

UNIT 8

Comparing Quantitative and Qualitative Research

Overview

The “qualitative-quantitative debate” as it is sometimes called is one of those hot-button issues that almost invariably will trigger an intense debate among social researchers. In units 6 and 7 we examined each approach separately. We also looked at the various research methods within each approach. In this unit we examine the two approaches side by side and evaluate their strengths and weaknesses in the context of the decision making process in social research. The approaches are evaluated based on their value to the research or research problem that is being undertaken. In this unit, too, you will be introduced to the mixed methods approach and the rationale behind using it in a research project. After completing this unit, you will be expected to make value judgments as it relates to the various approaches and methods when designing your research projects and finally decide which approach will be better for you.

Learning Objectives

By the end of this Unit you will be able to:

1. Compare and contrast the quantitative and the qualitative methods.
2. Explain the mixed methods approach.
3. Discuss critically the difference between quantitative, qualitative and mixed methods approaches.
4. Explain triangulation.
5. Discuss critically the importance of triangulation to social research.
6. What is the importance of good research design to the success of the research project?
7. How can researcher bias impact data collection methods?

This Unit is divided into four Sessions as follows:

Session 8.1: Comparing Quantitative and Qualitative Methods

Session 8.2: Mixed Methods Approach

Session 8.3: Triangulation

Session 8.4: Researcher Bias in Data Collection



Readings & Resources

Required Readings

Creswell, J. (2003). Research design: Qualitative, quantitative and mixed methods approaches (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Creswell, J. and Clarke, V. (2007). Designing and conducting mixed methods research. Sage Publications.

Cruz, J. A. (2011). Qualitative and quantitative methods of research. Retrieved at: [http:// www.slideshare.net/jrdn_27/qualitative-and-quantitative-methods-of-research?utm_source=slideshow03&utm_medium=ssemail&utm_campaign=share_slideshow_loggedout](http://www.slideshare.net/jrdn_27/qualitative-and-quantitative-methods-of-research?utm_source=slideshow03&utm_medium=ssemail&utm_campaign=share_slideshow_loggedout)

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- Trochim, W. (2006). Research methods knowledge base. Web Centre for Social Research Methods. <http://www.socialresearchmethods.net/kb/contents.php>
- Webb, E. J., Campbell, D. T., Schwartz, R. D., and Sechrest, L. (1966). *Unobtrusive Measures: Nonreactive Measures in the Social Sciences*. Chicago: Rand McNally.

You are also advised to locate and read: Additional papers relevant to the topics covered.

Session 8.1

Comparing Quantitative and Qualitative Methods

Qualitative Methods and Quantitative Methods

Quantitative research as we have seen in unit 6 is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity, can be measured and predictions made about. Qualitative research, on the other hand, is concerned with qualitative phenomenon, that is, phenomena relating to or involving quality or intangibles such as gender roles or looking people's perceptions about something. Qualitative research aims at discovering the underlying meanings, motives, desires and processes. These things require in-depth and sometimes prolonged examination, observation and assessments. The techniques of such research are observation, focus group discussions and text/context analysis.

Attitude or opinion research, that is, research designed to find out how people feel or what they think about a particular subject or institution is also qualitative research. Qualitative research is especially important in the behavioural sciences where the aim is to discover the underlying motives of human behavior or deeper meanings attached to behaviour.

It is important to note that the method of research employed is influenced by the core tenets or principles of the research approach. The core principles of each approach are outlined in Table 8.1 below.

Table 8.1: Core Principles of the Quantitative Approaches

Principles	Qualitative Approach	Quantitative Approach
Research Intent	Generate knowledge inductively (building theory or bottom up)	Deductive testing of theory (top down)
Use of literature	Justifies problem	Identifies research question and hypotheses. Justifies the problem
Focus (Broad)	Understand the complexity of a phenomenon	Test specific variables
Data Collection	Small sample size Natural settings Words, images	Large sample size Use of instruments, numbers and statistics
Data Analysis	Codes, themes and larger patterns	Numerical statistical analysis Reject hypotheses or determine effects
Role of Researcher	Identifies and recognizes personal stance and bias	Takes a neutral stance, takes steps to remove or reduce bias

Some methods provide data which are quantitative and some methods provide data which are qualitative. Quantitative methods, as we can see from the above, are those which focus on numbers and frequencies rather than on meaning and experience. Quantitative methods such as experiments, questionnaires and psychometric tests provide information that is easy to analyze statistically and is reliable. Quantitative methods are associated with the scientific and experimental approach and are criticized for not providing an in- depth description.

Qualitative methods, however, are ways of collecting data which are concerned with describing meaning, rather than with drawing statistical inferences. What qualitative methods such as case studies and interviews lose on reliability they gain in terms of validity. They provide a more in-depth and rich description.

If we were to take the principle of data collection of each approach, we see that while the qualitative approach is concerned with words and images the quantitative approach is concerned with numbers, instruments and statistics. Therefore, suitable research methods under the qualitative approach would include a content/documentary analysis that examines language and

words written about a topic or issue or a participant observation of a group where images of the group's behavioural patterns can be directly observed. Alternatively, under the quantitative approach, a method such as a computer based pre coded questionnaire can be used where responses can easily undergo coding and statistical analysis.

Data Collection Methods

Data collection methods can also be divided into primary sources and secondary sources of data collection. Kumar (1996) notes that information about a situation, person, problem or phenomenon may be collected from primary sources (primary data) or extracted from secondary sources (secondary data). Primary sources refer to new data that is collected by the researcher for that particular study while secondary sources refer to data that already exist from prior studies. The methods of data collection available to researchers include:

Primary sources –

- Interviews can be structured or unstructured
- Questionnaires can be through mail or collective formats
- Observation can be participant or non-participant observation

Secondary sources –

- Documents include government publications, earlier research studies, personal records, articles, journals, books periodicals, organizational records (note that this is not to be confused with doing a literature review).



LEARNING ACTIVITY 8.1

Read the following:

“Research Methods”

<http://cnx.org/content/m42960/latest/?collection=col11407/latest>

After you have done so, reflect and discuss with your peers why different topics are suited to different research approaches and methods.

Session 8.2

The Mixed Methods Approach

Using the Mixed Methods Approach

In the mixed methods approach to research, researchers incorporate methods of collecting or analyzing data from the quantitative and qualitative research approaches in a single research study (Creswell, 2003). That is, researchers collect or analyze not only numerical data, which is customary for quantitative research, but also narrative data, which is the norm for qualitative research, in order to address the research question/s defined for a particular research study. As an example, in order to collect a mixture of data, researchers might distribute a survey that contains closed-ended questions to collect the numerical, or quantitative, data and also conduct an interview using open-ended questions or conduct a focus group study to obtain the narrative, or qualitative, data.

The goal for researchers using the mixed methods approach to research is to draw from the strengths and minimize the weaknesses of the quantitative and qualitative research approaches (Johnson & Onwuegbuzie, 2004). Of course, the strengths and weaknesses associated with the various research approaches are not absolute but rather relative to the topic, context and the manner in which researchers aim to address the phenomenon under study. For example, if the researcher wants to provide in-depth insight into a phenomenon, the researcher might view selecting a small but informative sample, which is typical of qualitative research. The researcher might use inferential statistics to quantify the results, which is typical of quantitative research, as strengths worthy of combining into a single research study.

By designing research studies that combine data collection or data analysis methods from both the quantitative and qualitative research approaches, researchers are now able to test and build theories at the same time. Researchers are also able to employ deductive (top down approach) and inductive (bottom up approach) analysis in the same research study. The mixed methods approach to research provides researchers with the ability to design a single research study that answers questions about both the complex nature of phenomenon from the participants' point of view (qualitative research) and the relationship between measurable variables (quantitative research). Proponents of the mixed methods approach to research argue that it strengthens the overall research project by offering the best of both worlds and thus enhancing reliability and validity.

Advantages of Mixed Methods Approach

Although this approach can lead to more costly research, it offers you the researcher an overall broader perspective on the area of research or issues and has the following specific benefits:

- It increases the validity of your findings by allowing you to examine the same phenomenon in different ways. This process of triangulation which is looking at the same thing through different approaches is often cited as the main advantage of the mixed methods approach. We will discuss triangulation in greater detail in the next session. For example, if you were having severe stomach pains, would you really want to have your appendix removed without having a second opinion and having a clinical exam and an MRI first? It is the same idea with the mixed methods approach.
- It can result in better data collection instruments. For example, it is often helpful to conduct a focus group study first to inform the design and development of a questionnaire.
- It promotes greater understanding of your findings. Quantitative data can show that change occurred and how much change took place, while qualitative data can help you understand why. Let's say, for example, police data (quantitative) shows an increase in the number of alcohol-related arrests of teens over the past six months. This increase might be due to increased use among this population, or, may simply reflect a decision by the police department to crack down on public use. An interview with the police chief (qualitative) could help you understand what was going on during this time period.
- It offers something for everyone. Different stakeholders have different needs and or interests. A government agency or agency funding a research study to prevent teen drug use may want to see hard facts and figures on the number of teens who have been affected by the program. In contrast the school board may be more interested in hearing testimonials from youth about how the programme is helping them.

Session 8.3

Triangulation

Why Triangulate?

Imagine that you are doing a study of homelessness in your community. You could decide to do it by identifying homeless persons on the streets and asking them questions about their situation. However, how would you know that the information being given by the homeless person (or the researched) is accurate, especially when some of these persons may be substance abusers? You may therefore want to check out the information from more than one angle. You may want to find out or obtain additional information from the families of those homeless persons and you may go even further to check information on them from secondary sources such as hospital records or records from agencies like the Salvation Army or homeless shelters that provide services to homeless persons. What you are doing by obtaining information/data from more than one source is called **triangulation**.

Triangulation is defined as a mixing of data or methods so that diverse viewpoints or standpoints cast light on the topic (Olsen, 2003). It is therefore mixing approaches in order to get two or three views on the thing being studied. According to Webb et al. (1966), once a proposition has been confirmed by two or more independent measurement processes, the uncertainty of its interpretation is greatly reduced. The most persuasive evidence comes through a triangulation of measurement processes.

Types of Triangulation

Denzin (1970) extended the idea of triangulation beyond its conventional association with research methods and designs. He distinguished four forms of triangulation:

- Data triangulation, which entails gathering data through several sampling strategies, so that slices of data at different times and social situations, as well as on a variety of people, are gathered.
- Investigator triangulation, which refers to the use of more than one researcher in the field to gather and interpret data.
- Theoretical triangulation, which refers to the use of more than one theoretical position in interpreting data.

- Methodological triangulation, which refers to the use of more than one method for gathering data.

The fourth type is the most common in social research and will be most relevant for you at this stage in your research project. Sometimes methodological triangulation is taken to mean the combined use of quantitative and qualitative research (mixed methods approach) to arrive at similar findings or a more complete understanding of a phenomenon. In so doing, triangulation enhances the credibility and persuasiveness of research findings. Triangulation can thus cut across the quantitative-qualitative divide. While in units 6 and 7 we presented these two approaches as opposites of each other and impacted by completely different research traditions, they need not always be antithetical. Through triangulation, quantitative and qualitative methods can be used in social research to compliment and strengthen each other.



LEARNING ACTIVITY 8.2

Imagine that you have been recruited as a consultant/researcher to uncover instances of corruption within a government department in your country. Outline some ways of tackling this. How would you achieve triangulation? What sort of problems might you encounter in tackling this? Discuss with your peers in the discussion forum.

Session 8.4

Bias in Data Collection

Researcher Bias in Data Collections

During data collection, the data can be influenced by the context, the respondents themselves or the researcher. Technically, bias means leaning in one direction and it is often used to refer to respondents or researchers having pre-conceived ideas or an ideological disposition. What we mean here by bias is anything that can contaminate the picture you are trying to get of either the subjects' behaviour or their attitudes and beliefs. It's important to understand that bias is inevitable and normal. The problem is not the presence of biasing factors but rather when the researcher is unaware of them and interprets interview or questionnaire data as a true account of reality. This can lead to exaggerated claims based on the data and can affect reliability and validity of results.

Plummer (1983) found the following sources of researcher bias. Could any of the following shape the outcome of research?

- Attitudes of researcher; age, gender, class, race, and so on
- Presentation of researcher; dress, speech, body language
- Personality of researcher: anxiety, need for approval, hostility, warmth, and so on
- Attitudes of researcher: religion, politics, tolerance, general assumptions
- Scientific role of researcher: theory held, and so on (researcher expectations)

Researcher bias is more common in qualitative research. Remember we said in previous units that in qualitative research the researcher plays a subjective role, that is, much of the data collection is based on the interaction of the researcher with the researched, meanings, observations, language, images, impressions and perceptions. All of these create greater opportunity for researcher bias to influence both data collection and data analysis. In qualitative approaches bias is hard, if not impossible, to eliminate from the data collection and analysis stages of the study and it becomes necessary to acknowledge and account for it, rather than try to remove it.

In quantitative research, bias can usually be eliminated by careful research design with the use of appropriate sampling strategies, data protocol and so forth. You should be aware, however, that even in quantitative research, there is always an aspect of bias that comes from the researcher's

interests, the choice of research question and the choice of the parameters that will be measured. This is inevitable, arising from the fact that research is undertaken by human beings with experiences, ideas, prejudices and personal philosophies. It would be possible to worry about this so much that no research was ever started. A more realistic approach is to recognize that these personal aspects are often the drivers for a research study in the first place. In many cases, especially where human or animal subjects are involved in the study, the ethics committee plays a vital role in considering whether the research question is unacceptably biased. In a quantitative study it is the subsequent aspects of the design and the analysis that must be undertaken according to an established protocol to ensure bias elimination.

Participant bias in data collection

As stated above, bias refers to both researchers and respondents or participants in the research having preconceived ideas or an ideological predisposition that can colour the responses. Both research and participant bias are more common in qualitative research. So that while in quantitative research researchers attempt to eliminate bias, in qualitative research, the researcher acknowledges bias. This is not to say however that the qualitative researcher would not attempt to minimize bias in his/her data collection.

Participant bias can be intentional or unintentional and can happen for various reasons. Below we will discuss three common types of participant bias:

- **Dominant Respondent Bias**

In a focus group for instance, dominant respondents appear occasionally. These are participants who can influence other respondents' views. Dominant respondents' will dominate talk time, vocalizing their knowledge, expertise, energy, attractiveness, and charisma to make them dominant. It is up to the researcher or focus group facilitator to keep these dominant respondents in check and ensure that all other participants in the focus group study express their views on the topic.

- **Hostility Bias**

Some respondents may be angry with the researcher or sponsor of the research, and provide negative responses. Keep your cool and continue to ask questions. If hostility persists, break off the interview.

- **Sensitivity Bias**

Questions during an interview or focus group may raise sensitive topics and issues, about which respondents would rather not talk. Respondents may give false answers to hide secrets or may deliberately not report certain things. In this instance, you the researcher need to build trust with the respondents. People will talk to others they like and trust. To get around this too, you could use indirect questions.

Some of the ways by which participant bias can affect the data collection stage of research have been highlighted above. There are other ways in which bias can occur but the three identified above do give a strong indication of this.



LEARNING ACTIVITY 8.3

Read the following:

Bias in Qualitative Research: Voices from an Online Classroom by Beloo Mehra at: <http://www.nova.edu/ssss/QR/QR7-1/mehra.html>

It provides a good discussion on the development of understanding of bias amongst a group of students on a Masters course in conflict resolution. In the discussion forum, have one of your peers summarize the main points in the article. The rest of the group can then provide feedback and their own additions to that discussion.

UNIT SUMMARY

This unit has taken a closer and a comparative look at quantitative and qualitative research. In so doing it has demonstrated that while the two approaches to social research developed out of two opposing traditions – positivism and post positivism – they need not always be antithetical to each other. Through mixed method approaches and triangulation the two approaches can be used to complement each other and produce more balanced and complete research results. The unit also discusses bias in data collection from both quantitative and qualitative research approaches.

References

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