

RESEARCH METHODOLOGY

MODULE ONE

Meaning of research

According to Perves, Ghauri, Kjell, Gronhang (2002), **research is a process of planning, executing and investigating in order to find out specific questions.** In order to get reliable answers to our questions we need to do this kind of investigation in a systematic manner, so that it is easier for others to understand the logic of and believe in our report.

Likewise, Kothari (2004) argues that research in common parlance refers **to a search for knowledge.** Or can be define research as a **scientific and systematic search for pertinent information on a specific topic.** In fact, research is **an art of scientific investigation.**

The Advanced Learner's Dictionary of Current English lays down the meaning of research as **“a careful investigation or inquiry specially through search for new facts in any branch of knowledge.”**

This helps Redman and Mory to define research as a **“systematized effort to gain new knowledge.”** This has different views to other people who consider research as **a movement, a movement from the known to the unknown.** It is actually a voyage of discovery. We all possess the vital instinct of inquisitiveness for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown.

Generally, **Research is a systematic and scientific inquiry or investigation aimed at discovering, interpreting, and controlling observed phenomena.** It involves collecting data, documenting critical information, and analyzing and interpreting that data/information using suitable methodologies set by specific professional fields and academic disciplines.

OBJECTIVES OF THE RESEARCH

Research objectives describe what your research project intends to accomplish. They should guide every step of the research process, including how you collect data, build your argument, and develop your conclusions.

- i. To gain familiarity with a phenomenon or to achieve new insights into it.
- ii. To portray accurately the characteristics of a particular individual, situation or a group.
- iii. To determine the frequency with which something occurs or with which it is associated with something else.

Research Ethics and Implications

Ethical considerations in research are **a set of principles that guide your research designs and practices**. Scientists and researchers must always **adhere to a certain code of conduct** when collecting data from people. The goals of human research often include understanding real-life phenomena, studying effective treatments, investigating behaviours, and improving lives in other ways. What you decide to research and how you conduct that research involve key ethical considerations. These considerations work to protect **the rights of research participants, enhance research validity, maintain scientific or academic integrity**.

Types of ethical issues

There are several ethical issues you should always pay attention to in your research design, and these issues can overlap with each other. You'll usually outline ways you'll deal with each issue in your research proposal if you plan to collect data from participants.

i) Voluntary participation

Voluntary participation means that all research subjects are free to choose to participate without any pressure or coercion.

All participants are able to withdraw from, or leave, the study at any point without feeling an obligation to continue. Your participants don't need to provide a reason for leaving the study.

It's important to make it clear to participants that there are no negative consequences or repercussions to their refusal to participate. After all, they're taking the time to help you in the research process, so you should respect their decisions without trying to change their minds. Voluntary participation is an ethical

principle protected by international law and many scientific codes of conduct. Take special care to ensure there's no pressure on participants when you're working with vulnerable groups of people who may find it hard to stop the study even when they want to.

Example of voluntary participation "When recruiting participants for an experiment, you inform all potential participants that they are free to choose whether they want to participate, and they can withdraw from the study anytime without any negative repercussions".

ii) Informed consent

Informed consent refers to a situation in which all potential participants receive and understand all the information they need to decide whether they want to participate. This includes information about the study's benefits, risks, funding, and institutional approval.

Example of informed consent "You recruit participants outside a train station for a quick survey.

You make sure to provide all potential participants with all the relevant information about

- ❖ What the study is about
- ❖ The risks and benefits of taking part
- ❖ How long the study will take
- ❖ Your supervisor's contact information and the institution's approval number"

You also let them know that their data will be kept confidential, and they are free to stop filling in the survey at any point for any reason. They can also withdraw their information by contacting you or your supervisor.

Usually, you'll provide participants with a text for them to read and ask them if they have any questions. If they agree to participate, they can sign or initial the consent form. Note that this may not be sufficient for informed consent when you work with particularly vulnerable groups of people.

If you're collecting data from people with low literacy, make sure to verbally explain the consent form to them before they agree to participate.

For participants with very limited English proficiency, you should always translate the study materials or work with an interpreter so they have all the information in their first language.

In research with children, you'll often need informed permission for their participation from their parents or guardians. Although

children cannot give informed consent, it's best to also ask for their assent (agreement) to participate, depending on their age and maturity level.

iii) Anonymity

Anonymity means that you don't know who the participants are and you can't link any individual participant to their data.

You can only guarantee anonymity by not collecting any personally identifying information for example, names, phone numbers, email addresses, IP addresses, physical characteristics, photos, and videos.

In many cases, it may be impossible to truly anonymize data collection. For example, data collected in person or by phone cannot be considered fully anonymous because some personal identifiers (demographic information or phone numbers) are impossible to hide.

You'll also need to collect some identifying information if you give your participants the option to withdraw their data at a later stage. Data pseudonymization is an alternative method where you replace identifying information about participants with pseudonymous, or fake, identifiers. The data can still be linked to participants but it's harder to do so because you separate personal information from the study data.

[Example of data pseudonymization](#) "You're conducting a survey with college students. You ask participants to enter demographic information including their age, gender identity, nationality, and ethnicity. With all this information, it may be possible for other people to identify individual participants, so you pseudonymize the data. Each participant is given a random three-digit number. You separate their personally identifying information from their survey data and include the participant numbers in both files. The survey data can only be linked to personally identifying data via the participant numbers".

iv) Confidentiality

Confidentiality means that you know who the participants are, but you remove all identifying information from your report. All participants have a right to privacy, so you should protect their personal data for as long as you store or use it. Even when you can't collect data anonymously, you should secure confidentiality whenever you can.

Example of confidentiality “To keep your data confidential, you take steps to safeguard it and prevent any threats to data privacy. You store all signed consent forms in a locked file drawer, and your password-protect all files with survey data”.

Only other researchers approved by the IRB (institutional review board) are allowed to access the study data, and you make sure that everyone knows and follows your institution’s data privacy protocols. Some research designs aren’t conducive to confidentiality, but it’s important to make all attempts and inform participants of the risks involved.

Example of focus group confidentiality “In a focus group study, you invite five people to give their opinions on a new student service in a group setting”.

Before beginning the study, you ask everyone to agree to keep what’s discussed confidential and to respect each other’s privacy. You also note that you cannot completely guarantee confidentiality or anonymity so that participants are aware of the risks involved.

v) Potential for Harm

As a researcher, you have to consider all possible sources of harm to participants. Harm can come in many different forms.

- **Psychological harm:** Sensitive questions or tasks may trigger negative emotions such as shame or anxiety.
- **Social harm:** Participation can involve social risks, public embarrassment, or stigma.
- **Physical harm:** Pain or injury can result from the study procedures.
- **Legal harm:** Reporting sensitive data could lead to legal risks or a breach of privacy.

It’s best to consider every possible source of harm in your study as well as concrete ways to mitigate them. Involve your supervisor to discuss steps for harm reduction. Make sure to disclose all possible risks of harm to participants before the study to get informed consent. If there is a risk of harm, prepare to provide participants with resources or counselling or medical services if needed.

Example of potential for harm “In a study on stress, you survey college students on their alcohol consumption habits.

Some of these questions may bring up negative emotions, so you inform participants about the sensitive nature of the survey and assure them that their responses will be confidential”.

You also provide participants with information about student counselling services and information about managing alcohol use after the survey is complete.

vi) Results Communication

The way you communicate your research results can sometimes involve ethical issues. Good science communication is honest, reliable, and credible. It's best to make your results as transparent as possible. **Take steps to actively avoid plagiarism and research misconduct wherever possible.**

a) Plagiarism

Plagiarism means submitting others' works as your own. Although it can be unintentional, copying someone else's work without proper credit amounts to stealing. It's an ethical problem in research communication because you may benefit by harming other researchers.

Self-plagiarism is when you republish or re-submit parts of your own papers or reports without properly citing your original work. This is problematic because you may benefit from presenting your ideas as new and original even though they've already been published elsewhere in the past. You may also be infringing on your previous publisher's copyright, violating an ethical code, or wasting time and resources by doing so.

In extreme cases of self-plagiarism, entire datasets or papers are sometimes duplicated. These are major ethical violations because they can skew research findings if taken as original data.

Example of duplication "You're conducting a meta-analysis on whether working from home is related to better stress management. You gather all studies on this topic that meet your search criteria.

You notice that two published studies have similar characteristics even though they are from different years. Their sample sizes, locations, treatments, and results are highly similar, and the studies share one author in common.

If you enter both data sets in your analyses, you get a different conclusion compared to when you only use one data set. Including both data sets would distort your overall findings".

b) Research misconduct

Research misconduct means making up or falsifying data, manipulating data analyses, or misrepresenting results in research reports. It's a form of academic fraud. **These actions are committed intentionally and can have serious consequences;**

research misconduct is not a simple mistake or a point of disagreement about data analyses.

Research misconduct is a serious ethical issue because it can undermine academic integrity and institutional credibility. It leads to a waste of funding and resources that could have been used for alternative research.

Example of misconduct (MMR vaccine misinformation) In 1998, Andrew Wakefield and others published a now-debunked paper claiming that the measles, mumps, and rubella (MMR) vaccine causes autism in children. Later investigations revealed that they fabricated and manipulated their data to show a non-existent link between vaccines and autism. Wakefield also neglected to disclose important conflicts of interest, and his medical license was taken away. This fraudulent work sparked vaccine hesitancy among parents and caregivers. The rate of MMR vaccinations in children fell sharply, and measles outbreaks became more common due to a lack of herd immunity. In reality, there is no risk of children developing autism from the MMR or other vaccines, as shown by many large studies. Although the paper was retracted, it has actually received thousands of citations”.

EXAMPLES OF ETHICAL FAILURES

Tuskegee syphilis study “The Tuskegee syphilis study was an American public health study that violated research ethics throughout its 40-year run from 1932 to 1972. In this study, 600 young black men were deceived into participating with a promise of free healthcare that was never fulfilled.

In reality, the actual goal was to study the effects of the disease when left untreated, and the researchers never informed participants about their diagnoses or the research aims.

Although participants experienced severe health problems, including blindness and other complications, the researchers only pretended to provide medical care.

When treatment became possible in 1943, 11 years after the study began, none of the participants were offered it, despite their health conditions and high risk of death.

By the end of the study, 128 participants had died of syphilis or related complications. The study ended only once its existence was made public and it was judged to be “medically unjustified.”

Ethical failures like these resulted in severe harm to participants, wasted resources, and lower trust in science and scientists. This

is why all research institutions have strict ethical guidelines for performing research.

Reference

Bhandari, P. (2023, June 22). *Ethical Considerations in Research | Types & Examples*. Scribbr. Retrieved October 24, 2023, from <https://www.scribbr.com/methodology/research-ethics/>

Ethical issues in the Researcher-Participant relationship

The researcher -participant (subject) relationship became the most sensitive one in the process of research in business studies. It is obvious that researcher struggle much with the decision of whether to inform the participant about the real purpose of the research. They are believing that telling them the whole truth might result in the participant refusing or being reluctant to give full cooperation. Churchill (1999:50) presents ethical concerns on eight areas of the researchers-participant relationship as follow:

1. Preserving participant's anonymity
2. Do not asking participants questions detrimental to their self-interest
3. Use of special equipment and techniques, e.g., tape recorder, video
4. Do not use of coercion to get information
5. Do not depriving participants of their rights, e.g., of self-determination
6. Do not exposing participant to mental stress
7. Do not involving participants in research without their consent
8. Do not use of deception

TYPES OF RESEARCH

Classification of Types of Research

There are various types of research that are classified according to their objective, depth of study, analyzed data, time required to study the phenomenon and other factors. It's important to note

that a research project will not be limited to one type of research, but will likely use several.

According to its Purpose

i) Theoretical Research

Theoretical research, also referred to as pure or basic research, focuses on generating knowledge, regardless of its practical application. Here, data collection is used to generate new general concepts for a better understanding of a particular field or to answer a theoretical research question.

Results of this kind are usually oriented towards the formulation of theories and are usually based on documentary analysis, the development of mathematical formulas and the reflection of high-level researchers.

For example, a philosophical dissertation, since the aim is to generate new approaches from existing data without considering how its findings can be applied or implemented in practice.

ii) Applied Research

Here, the goal is to find strategies that can be used to address a specific research problem. Applied research draws on theory to generate practical scientific knowledge, and its use is very common in STEM fields such as engineering, computer science and medicine.

This type of research is subdivided into two types:

1. **Technological applied research:** looks towards improving efficiency in a particular productive sector through the improvement of processes or machinery related to said productive processes.
2. **Scientific applied research:** has predictive purposes. Through this type of research design, we can measure certain variables to predict behaviours useful to the goods and services sector, such as consumption patterns and viability of commercial projects.

For example, market research, because by examining consumption patterns, strategies can be developed for the development of new products and marketing campaigns, etc.

Note: Applied research is usually based on knowledge or results obtained through theoretical research.

In fact, it is common for research projects to first establish the theoretical framework both to define the field of study and to identify possible theories that could be tested or applied to solve the specific problem posed in the project.

According to your Depth of Scope

i) Exploratory Research

Exploratory research is used for the preliminary investigation of a subject that is not yet well understood or sufficiently researched. It serves to establish a frame of reference and a hypothesis from which an in-depth study can be developed that will enable conclusive results to be generated.

Because exploratory research is based on the study of little-studied phenomena, it relies less on theory and more on the collection of data to identify patterns that explain these phenomena.

For example, an investigation of the role social media in the perception of self-image.

ii) Descriptive Research

The primary objective of descriptive research is to define the characteristics of a particular phenomenon without necessarily investigating the causes that produce it.

In this type of research, the researcher must take particular care not to intervene in the observed object or phenomenon, as its behaviour may change if an external factor is involved.

For example, investigating how the public census of influential government officials differs between urban and non-urban areas.

iii) Explanatory Research

Explanatory research is the most common type of research method and is responsible for establishing cause-and-effect relationships that allow generalisations to be extended to similar realities. It is closely related to descriptive research, although it provides additional information about the observed object and its interactions with the environment.

For example, investigating the brittle behaviour of a specific material when under compressive load.

iv) Correlational Research

The purpose of this type of scientific research is to identify the relationship between two or more variables. A correlational study aims to determine whether a variable changes, how much the other elements of the observed system change.

According to the Type of Data Used

i) Qualitative Research

Qualitative methods are often used in the social sciences to collect, compare and interpret information, has a linguistic-semiotic basis and is used in techniques such as discourse analysis, interviews, surveys, records and participant observations.

In order to use statistical methods to validate their results, the observations collected must be evaluated numerically. Qualitative research, however, tends to be subjective, since not all data can be fully controlled. Therefore, this type of research design is better suited to extracting meaning from an event or phenomenon (the 'why') than its cause (the 'how').

For example, examining the effects of sleep deprivation on mood.

ii) Quantitative Research

Quantitative research study delves into a phenomenon through quantitative data collection and using mathematical, statistical and computer-aided tools to measure them. This allows generalised conclusions to be projected over time.

For example, conducting a computer simulation on vehicle strike impacts to collect quantitative data.

According to the Degree of Manipulation of Variables

i) Experimental Research

It is about designing or replicating a phenomenon whose variables are manipulated under strictly controlled conditions in order to identify or discover its effect on another independent variable or object. The phenomenon to be studied is measured through study and control groups, and according to the guidelines of the scientific method.

For example, randomised controlled trial studies for measuring the effectiveness of new pharmaceutical drugs on human subjects.

ii) Non-Experimental Research

Also known as an observational study, it focuses on the analysis of a phenomenon in its natural context. As such, the researcher does not intervene directly, but limits their involvement to measuring the variables required for the study. Due to its observational nature, it is often used in descriptive research.

For example, a study on the effects of the use of certain chemical substances in a particular population group can be considered a non-experimental study.

iii) Quasi-Experimental Research

It controls only some variables of the phenomenon under investigation and is therefore not entirely experimental. In this case, the study and the focus group cannot be randomly selected, but are chosen from existing groups or populations. This is to ensure the collected data is relevant and that the knowledge, perspectives and opinions of the population can be incorporated into the study.

For example, assessing the effectiveness of an intervention measure in reducing the spread of antibiotic-resistant bacteria.

According to the Type of Inference

i) Deductive Investigation

In this type of research, reality is explained by general laws that point to certain conclusions; conclusions are expected to be part of the premise of the research problem and considered correct if the premise is valid and the inductive method is applied correctly.

ii) Inductive Research

In this type of research, knowledge is generated from an observation to achieve a generalisation. It is based on the collection of specific data to develop new theories.

Hypothetical-Deductive Investigation

It is based on observing reality to make a hypothesis, then use deduction to obtain a conclusion and finally verify or reject it through experience.

According to the Time in Which it is Carried Out

i) Longitudinal Study (also referred to as Diachronic Research)

It is the monitoring of the same event, individual or group over a defined period of time. It aims to track changes in a number of variables and see how they evolve over time. It is often used in medical, psychological and social areas.

For example, a cohort study that analyses changes in a particular indigenous population over a period of 15 years.

ii) Cross-Sectional Study (also referred to as Synchronous Research)

Cross-sectional research design is used to observe phenomena, an individual or a group of research subjects at a given time.

According to The Sources of Information

i) Primary Research

This fundamental research type is defined by the fact that the data is collected directly from the source, that is, it consists of primary, first-hand information.

ii) Secondary research

Unlike primary research, secondary research is developed with information from secondary sources, which are generally based on scientific literature and other documents compiled by another researcher.

RESEARCH PROCESS

The research process consists of several interconnected parts that a researcher must follow to generate valuable knowledge and focus on a relevant topic. The main parts of the research process include:

i) Identifying and defining the research problem:

This step involves understanding the research challenge, setting clear goals, and formulating research questions or hypotheses. It is crucial to grasp exactly what you are attempting to learn and what you want to achieve

ii) Literature review:

This stage involves reviewing existing literature and research on the topic to gain a better understanding of the problem, identify research gaps, and build consistency between your work and others. The knowledge gained through the review of literature guides the researcher in clarifying and narrowing the research project

iii) Research design:

In this step, the researcher selects the appropriate research design, which can be experimental, survey research, correlational, semi-experimental, or review, depending on the research problem

The research design process is a systematic and structured approach to conducting research, ensuring that the study is well-planned, ethical, and rigorous

iv) Data collection:

This step involves gathering relevant data using various methods, such as surveys, interviews, observations, or experiments, depending on the research design. The data collected should be valid and reliable, ensuring that it produces meaningful results

v) Data analysis:

Once the data is collected, it needs to be analyzed using appropriate techniques, such as statistical analysis, content analysis, or discourse analysis, to interpret the results and draw conclusions

vi) Interpretation and reporting of findings:

In this step, the researcher interprets the results, compares them with existing knowledge, and draws conclusions. The findings are then reported in a clear and concise manner, often in the form of a research paper, presentation, or report

By following these steps, researchers can ensure that their study is well-structured, ethical, and valuable, contributing to the existing body of knowledge on the topic.