

Scientific Research and Thesis Writing Methodology



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How to Write Research Methodology: Overview, Tips, and Techniques

Research goes beyond the process of gathering information; rather, it is also about finding answers to unanswered questions as part of discovering and/or creating new knowledge. And for this newly discovered or created knowledge to be recognized or noticed, you must prove that it is valid, according to *Goddard and Melville (2001, p.1)*.

How to Write Research Methodology Contents

- What Is a Research Methodology?
- Methodological Approach or Methods Used in Research.
- Writing Your Research Paper Methodology.
- Ethical Considerations.
- Choosing a Research Methodology.

What Is a Research Methodology?

- In research, methodology is described as the systematic way of resolving a research topic by acquiring data using various methodologies, offering an interpretation of the data acquired, and making conclusions about the study findings. A research technique is essentially the plan for a research or study (*Murthy & Bhojanna, 2009, p. 32*).

Methodology vs. Methods

- Confusion between "methodology" and "methods" in research is prevalent, especially as the words are sometimes used interchangeably.
- In the context of research, methods and methodology refer to two connected but distinct concepts:
- **Method** is the tool used to collect data;
- **Methodology**, on the other hand, "is the underlying theory and analysis of how a research does or should proceed" (*Kirsch & Sullivan, 1992, p. 2*).
- *Birks and Mills (2011, p. 4)* described **methodology** similarly as:
"a collection of rules and concepts that influence the design of a research project." **Methods**, on the other hand, are "practical techniques used to create and interpret data" (Birks and Mills, 2011, p. 4).

To summarize these definitions

Research Methods

Behaviors and instruments used in the selection and construction of the research technique



Research Methodology

Science of understanding how research is performed methodically



VS

- **Methods** cover the technical procedures or steps taken to do the research, and
- **Methodology** provides the underlying reasons why certain methods are used in the process.

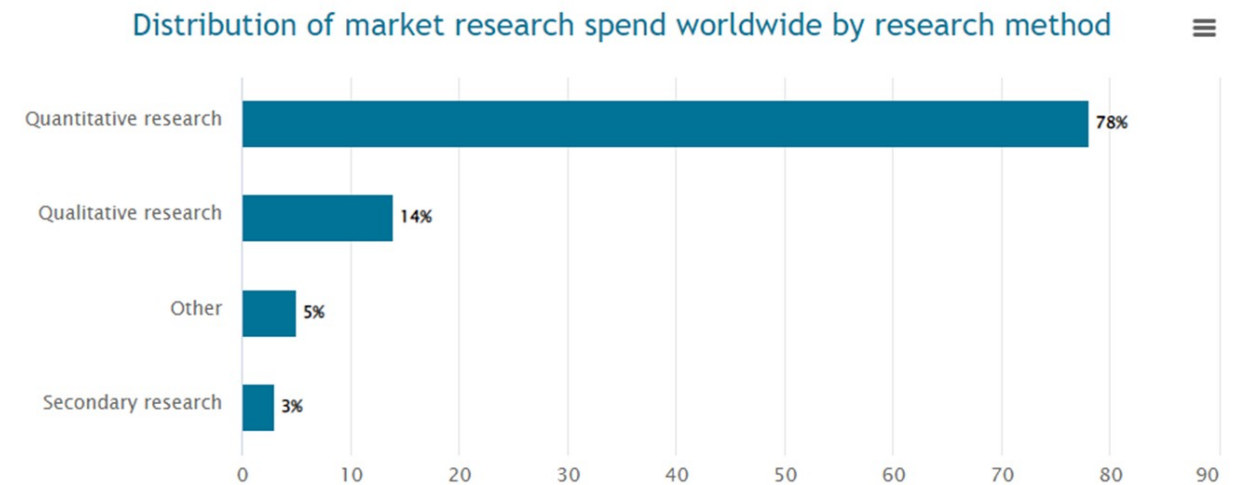
Methodological Approach or Methods Used in Research

In any type of research, the data you will gather can come either in the form of numbers or descriptions, which means you will either be required to count or converse with people (*Macdonald et al., 2008, p. 9*). In research, there are two fundamental methods used for either approach - quantitative and qualitative research methods.

- 1. Quantitative**
- 2. Qualitative**
- 3. Mixed methods**

- This strategy is frequently utilized by researchers that adhere to the scientific paradigm (*Haq, 2014, p. 1*).
- This strategy attempts to quantify and generalize data from a sample of a target population (*Macdonald et al., 2008, p. 9*).
- It employs a systematic data collecting procedure, with numerical data output. Quantitative research also employs objective analysis through the use of statistical methods (*Macdonald et al., 2008, p. 9*).

1. Quantitative approach



Source: Global Market Research 2019

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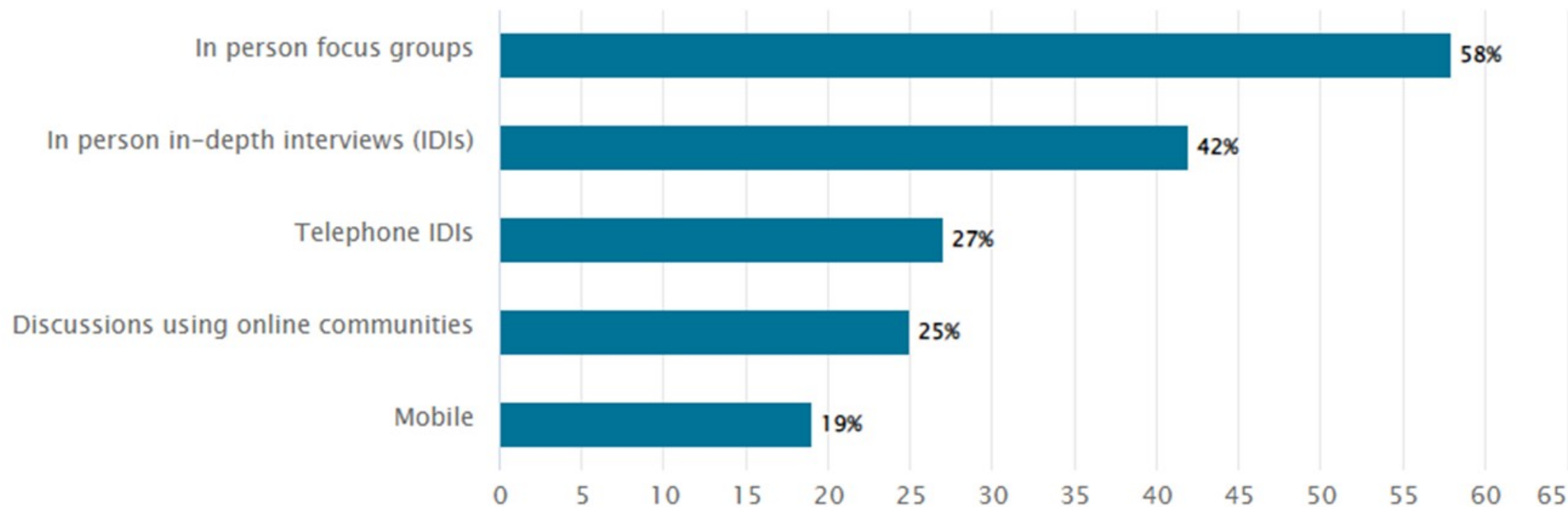
2. Qualitative approach

- Unlike the quantitative approach that aims to count things in order to explain what is observed, the qualitative research method is geared toward creating a complete and detailed description of your observation as a researcher (*Macdonald et al., 2008, p. 9*).
- Rather than providing predictions and/or causal explanations, the qualitative method offers contextualization and interpretation of the data gathered. This research method is subjective and requires a smaller number of carefully chosen respondents.

Top 5 share of qualitative methods used in the market research industry worldwide



(Q3 and Q4 of 2018)

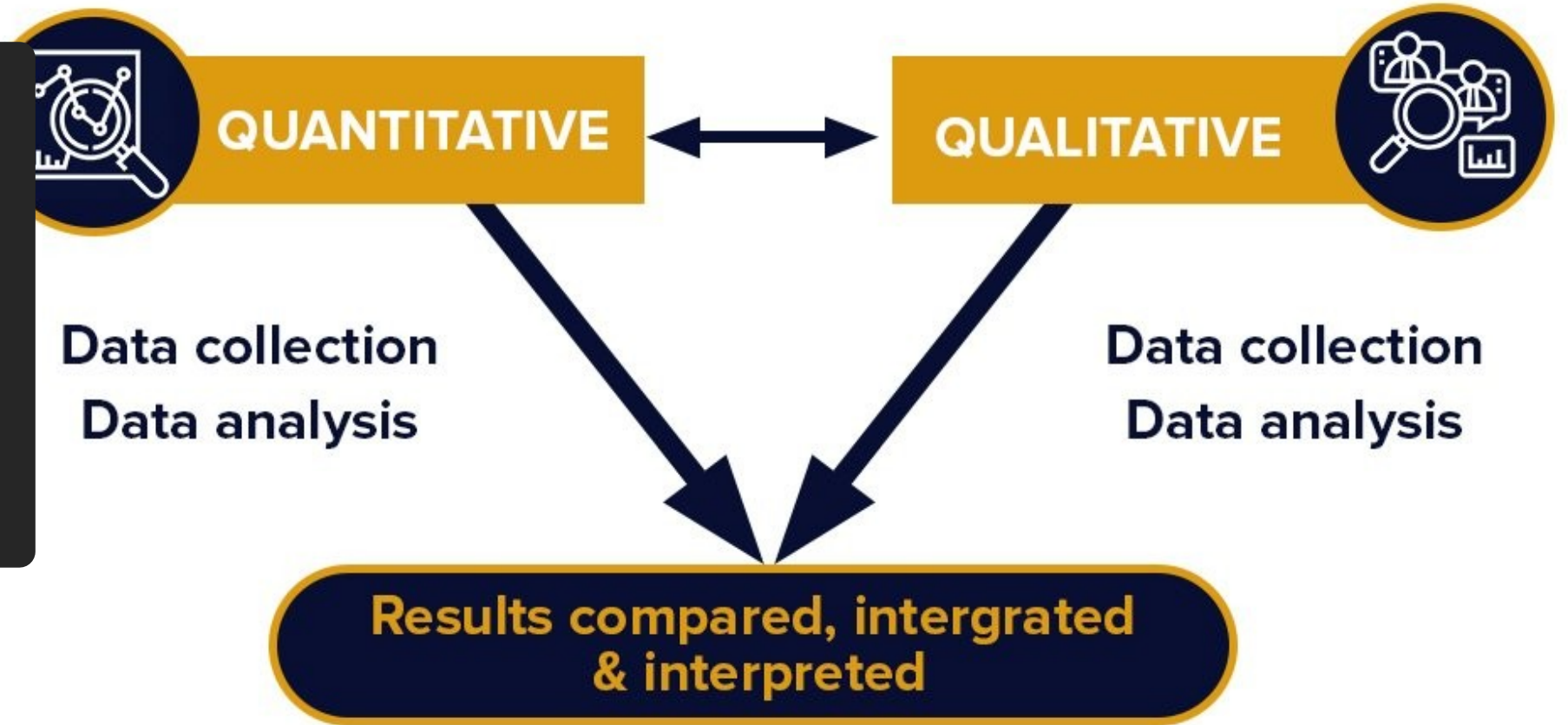


Source: Greenbook Research Industry Trends Report Q3-Q4 2018

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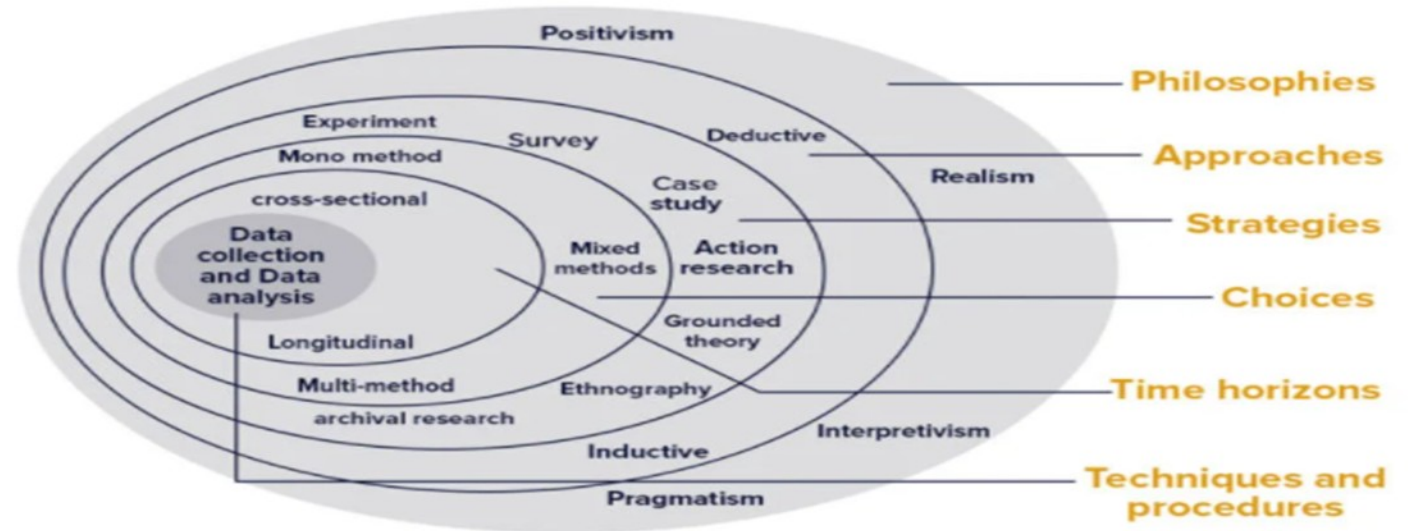
The Mixed Methods Concurrent Triangulation Strategy

3. Mixed methods



Writing Your Research Paper Methodology

The Research Onion Model



Source: Saunders, et. al

Guide2Research

- Saunders et al. (2007) introduced the research onion model to assist researchers in developing a technique and building a study design in the field of future studies. This research onion model comprises six primary layers that researchers may use as a step-by-step guide to build and organise their research technique.

- The methodology section of your research paper is not all about describing your data gathering process and your analysis. Methodology is about the overall approaches and perspectives of the research process. Here are some tips as well as the problems to avoid in order to write an effective research methodology.

How to write an effective methodology section?

- **Introduce your methods.** Introduce the methodological approach used in investigating your research problem. In one of the previous sections, your methodological approach can either be quantitative, qualitative, or mixed methods.
- **Establish methodological connection.** Explain the relevance of your methodological approach to the overall research design. Keep in mind that the connection between your methods and your research problem should be clear. This means that your methodology must be appropriate to achieve your research paper's objective—to address the research problem you presented. To wit, if you need help to write your research problem, refer to our article on what is a research question.
- **Introduce your instruments.** Indicate the instruments you are going to use in collecting your data and explain how you are going to use them. These tools and instruments can be your surveys, questionnaires for interviews, observation, etc. If your methods include archival research or analyzing existing data, provide background information for documents, including who the original researcher is, as well as how the data were originally created and gathered.

- **Discuss your analysis.** Explain how you are going to analyze the results of your data gathering process. Depending on the methods you use, you can use statistical analysis or explore theoretical perspectives to support your explanation of observed behaviors.
- **Provide background information.** When using methods that your readers may be unfamiliar with, make sure to provide background information about these methods.
- **Discuss sampling process.** Explain the reason behind your sampling procedure. For example, if you are using statistics in your research, indicate why you chose this method as well as your sampling procedure. If you are going to do interviews, describe how are you going to choose the participants and how the interviews will be conducted.
- **Address research limitations.** Make sure to address possible limitations you may encounter in your research, such as practical limitations that may affect your data gathering process. If there are potential issues you anticipate to encounter in the process, indicate your reason why you still decide to use the methodology despite the risk (SHU Library, n.d.).

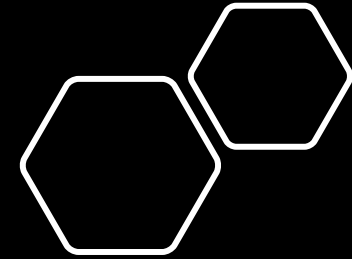
What to avoid in writing the methodology section of your research?

- Avoid including irrelevant details.
- Keep your methodology section straightforward and thorough. Details that do not contribute to the readers' understanding of your chosen methods should not be included in your methodology section.
- Irrelevant information includes unnecessary explanations of basic procedures. Basic procedures should only be explained if they are unconventional and unfamiliar to the readers.
- Do not ignore the problems you might encounter during the data gathering process. Instead of turning a blind eye, describe how you handled them (SHU Library, n.d.).

Ethical Considerations

- Researchers must adhere to ethical norms to ensure trust, accountability, mutual respect, and fairness (Resnik, 2015). According to Saunders, Lewis, and Thornhill (2003, p. 131), there are some ethical considerations that researchers must be mindful of, especially during the process of gathering and presenting research data:
 1. The rights to privacy of the individuals involved.
 2. The nature of participation in the research must be voluntary and the individuals involved must have the right to withdraw partially or completely from the process.
 3. All participants must provide their consent first.
 4. Maintenance of the confidentiality of data provided by individuals as well as identifiable participants' anonymity.
 5. How participants react to the researchers' methods in seeking to collect data.
 6. How the participants will be affected by the way in which data is analyzed and reported.
 7. The behavior and objectivity of the researcher.

Ethical Principles of Research



Choosing a Research Methodology

- It is now evident that the methodology section is where a researcher states and elaborates on the strategies that must be implemented in order to attain the research's purpose. Being familiar with research procedures, on the other hand, does not make selecting the suitable approach any easier. According to Walker (2006), deciding on a research technique is a tough phase in the research process. It may be perplexing and daunting, particularly for inexperienced researchers.

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