



Thesis writing

Research approaches

OVERVIEW

Many research students are required to take a research methods subject before they commence their research project. While this resource cannot take the place of such a subject, it gives a brief introduction to various research models, processes, and terms for novice researchers. Once you have a basic understanding of different types of research and research terminology, you will be in a better position to seek your supervisor's advice and feel better prepared for your initial supervision meetings. Where possible, references for further reading have been provided.

The type of study you undertake will depend on numerous factors such as the type of data you wish to collect, your research question and aims. Ongoing discussions with your supervisor and more experienced researchers will also help you to pinpoint the type of study, or the research methodology which will be most suitable for your research question(s).

Research methodology

A few of the very wide range of research methods in use are briefly explained below, and some further reading is provided (to be updated soon).

EMPIRICAL

Data in this type of research is created by observation or experimentation. The research aims to explain the data by application or development of some kind of model or theory, whereby the relationship between the data and relevant variables of the environment are hypothesised and tested. This calls for research designs that allow for systematic, planned and justifiable methods of collection of data. The results of empirical research should be able to be replicated by another researcher. The method involves the use of objective, reliable and valid research procedures and criteria.

Further reading

Giere, R N (2005) *Understanding Scientific Reasoning* (5th edn), Thompson/Wadsworth, Belmont (CA).

Punch, K F (2009) *Introduction to Research Methods in Education*, Sage Publications, London, New Delhi, Singapore.

Strang, K (2015) *The Palgrave Handbook of Research Design in Business and Management*, Palgrave Macmillan, New York.

THEORETICAL

This type of research examines a theory or a set of conceptual frameworks in a field of inquiry. The focus of theoretical research are the principles that help explain phenomena. It proposes, develops, challenges or critiques theoretical principles, and can be conducted in any discipline.

Further reading

Cresswell, J W (2018), *Research Design: Qualitative, Quantitative and Mixed Method Approaches* (4th edn), Sage, Thousand Oaks (CA).

Punch, K F (2009) *Introduction to Research Methods in Education*, Sage Publications, London, New Delhi, Singapore.

ACADEMIC LITERACY

QUALITATIVE, QUANTITATIVE AND MIXED METHODS

Qualitative research generally investigates the subjective experience and perception of people. The researcher collects data using instruments such as interviews and ‘conversations’ with participants, or their own field notes or journal diaries. The focus of qualitative research is both to describe and to analyse: it seeks to discover what is going on in a given situation, and also to interpret what people experience. This focus on subjective experience is quite different from quantitative research, where the focus is on more objective, replicable data collection and measures. In quantitative research, there is a clear separation of the researcher and the data, and data analysis tends to rely on strict protocols and statistical methods. Advances in technology makes it possible to increasingly collect reliable and valid data.

Mixed method research designs combine the ability to gain insightful knowledge gathered from in-depth qualitative research with the advantages of collecting numerical data. Systematically integrating the two research designs allows the researcher to get a fuller picture of complex issues being studied. For this reason, mixed methods are used in planning interventions in the field of health, education and business.

Further reading

Creswell, J W (2018), *Research Design: Qualitative, Quantitative and Mixed Method Approaches* (4th edn), Sage, Thousand Oaks (CA).

Denzin, N K & Lincoln, Y S (2018) “Introduction: The Discipline and Practice of Qualitative Research”, in N K Denzin & Y S Loncoln (eds), *The Sage Handbook of Qualitative Research* (5th edn), Sage, Thousand Oaks (CA), pp 1–26.

Guba, E G & Lincoln, Y S (1985) *Naturalistic Inquiry*, Sage, Newbury Park (CA).

Hesse-Biber, S N (2017) *The Practice of Qualitative Research* (3rd edn), Sage, Thousand Oaks (CA).

Howell, D P (2011) *Statistical Methods for Psychology* (8th edn), Wadsworth/Cengage, Belmont (CA).

Liamputong, P & Serry, T (2017) “Making Sense of Qualitative Data”, in Liamputong P (ed), *Research Methods in Health: Foundations for Evidence-based Practice* (3rd edn) Oxford University Press, Melbourne, pp 421–36.

Robert Wood Johnson Foundation, *Qualitative Research Guidelines Project*, <http://www.qualres.org>

Tuckman, B W & Harper, B E (2012) *Conducting Educational Research* (6th edn), Rowman & Littlefield, Lanham (MA) and Plymouth.

Wilson L A (2019) “Quantitative Research” in Liamputong P (ed), *Handbook of Research Methods in Health Social Sciences*. Springer, Singapore.

ACTION RESEARCH

This approach to research is often used in applied settings, such as classrooms or a health clinics. The researcher is typically a practitioner in the field, and is collaborating with students or work colleagues in order to bring about some kind of developmental change, or to solve a type of problem that often arises in a particular situation. A distinguishing feature of this approach is its cyclical and spiralling nature, involving stages (such as planning, action, observation and reflection). An example might be where students are invited to assess their own performance of something, using criteria introduced by the action researcher, who then investigates the effects of their innovative self-assessment tool on the students’ learning. Such a project might include collaborative and/or reflective aspects, and wide-ranging discussion with students about their perceptions and evaluations of the innovation.

Further reading

Kemmis, S, McTaggart, R & Nixon, R (2014) *The Action Research Planner: Doing Critical Participatory Action Research* (6th edn), Springer, Singapore.

Rowell, L, Bruce, C, Shosh, J M & Riel, M (2017) *The Palgrave International Handbook of Action Research*, Palgrave Macmillan, New York.



CASE STUDY

Case studies examine particular issues in detail, using a single or multiple cases. Advantages of this approach to research are that a specific characteristic and/or its development can be investigated in depth and at close range. Case studies are becoming increasingly popular in a number of fields because of their versatility as well as their exploratory and explanatory characteristics. This approach is also often used in fields such as neuropsychology to investigate cases of rare or unique pathology.

Further reading

Brumfit, C & Mitchell, R (eds) (1989), *Research in the Language Classroom*, Modern Languages Publication/British Council, London.

Forrest-Lawrence, P (2019) “Case Study Research” in Liamputong P (ed), *Handbook of Research Methods in Health Social Sciences*. Springer, Singapore.

Schwandt, T A & Gates, E F, “Case Study Methodology” in N K Denzin and Y S Loncoln (eds), *The Sage Handbook of Qualitative Research* (5th edn), Sage, Thousand Oaks (CA), pp 341–58.

Shaughnessy, J J & Zechmeister, E B and Zechmeister, J S (2015) *Research Methods in Psychology* (10th edn), McGraw Hill, New York.

ETHNOGRAPHIC

Ethnographic research is a means of gaining insight into a culture, sub-culture or social process. It had its roots in anthropology. In recent years, it has come to be a preferred research design when an insider perspective is required and the data helps to establish cultural meaning in a natural setting. It involves participant observation, which means the researcher becomes immersed in the daily lives of the people or community they are observing. Data may include field notes, interviews, taped conversations.

Further reading

Fielding, N (2016) “Ethnography”, in N Gilbert and P Stoneman (eds) *Researching Social Life* (4th edn), Sage, London.

Hammersley, M & Atkinson, P (2019) *Ethnography: Principles in Practice* (4th edn), Routledge, London.

Punch, K F (2009) *Introduction to Research Methods in Education*, Sage Publications, London, New Delhi, Singapore.

EXPERIMENTAL

This type of research uses quantitative methods and involves a formal control of variables. It may occur in a laboratory situation. *True* experimental studies investigate possible cause and effect relationships, by exposing one or more groups to one or more treatment conditions, and comparing these experimental groups to a control group, who are equal in other respects but do not receive the treatment/s. This type of design allows a comparison to be made and conclusions to be drawn about the effect of a treatment. In an educational example, student learning might be investigated with or without the use of computer technologies: one group of students would learn about a topic using the conventional teaching materials (the control group), while another group would learn about the same topic in another way – getting the same information, but having it presented and processed using the digital technologies being investigated. Students would be randomly assigned to a group, or matched using some valid criteria. Variables such as intelligence, prior knowledge of the topic, familiarity with the technology and gender would need to be accounted for or controlled in this process. Other variables such as time of day and number of students in a learning group would be equalised or randomised across the groups in order that these variables are also controlled. After the learning period, the students’ knowledge of the topic would be assessed using an identical test for both groups. Objective criteria would be used to establish the test results of the groups. A conclusion about the effect of using the technology for learning could then be drawn, as the other variables that would affect students’ ability to learn have been controlled.



Experimental designs demand scientific principles such as objectivity, replicability and validity be upheld. It is, however, often very difficult to control all of the variables affecting an experiment outside of a laboratory. Where control of the relevant variables is weak, the design is called *quasi-experimental*. In this kind of situation, the researcher compromises the internal validity of the experiment (since not all variables are controlled), but can gain some external validity, as the results they obtain could be generalisable to other similar situations in the real world.

Further reading

- Gauch, H J (2012) *Scientific Method in Brief*, Cambridge University Press, Cambridge and New York.
- Mildner, V (2019) “Experimental Research” in J S Damiko and M S Ball (eds), *The Sage Encyclopedia of Human Communication Sciences and Disorders*, Sage, Thousand Oaks (CA).
- Shaughnessy, J J, Zechmeister, E B & Zechmeister, J S (2015) *Research Methods in Psychology* (10th edn), McGraw Hill, New York.
- Srinagesh, K (2006) *The Principles of Experimental Research*, Elsevier, Oxford.

INTERVENTION STUDIES

Interventionist studies involve some deliberate change in a particular process or situation so that the effects can be monitored and evaluated. This plays an important role in evidence-based research. These studies tend to have less control over variables than experimental studies. An intervention study on student learning, for example, could involve the introduction of different teaching approaches to enhance learning. It may not be possible to achieve a control group (controlling all variables such as socioeconomic status, performance and prior knowledge) who are taught only using the old teaching approach and materials, given factors such as ethics and real classes and courses. Action research is a type of intervention research as all participants intervene to create change. Intervention research also occurs in a more scientific research setting where change can be engineered by an agent external to the experimental groups. Intervention studies are common in the health sciences.

Bruce, N, Pope, D & Stanistreet, D (2018), “Intervention Studies”, *Quantitative Methods for Health Research: A Practical Interactive Guide to Epidemiology and Statistics* (2nd edn), Wiley, New York and Oxford, pp 321-378.

PHENOMENOLOGICAL

This approach investigates ordinary human life experiences within their normal context, in order to make sense of something complex. An individual’s experience of life might be studied as they live it, rather than their life being categorised and theorised from a distance. Examples are frequently used in this approach to illustrate the significance of the ‘lived experience’ being described. A research question using this approach might be: “what is the nature of the experience of becoming a nurse?”, and the aim of the investigation would be to understand what people go through as they go through this educational, personal and professional experience (Munhall, 1994).

Further reading

- Benner, P (1994) *Interpretive Phenomenology: Embodiment, Caring, and Ethics in Health and Illness*, Sage, Thousand Oaks (CA).
- Creswell, J W & Poth, C N (2018) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, Sage, Los Angeles.
- Munhall, P (1994) *Revisioning Phenomenology: Nursing and Health Science research*, National League for Nursing Press, New York.



LONGITUDINAL

In this type of study, the data is collected repeatedly over a longer period of time, in order to document or measure specific types of change that have occurred in the individual or population over the study period. For example, to investigate aspects of learning, students taught about the same topic using either a paper-based or computer-based presentation of information might be tested at a few different times: immediately after learning, one month after learning and six months after learning. This approach would investigate whether the learning benefits associated with a particular presentation technique continued over time. Longitudinal studies may also occur over many years and have a *developmental* focus or a *correlational* focus. Data for longitudinal studies can include surveys, interviews, diaries, test results, documents such as student writing.

GROUNDED THEORY RESEARCH

Data is gathered and analysed to generate hypotheses/theory that are grounded in practice. It is a widely used approach in a number of research areas including education and healthcare. It is often described as a research ‘strategy’ that is flexible and its appeal lies in its affordance of organising and analysing data meaningfully to verify or generate theory.

Further reading

Birks, M & Mills, J (2015) *Grounded Theory: A Practical Guide* (2nd edn), Sage, London.

McKinney, G (2009-2019), *Qualitative Research: Grounded Theory*, Temple University, Philadelphia, <https://guides.temple.edu/groundedtheory>.

OTHER TYPES OF RESEARCH

- Developmental research investigates patterns and sequences of growth and/or change as a function of time.
- Correlational research investigates two or more existing situations in order to determine and explain their differences and similarities.
- Multi-method research gathers data about a range of related issues using a mix of methods.
- Triangulated research involves the comparison of data relating to the same issue or phenomenon of investigation but from different perspectives or from different methods of collection: for example, comparison of data from different stages of research; comparison of data from different sets of participants; or comparison of data from different tests that purport to measure the same variable. Data is therefore cross-checked in order to confirm the hypothesis. Triangulation of data can show up disjunctions in the research results, as well as provide additional insights.
- Interpretive research gathers a huge amount of data, to generate ‘thick’ description & interpretation and that allows theory building.
- Historical research aims to reconstruct the past as objectively and accurately as possible, often in relation to a hypothesis.
- Descriptive research systematically describes a situation or area of interest, factually and accurately.
- Evaluative research determines whether a particular program or procedure is providing the expected outcome.

