphi process poorly, and the process may lose necessary attention.

5. Form Bias: The design of the questionnaire might not be suitable for all potential participants, leading to form bias.

6. Distortion of Results: There is a risk that the results might be manipulated by facilitators who may alter responses in hopes of reaching desired outcomes in later rounds.

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Other Criticisms:

- Unclear Advantages: It is unclear whether the consensus achieved through the Delphi method is superior to other structured judgment techniques.

- Facilitator Bias: The study is subject to biases from the coordinating group, who select the members and interpret and provide feedback on the responses. There is debate about whether the coordinating group should be internal or external to the organization.

- Cultural Bias: The structured questionnaire process might lead to bias influenced by cultural backgrounds. Participants may respond in ways they believe the facilitator wants or might choose not to respond at all. Thus, cultural background can impact the study's results.

- Premature Questioning: A key weakness is that specific questions should not be asked at the start of the study.

Toraf and Linston (2002) Identify Eight Key Weaknesses of the Delphi Method:

1. Ignoring the Future: Insufficient attention is paid to future events.
2. Excessive Simplification: There is an overemphasis on simplification.
3. Focus on Prediction: There is too much emphasis on prediction.
4. Unrealistic Expertise: Reliance on unrealistic expert opinions.
5. Superficial Execution: The process is sometimes executed poorly.
6. Bias (Optimistic and Pessimistic): The method can be subject to both optimistic and pessimistic biases.
7. Exaggeration: There may be exaggeration in the forecasts.
8. Deception: The process might involve misleading or deceptive practices.

Preparation, Development, and Distribution of Questionnaires in the Delphi Method:

First Questionnaire:

The purpose of this questionnaire is to gather your opinion on the following question:

"Can a decentralized administrative system be implemented in Afghanistan?"

Please focus your thoughts on this topic as if brainstorming individually and provide as many solutions as possible. Write your ideas concisely. Complete the form and email the results to me. There is no need to develop or elaborate on your ideas completely. Ideally, express your idea in a single sentence. Do not provide extensive explanations. The ideas you list will be shared anonymously in the second questionnaire.

Second Questionnaire:

The purpose of this form is to inform you about others' opinions on the topic addressed in the first questionnaire.

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Please review the listed items carefully, noting the strengths and weaknesses of each and add any new ideas that come to mind at the end of the questionnaire. Your responses will be shared anonymously in the next questionnaire.

Third Questionnaire:

This contains all the factors mentioned by members, along with their explanations and the strengths and weaknesses. These are related to the problem of:

"Can a decentralized administrative system be implemented in Afghanistan?"

Please provide any specific opinions or additional explanations you have about these factors. At the end of the form, add any new insights that have come to your mind. Note that this is the final questionnaire. After I receive the results, you will be asked to vote on the top 5 suggestions. The results will be sent to all members.

Voting Sheet:

The purpose of this sheet is for you to vote on the 5 most important factors from your perspective. The first factor receives 5 points, the second factor 4 points, the third factor 3 points, the fourth factor 2 points, and the fifth factor 1 point.

Results of Voting:

Below is the report of the voting on the top 5 most important factors related to the question posed:

Can a decentralized administrative system be implemented in Afghanistan?

1. Factor: Preservation of national territorial integrity
   Score: 5
   Votes: 30
2. Factor: .....
   Score: .....
   Votes: .....
3. Factor: .....
   Score: .....
   Votes: .....
4. Factor: .....
   Score: .....
   Votes: .....
5. Factor: .....
   Score: .....
   Votes: .....

Ranking Sheet:

In response to the posed question and the listed factors, please rate the mentioned factors from 0 to 7 (0 = no impact, 7 = maximum impact).

Ranking Results:

- Factor: Preservation of national territorial integrity

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Score: 6

Percentage of Total Points: 60%

- Factor: .....

Score: .....

Percentage of Total Points: .....

(Note: Sending questionnaires to participating members can be done in three stages, and most researchers conclude their research topic with the final stage.)

Conclusion:

The rapid and remarkable growth of science and technology in human societies over recent decades, coupled with the uncertainty about its future, has led to the development and evolution of techniques and methods. These techniques help researchers use individual or group methods to forecast future issues. Individual creativity techniques are those that can only be executed and utilized by one person and cannot be used in a group setting.

Group creativity techniques, on the other hand, are designed for group use and cannot be applied individually. Some of these techniques include brainstorming, the Six Thinking Hats method, and the Delphi technique. One of the group knowledge acquisition methods is the Delphi technique, which is a structured process for forecasting and aiding decision-making through iterative rounds of surveys, information collection, and ultimately, group consensus. Essentially, it is a technique for fostering creativity in decision-making. While most surveys aim to answer the question "what is," the Delphi technique addresses the questions "what could be" and "what should be."

References

- Ahmadi, Nasibe (2006), "Introduction to the Delphi Method and Its Critique," *Journal of Social Sciences*, Issue 22, pp. 100-108.

- Pashaie Zadeh, Hossein (2007), "An Overview of the Delphi Method," *Pik Noor Journal*, Volume 6, Issue 2, pp. 63-79.

- Dunham, Randall B. (1998), "The Delphi Technique in Group Decision Making," translated by Turkman, Amin (2006), available in the Iranian Project Management Database, accessed on 29/8/2013.

- Danaeifard, Hassan; Alvani, Seyed Mahdi; Azar, Adel (2012), "Qualitative Research Methodology in Management: A Comprehensive Approach," Safar Eshraqi Publications.

- Mahdizadeh, Touraj (2010), "Optimizing the Combination of Dimensions of the Iran Human Resources Excellence Award Model Using Fuzzy Logic," Master's Thesis, Islamic Azad University.

(cc) BY

- Newman, William Lawrence (2000), "Social Research Methods: Qualitative and Quantitative Approaches," translated by Danaeifard, Hassan; Kazemi, Seyed Hossein (2019), 2 volumes, Mehregan Publishing Institute.

- Kezar, Adrianna (2006), "To Use or Not to Use Theory: Is That the Question?" in J.C. Smart, *Higher Education: Handbook of Theory and Research*, Vol. XXI, pp. 283–344.

- Cline, Alan (2000), "Prioritization Process Using Delphi Technique," [Online] Available: http://www.

- Busha, Charles A. and Stephen P. Harter (1980), "Research Methods in Librarianship: Techniques and Interpretations," New York, Academic Press, pp. 176-178.

- Ludwig, L. and S. Starr (2005), "Library as Place: Results of a Delphi Study," *Journal of the Medical Library Association*, 93(3): 315-327.