

**Research Article**

## THE COMPARISON QUALITATIVE AND QUANTITATIVE RESEARCH

Jalal Hghighat Monfared<sup>1</sup> and \*Hojatolah Derakhshan<sup>2</sup>

<sup>1</sup>Department of Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran

<sup>2</sup>Department of Management, Khalkhal Branch, Islamic Azad University, Khalkhal, Iran

\* Author for Correspondence

### ABSTRACT

The aim of this research is about Quantitative Research and Qualitative Research. Qualitative Research is collecting, analyzing, and interpreting data by observing what people do and say. Quantitative Research options have been predetermined and a large number of respondents are involved. This article is review research. First defined both of them then discuss about differences between them. Quantitative, qualitative and mixed are often attached to the term 'research methodology'. In surveys, open question is often part of qualitative research, where close questions are part of a quantitative one. Even observations can be analyzed by numerical means (83% of the subjects have smiled when landing on page X). Given that, the term "qualitative or quantitative research methods" is flawed - the qualitative and quantitative terms are used to denote the data analysis approach, not the question or the methods employed. In general, qualitative research generates rich, detailed and valid (process) data that contribute to in-depth understanding of the context. Quantitative research generates reliable population based and generalizable data and is well suited to establishing cause-and-effect relationships.

**Keywords:** *Quantitative Research, Qualitative Research*

### INTRODUCTION

#### **Quantitative Research**

Quantitative Research options have been predetermined and a large number of respondents are involved. By definition, measurement must be objective, quantitative and statistically valid. Simply put, it's about numbers, objective hard data.

The sample size for a survey is calculated by statisticians using formulas to determine how large a sample size will be needed from a given population in order to achieve findings with an acceptable degree of accuracy. Generally, researchers seek sample sizes which yield findings with at least a 95% confidence interval (which means that if you repeat the survey 100 times, 95 times out of a hundred, you would get the same response), plus/minus a margin error of 5 percentage points. Many surveys are designed to produce a smaller margin of error (Bell, 2006).

#### **Qualitative Research**

Qualitative Research is collecting, analyzing, and interpreting data by observing what people do and say. Whereas, quantitative research refers to counts and measures of things, qualitative research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things. Qualitative research is much more subjective than quantitative research and uses very different methods of collecting information, mainly individual, in-depth interviews and focus groups (Briggs, 2006).

The nature of this type of research is exploratory and open-ended. Small numbers of people are interviewed in-depth and/or a relatively small number of focus groups are conducted. Participants are asked to respond to general questions and the interviewer or group moderator probes and explores their responses to identify and define people's perceptions, opinions and feelings about the topic or idea being discussed and to determine the degree of agreement that exists in the group. The quality of the finding from qualitative research is directly dependent upon the skills, experience and sensitive of the interviewer or group moderator.

This type of research is often less costly than surveys and is extremely effective in acquiring information about people's communications needs and their responses to and views about specific communications (Creswell, 2007).

## **Research Article**

### ***What is the Difference between Qualitative Research and Quantitative Research?***

So what is the difference between Qualitative Research and Quantitative Research?

Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research.

Qualitative Research is also used to uncover trends in thought and opinions, and dive deeper into the problem (Mehl, 2000). Qualitative data collection methods vary using unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfill a given quota.

Quantitative Research is used to quantify the problem by way of generating numerical data or data that can be transformed into useable statistics. It is used to quantify attitudes, opinions, behaviors, and other defined variables – and generalize results from a larger sample population. Quantitative Research uses measurable data to formulate facts and uncover patterns in research.

Quantitative data collection methods are much more structured than Qualitative data collection methods. Quantitative data collection methods include various forms of surveys – online surveys, paper surveys, mobile surveys and kiosk surveys, face-to-face interviews, telephone interviews, longitudinal studies, website interceptors, online polls, and systematic observations (Jandagh, 2010).

*Snap Survey Software* is the ideal solution for a Quantitative Research tool where structured techniques such as large numbers of respondents and descriptive findings are required. Snap Survey Software has many robust features that will help your organization effectively gather and analyze quantitative data.

### ***The Main Characteristics of Qualitative Research***

The essential traits of qualitative research explain its character. They are:

- Flexibility, coherence and consistency
- Priority of data
- Context sensitivity
- Thick description
- Immersion in the setting (natural setting)
- Insider/outsider perspectives
- Reflexivity and ‘critical subjectivity’

### ***Flexibility, Coherence and Consistency***

Qualitative researchers need flexibility – the design of the study to be carried out is emerging and evolving rather than wholly predetermined. The research can change in the early stages and be adapted according to developing ideas. As Patton (2002) notes, qualitative research is neither unilinear nor straightforward, but is iterative. It uses the skill of ‘tacking’, going back and forth between the data collection, analysis and findings. This means that qualitative researchers make sure that their work is always ‘grounded in the data’.

The strategies used are more open-ended and flexible, and give the participants the freedom to respond in their own way, enabling researchers to follow up on anticipated and unanticipated areas in both interviews and observations.

The research relationship too has inherent flexibility and might change over time. More so than in other types of inquiry, researchers can evaluate ideas, take them back to the data, and explore them and modify or reject them.

Nevertheless, qualitative research should still stay true to the principles and procedures of each specific approach, which should be followed so that inner consistency and coherence can be established (Holloway and Todres, 2003).

**Research Article**

**Priority of Data**

Qualitative research is initially inductive, which means that the researcher moves from specific instances to discover patterns or regularities or even tentative hypotheses (or working propositions).

Thus the data in qualitative research have primacy, and inductive reasoning does not start with a hypothesis (or theory).

The patterns in the data allow theories to develop. Inductive reasoning allows more flexibility and exploration, especially in its early stages. However, there can also be a deductive element in that the working propositions are followed up and explored (and in some forms of grounded theory even tested) until researchers come to a broader conclusion or theory, for example the study by Roberts *et al.*, (2001) on athlete perceptions of sports equipment under playing conditions, where the initial inductive analysis generated a number of themes that were subsequently tested deductively.

**Table 1: Research Services team carries out quantitative research on behalf of a wide range of clients**

	<b>Qualitative Research</b>	<b>Quantitative Research</b>
<b>purpose</b>	<ul style="list-style-type: none"> <li>To gain an understanding of underlying reasons and motivations</li> <li>To provide insights into the setting of a problem, generating ideas and/or hypotheses for later quantitative research</li> <li>To uncover prevalent trends in thought and opinion</li> </ul>	<ul style="list-style-type: none"> <li>To quantify data and generalize results from a sample to the population of interest</li> <li>To measure the incidence of various views and opinions in a chosen sample</li> <li>Sometimes followed by qualitative research which is used to explore some findings further</li> </ul>
<b>Sample</b>	Usually a small number of non-representative cases. Respondents selected to fulfil a given quota.	Usually a large number of cases representing the population of interest. Randomly selected respondents.
<b>Data collection</b>	Unstructured or semi-structured techniques e.g. individual depth interviews or group discussions.	Structured techniques such as online questionnaires, on-street or telephone interviews.
<b>Data analysis</b>	Non-statistical.	Statistical data is usually in the form of tabulations (tabs). Findings are conclusive and usually descriptive in nature.
<b>Outcome</b>	Exploratory and/or investigative. Findings are not conclusive and cannot be used to make generalizations about the population of interest. Develop an initial understanding and sound base for further decision making.	Used to recommend a final course of action.

**Research Article**

**Table 2: Comparison of Quantitative, Mixed, and Qualitative Approaches to Educational Research**

	<b>Quantitative Approach</b>	<b>Mixed Approach</b>	<b>Qualitative Approach</b>
<b>Scientific Method</b>	Deductive or “top-down” Test hypothesis and theory with data.	Deductive and Inductive	Inductive or “bottom-up” Generate new hypotheses and theory from data collected.
<b>Most common research objectives</b>	Description Explanation Prediction	Multiple objectives	Description Exploration Discovery
<b>Focus</b>	Narrow-angle lens Testing specific hypotheses	Multi-lens	Wide and Deep-angle lenses Examine the breadth and depth of phenomenon to learn more about them.
<b>Nature of study</b>	Study behavior under artificial, controlled conditions.	Study behavior in more than one context or condition	Study behavior in its natural environment or context.
<b>Form of data collected</b>	Collect numeric data using structured and validated instruments (closed-ended survey items, rating scales, measurable behavioral responses)	Multiple forms	Collect narrative data using semi- or unstructured instruments (open-ended survey items, interviews, observation, focus groups, documents)
<b>Nature of data</b>	Numeric variables.	Mixture of numeric variables, words, and images.	Words, images, themes, and categories
<b>Data analysis</b>	Identify statistical relationships	Statistical and holistic	Holistically identify patterns, categories, and themes.
<b>Results</b>	Generalizable findings. General understanding of respondent’s viewpoint. Researcher framed results.	Corroborated findings that may be generalizable.	Particularistic findings. In-depth understanding of respondent’s viewpoint. Respondent framed results.
<b>Form of final report</b>	Statistical report including correlations, comparisons of means, and statistically significant findings.	Statistical findings with in-depth narrative description and identification of overall themes.	Narrative report including contextual description, categories, themes, and supporting respondent quotes.

**Context Sensitivity**

Qualitative research is context-bound; it is not located in a vacuum but always tied to its context, which refers to the locality, time and culture in which it takes place, and the values and beliefs the participants – and researchers – hold. As Patton (2002) observes, qualitative research takes a holistic perspective – it portrays the whole of the phenomenon under study. To be aware of the context, researchers need context sensitivity or context intelligence. They can only make sense and grasp meaning through contextualization. Context is important throughout the process of the research; it influences the way in which participants and researchers think and behave. Of course, the unique context of the research makes

### **Research Article**

generalizations difficult though not impossible (this will be discussed in Chapter 15). Sport and physical activity take place in particular contexts or settings which will impact on both the nature of the activity and the experiences of the participants. Thus context sensitivity is crucial for a full understanding of the data generated.

#### **Thick Description**

Closely linked to context and contextualization is ‘thick description’, a concept developed by the anthropologist Geertz and discussed by Denzin (2001). Thick description refers to detailed, contextual description that includes feelings, meanings and intentions of people. The use of quotes from participants enhances the description and makes it more vivid. Thick description portrays the context of the participants’ lives, their culture and the meaning they

Attach to their actions and words, showing both general traits and specific patterns in the group under study. It is not merely factual description but needs to be grounded in a theoretical base.

#### **Immersion in the Setting**

For thick description to be possible, researchers immerse themselves in the setting and situation which they study and engage fully with the participants, specifically in participant observation and interviews. This means spending time in the setting with participants to learn about their thoughts, feelings and actions. Researchers build a relationship of trust with the people whose world they study. Through this, critical events are observed, feelings uncovered and routine behaviors understood. It would be difficult to analyse and interpret data from sport fans, for example, without ever having been to a game. Similarly gaining an understanding of the experiences of elite athletes may prove to be difficult if the researchers have had no exposure to sport at a high level themselves (Monastersky, 2002).

#### **Insider/outsider Perspectives**

In qualitative research, writers differentiate between insider and outsider perspectives, the ‘emic’ and the ‘etic’ view (terms developed by Harris in 1979, though not first used by him). The emic perspective refers to the participants’ understanding and voice, from those who are insiders in the group and setting that researchers study. Patton insists that it is important to be empathetic and non-judgmental, however. The outsider, ‘etic’ view – that of the social scientist, the researcher, who takes the research to a different level – is less empirical or concrete than that of the participants. This level is more abstract and theory-based as well as having more general applications (see Chapter 15 on transferability). The theoretical framework will not be predetermined but links directly to the data analysis and findings. A qualitative account which lacks proper analysis, interpretation and theory does not suffice.

#### **OReflexivity and ‘Critical Subjectivity’**

Reflexivity refers to the location of the researchers in the study, ‘the situated self’. Their values and beliefs – as well as their status and place in a hierarchy – affect the research they carry out. They need to reflect on their position in the study and how their own assumptions influence it. In qualitative research this is called ‘reflexivity’. Researchers are participants in the research and cannot distance themselves from it; indeed they acknowledge their assumptions and their involvement in the research. Self-referencing is not easy; qualitative researchers are often criticized for self-indulgence. They need to be part of the study without smothering the ideas and voice of the participants (Viadero, 2006). Reflexivity goes on throughout the research; the research diary will chart the process of reflexivity. Throughout the inquiry researchers reflect on their own assumptions (or bias, a term from quantitative research and rarely used in qualitative inquiry). Reflexivity also takes into account the philosophy, ideology and worldview in which the research is based.

#### **Research Questions**

Certain research question calls for a quantitative approach. A question such as ‘how many people prefer design A’, clearly hints that the conclusion must be based on some numerical analysis and numerical data collection. A question such as ‘why people prefer design A’ suggests a more qualitative approach. Asking people why they prefer design A is considered qualitative, and the conclusion may be ‘most subjects said that design A is better looking’. Notice however, that many questions can be answered using both quantitative and qualitative approach - it really depends what is the focus of the research. For instance, in

### Research Article

answering the latest question 'why people prefer design A', a researcher may employ a survey where subjects are asked to rank (1-5) different design criteria. The results may yield that 80% of the subjects chose aesthetics as the main reason for liking the design. So now we approach the question from a qualitative perspective (Kaplan, 2004).

#### On (Research) Methods

Quantitative, qualitative and mixed are often attached to the term 'research methodology'. As such it is easy to see why many people attach these to specific methods. What's more, it is harder to separate the approach from a method, but well possible! The obvious example is interviews - most people will see these as a pure qualitative method. But this is incorrect: Given a sample large enough is taken, interviews can be analyzed by numerical means (how many interviewees preferred design A) (Hammersley, 2004). While this is possible, most researchers will claim that if quantitative data is what you are after, interviews are probably least suited for the task. In surveys, open question is often part of qualitative research, where close questions are part of a quantitative one. Even observations can be analyzed by numerical means (83% of the subjects have smiled when landing on page X). Given that, the term "qualitative or quantitative research methods" is flawed - the qualitative and quantitative terms are used to denote the data analysis approach, not the question or the methods employed.

### CONCLUSION

In general, qualitative research generates rich, detailed and valid (process) data that contribute to in-depth understanding of the context. Quantitative research generates reliable population based and generalizable data and is well suited to establishing cause-and-effect relationships. The decision of whether to choose a quantitative or a qualitative design is a philosophical question. Which methods to choose will depend on the nature of the project, the type of information needed the context of the study and the availability of resources (time, money, and human). It is important to keep in mind that these are two different philosophies, not necessarily polar opposites. In fact, elements of both designs can be used together in mixed-methods studies (Madison, 2005).

Combining of qualitative and quantitative research is becoming more and more common. However, does picking method X and applying a quantitative data analysis makes it a 'quantitative method'? Most people will live in peace with this definition, same as a 'red apple' means that this specific apple is red (but it can be green as well).

Every method is different line of sight directed toward the same point, observing social and symbolic reality. The use of multiple lines of sight is called triangulation. It is a combination of two types of research. It is also called pluralistic research. Advantages of combining both types of research include: research development (one approach is used to inform the other, such as using qualitative research to develop an instrument to be used in quantitative research) Increased validity (confirmation of results by means of different data sources) Complementarities (adding information, i.e. words to numbers and vice versa) Creating new lines of thinking by the emergence of fresh perspectives and contradictions. Barriers to integration include philosophical differences, cost, inadequate training and publication bias (Torrance, 2007).

### REFERENCES

- American Education Research Association (2006).** Standards for Reporting on Empirical Social Science Research in AERA publications. Available: <http://www.aera.net/opportunities/?id,480> [Accessed 6 February 2007].
- Bell Vicki (2006).** The Cochrane Qualitative Methods Group. Available: <http://www.lancs.ac.uk/fass/ihr/research/public/cochrane.htm>
- Briggs Joanna (2006).** Cochrane Qualitative Research Methods Group. *The Cochrane Collaboration*, Available: <http://www.joannabriggs.edu.au/cqrmg/role.html>
- Burns N and Grove SK (2005).** *The Practice of Nursing Research: Conduct, Critique, and Utilization*, 5th edition (St. Louis, Elsevier Saunders).

### Research Article

**Cassell C and Symon G (1994).** Qualitative research in work contexts. In: *Qualitative Methods in Organizational Research*, edited by Cassell C and Symon G (Thousand Oaks, CA: Sage Publications) 1-13.

**Creswell John W (2007).** *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*, 2nd edition (Thousand Oaks, CA: Sage).

**Denzin Norman K and Yvonna S Lincoln (1994).** *Handbook of Qualitative Research* (Thousand Oaks, CA: Sage).

**Gholamreza Jandagh and Hasan Zarei Matin (2010).** Application of qualitative research in management (why, when and how). *Iranian Journal of Management Studies (IJMS)* 3(3) 59 – 74.

**Hammersley Martyn (2004).** Some Questions About Evidence-Based Practice in Education. In: *Evidence-Based Practice in Education*, edited by Gary Thomas and Richard Pring (New York: Open University Press) 133–49.

**Kaplan Esther (2004).** *With God on Their Side: How the Christian Fundamentalists Trampled Science, Policy and Democracy in George W. Bush's White House* (New York: New Press).

**Madison D Soyini (2005).** *Critical Ethnography: Methods, Ethics and Performance* (Thousand Oaks, CA: Sage).

**Mehl GL (2000).** Tobacco smoking in central Sri Lanka: an ethnographic study of male urban young adults. PhD Dissertation, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, MD, USA.

**Monastersky Richard (2002).** Research Groups Accuse Education Department of Using Ideology in Decisions About Data. *Chronicle of Higher Education* 25(2).

**Morse Janice M (2006a).** The Politics of Evidence. *Qualitative Health Research* 16(3) 395–404.

**Morse Janice M (2006b).** Reconceptualizing Qualitative Inquiry. *Qualitative Health Research* 16(3) 415–22.

**Teddlie C and Tashakkori A (2003).** Major Issues and Controversies in the Use of Mixed Methods in the Social and behavioural Sciences. In: *Handbook of Mixed-Methods in Social and Behavioral Research*, edited by Tashakkori A and Teddlie C (Thousand Oaks, CA: Sage) 3–50.

**Torrance Harry (2007).** 'E-mail – 3rd International Congress', 8 March 2007.

**Viadero D (2006).** New Group of Researchers Focuses on Scientific Study. *Education Week* 25(21) 1 & 16.