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Research Philosophy: Paradigms, Types and Examples

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Abstract

Every study rests on assumptions about what is real, how it can be known and what role values play, yet methodology sections often treat research philosophy either as a formality or as an open-ended debate. This article explains what a research philosophy is, how the term relates to "paradigm," and how the three branches of philosophical assumption (ontology, epistemology and axiology) bear on the design of a study. It compares five philosophies commonly named in methods textbooks: positivism, interpretivism, pragmatism, critical realism and postmodernism, placing all but pragmatism along a continuum from objective to subjective views of reality. Four of them are illustrated with extracts from recent theses and dissertations in information systems, education, public health and psychology. The article then shows how the wording of a research question usually indicates a philosophy, offers two checks on the choice, and sets out a four-part structure for the philosophy section of a methodology. It is intended for students and early-career researchers writing a methodology, and for the educators who teach research methods.

Keywords: research philosophy; research paradigms; research philosophy types; positivism; interpretivism; pragmatism; critical realism; open educational resource

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1. Introduction

The statement of research philosophy is the part of a methodology that students most often either omit or overextend. When it is omitted, the methods can look like arbitrary choices to a reviewer or examiner. When it is overextended, it turns into a debate about ontology that the study never needed to settle. What most researchers require is a working understanding of the main positions and of how each one connects to methods, not formal training in philosophy.

This article is written for students and researchers preparing that statement and for those who teach research methods. Section 2 defines research philosophy and its relationship to the term "paradigm." Section 3 sets out the main philosophies and how they are commonly grouped. Section 4 describes positivism, interpretivism and pragmatism, each illustrated with an extract from a published thesis or dissertation, and Section 5 describes critical realism and postmodernism. Section 6 explains how a philosophy can be chosen, and Section 7 how it should be written up.

2. Research Philosophy and Paradigm

Broadly, a research philosophy is the set of beliefs and assumptions about reality, knowledge and values that underlies how a study is designed and carried out (Saunders et al., 2019). Every study has one, whether it is a dissertation, a thesis or a journal article, even when its author never names it.

One such assumption concerns reality itself. A researcher may assume that there is an external reality that exists independently of what anyone thinks about it (an objective reality), or that reality is constructed by the people who experience it (a subjective reality). These two starting points lead to very different studies, as Sections 4 and 5 show.

A philosophy also covers the kind of knowledge a study expects to produce. One study may expect a concrete, measurable answer to its research question; another may expect findings that are more nuanced and harder to pin down.

Many textbooks divide these assumptions into three branches (Saunders et al., 2019). Ontology concerns what is real, the assumption about reality described above. Epistemology concerns how it can be known, which shapes the kind of knowledge a study expects. Axiology concerns the role of values in research. Figure 1 applies each branch to a single study of students' sense of belonging.

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Figure 1. The three branches of research philosophy, applied to one study.

How "research philosophy" relates to "paradigm" depends on the source. Some textbooks use philosophy for the researcher's own beliefs and paradigm for the approach a study takes. Others use the two words interchangeably. A third group treats philosophy as the umbrella term and paradigms as established sets of assumptions that researchers in a field share. This sense of the word goes back to Kuhn's (1962) account of the shared commitments of a scientific community.

The distinction matters less than consistency. Both terms describe the beliefs and assumptions that underlie a study, and it is these that a reviewer or examiner evaluates. A researcher should adopt the term used by their program and their methods textbook, and use it consistently.

Whichever term is used, the philosophy is the foundation of the research methodology. It shapes the research design, the data collected, how those data are analyzed and how the results are interpreted. Where the philosophy and the methods point in different directions, the mismatch is the gap a reviewer or examiner is most likely to question.

3. Types of Research Philosophy

There is no single agreed list of research philosophies, which is a large part of why the topic causes confusion. Saunders et al. (2019), whose textbook presents the research onion (a layered model of research design, described in Section 5.3), name five: positivism, critical realism, interpretivism, postmodernism and pragmatism. Writing for early-career researchers in education, Mackenzie and Knipe (2006) note that texts disagree on how many paradigms there are; they group the common ones into four: positivist (and postpositivist), interpretivist (or constructivist), transformative (which includes critical theory) and pragmatic.

Saunders et al.'s five philosophies are most easily compared as positions along a line, from a fully objective view of reality to a fully subjective one, with pragmatism standing slightly apart (Figure 2). Section 4 covers the three that researchers are most likely to adopt, and Section 5 covers the remaining two.

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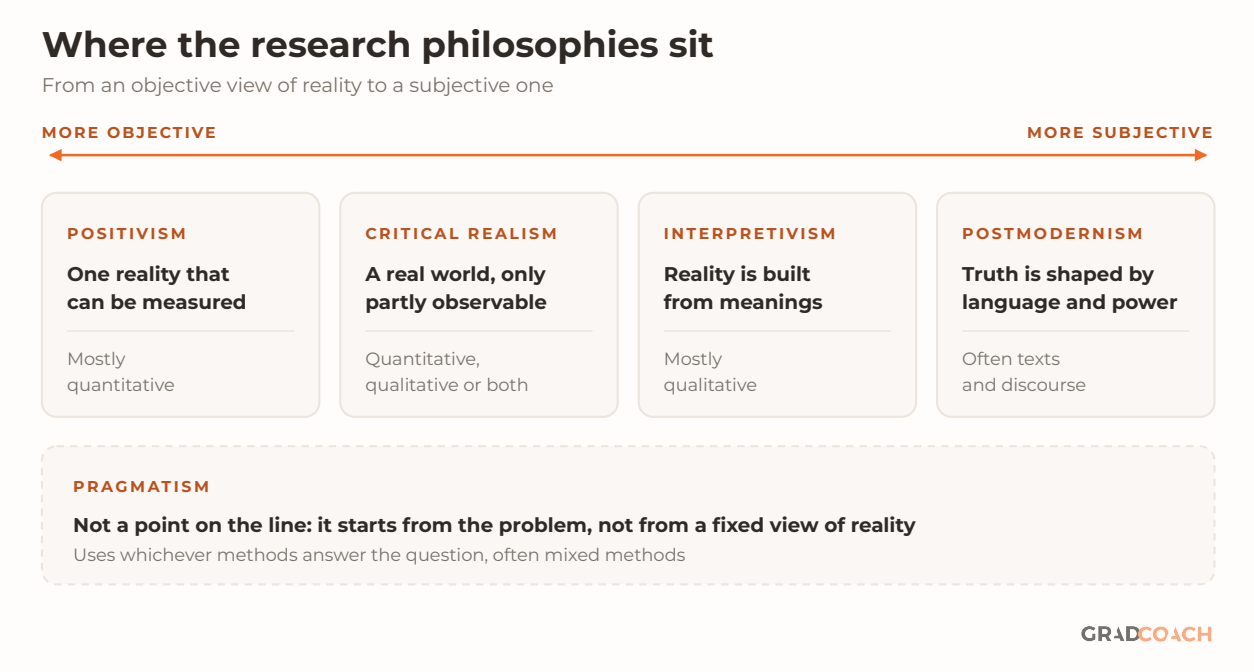


Figure 2. The five research philosophies, from more objective to more subjective, with pragmatism set apart.

4. Positivism, Interpretivism and Pragmatism

4.1 Positivism

Positivism is most closely associated with the natural sciences, such as physics, biology and astronomy. It rests on the belief that knowledge comes from objective observation and measurement. It assumes that the answers exist independently of the researcher, and that careful measurement, usually of numerical data, will find them.

As a research paradigm, positivism typically leads to methodologies built on quantitative data, often with experimental or quasi-experimental designs. The focus is usually on causal relationships: which variables affect which, in what way and to what extent. Positivist studies therefore aim for objectivity, generalizability and findings that another researcher could replicate (Brown & Dueñas, 2020).

A study of whether a dietary supplement helps people lose weight shows these assumptions at work. In a randomized controlled trial, participants are assigned to a control group, which receives a placebo, or to an intervention group, which receives the supplement. Everyone is weighed before and after, and the researcher tests whether the difference in weight loss between the groups is statistically significant. If it is, and the trial was well designed, the researcher can infer that the supplement caused it. The design assumes that the truth is reached by controlling the environment, manipulating one variable and measuring the result. Participants are not asked how they feel about the supplement, because in this view that is not where the answer lies.

Positivism is so standard in the natural sciences that many laboratory-based dissertations never state their philosophy at all. A study that does name it should tie it to the kind of finding it seeks. The following extract does so. It comes from a doctoral dissertation in information systems at the

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University of Bamberg. The dissertation is cumulative, meaning that it is made up of twelve papers, and it states which paradigm or perspective each paper follows:

> This dissertation predominantly builds on the behavioral-science research perspective and the positivist research paradigm (Paper I-VII, X-XII). This is complemented by single research papers that embrace a design science perspective (Paper IX) and the interpretive research paradigm (Paper VIII). By following such a multi-perspective approach, the research questions can be answered from different angles, which enables a richer understanding of the research topic (Mingers, 2001; Venkatesh et al., 2013). In this dissertation, the chosen combination of research approaches and methods facilitates the derivation of generalizable findings through positivist, quantitative research, while also allowing for the exploratory generation of novel and complex insights on innovation champions in the digital age through qualitative research approaches and theory generation based on non-empirical research.
>
> Drechsler (2023, p. 33)

Two features of the extract are worth noting. It links positivism to its purpose, the derivation of "generalizable findings," and it is exact about scope, naming the papers that follow each paradigm. A single study usually follows one philosophy, but a study that combines several should state which part follows which, and why.

4.2 Interpretivism

On the line in Figure 2, interpretivism sits more or less opposite positivism. It holds that reality is socially constructed (Brown & Dueñas, 2020). People experience the same situation differently, so there is no single reality waiting to be measured, and the researcher's task is to understand those experiences from the inside.

Interpretivist studies usually aim to understand the meanings people attach to their experiences. That typically means a qualitative methodology, with data collected through interviews, observation or documents. Such studies tend to explore complex social situations and individual perspectives, which do not reduce neatly to numbers.

A study of what it is like to live with chronic pain illustrates the approach. The researcher conducts in-depth interviews with a small group of participants, asking open-ended questions about their pain, its effect on their lives and how they cope. The interviews are transcribed and analyzed thematically to identify recurring themes. The result is a detailed account of how these participants experience their pain, which is what the research aim asked for. Here the evidence is conversation, not measurement. A study of lived experience has to assume that participants' accounts, although subjective, are a valid source of knowledge.

Interpretivist dissertations and theses usually state their philosophy, because it usually needs more justification than positivism does. The following master's thesis in education, a study of New Zealand teachers' perspectives on their professional standards, does so in one paragraph:

> The research design draws on an interpretive paradigm. Beck (1979) describes the interpretive paradigm as one where people define their own social reality. Therefore, understanding of participants' interpretations of the world around them will come from the inside not the outside. The interpretive paradigm reflects that reality is multi-layered and complex and that there will be multiple interpretations and perspectives on a situation. The researcher drawing on this paradigm needs to examine and understand perspectives through the eyes of the participants rather than their own (Cohen et al.,

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> 2018). The research question requires that the design enables exploration and description of teachers' perspectives, experiences and intentions in relation to professionalism and the role of professional standards in supporting professional development, hence its suitability in this research.
>
> Barnes (2019, p. 22)

The paragraph names the paradigm in its first sentence, defines it with a source, states what it asks of the researcher and then ties it to the research question. That last step is the one most often left out, and it is the step that turns a definition into a justification.

4.3 Pragmatism

Positivism and interpretivism each have their merits, and each suits a different kind of question. Some research aims, objectives and questions call for positivism, others for interpretivism. A study that asks both measurable and interpretive questions needs a different foundation, and pragmatism provides it.

Pragmatism judges research by whether its findings are useful, not by whether they fit one philosophical position. It does not commit in advance to a single view of reality. It starts from the problem and adopts whatever approach answers it, which allows different perspectives to be used for different parts of the same study. Quantitative and qualitative methods can both play a part, depending on the research questions and the context, and the result is often a mixed-methods design. Johnson and Onwuegbuzie (2004) present pragmatism as an attractive philosophical partner for mixed methods research.

A study of whether a new teaching method improves student learning shows how the two kinds of data can divide the work. The researcher compares standardized test results for a group taught the new way with those of a group taught the traditional way, then interviews a smaller number of students from both groups about how they experienced each method. The test scores indicate whether the method worked; the interviews help to explain why. Using both kinds of data to answer one practical question gives a fuller picture of the method's effect, and of its practical implications, than either kind would give alone.

Pragmatism can also be combined with an explicit set of values. The following doctoral thesis in public health measures health loss among Māori and non-Māori using national administrative data. Its author describes a pragmatic epistemology on the grounds that "research has value if it can help resolve pressing problems and improve people's lives" (Munn, 2026, p. 43), and then sets out the values, or axiology, that guide the work:

> I identify as both a pragmatist and a Kaupapa Māori Researcher. Alongside using structured problem-solving (SPS) in my work, I am guided by the values and responsibilities of being a Kaupapa Māori Researcher. These values shape how I define problems, approach evidence, and interpret findings.
>
> Munn (2026, p. 43)

Kaupapa Māori research is research led by Māori values and priorities. In this extract, pragmatism is not a default adopted for convenience: the author is specific about what drives the choices, namely solving a real problem under a stated set of values. More generally, pragmatism should be chosen because the problem drives the choice of methods, not because the other philosophies seem difficult, and the methodology should say so.

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5. Critical Realism and Postmodernism

Two further philosophies appear often, particularly in programs that teach from the research onion of Saunders et al. (2019).

5.1 Critical realism

Critical realism sits between positivism and interpretivism. Like positivism, it accepts that a real world exists independently of what anyone knows about it. Unlike positivism, it holds that much of that world cannot be observed directly, so the researcher reasons from what can be observed to the structures and causes beneath it (Bhaskar, 1975). This makes it a natural fit for studies that seek to explain *why* something happens.

Critical realism is sometimes assumed to imply qualitative research, but it need not. The following doctoral thesis in clinical psychology tests a questionnaire that measures vicarious trauma (VT). VT is the cumulative impact that exposure to clients' trauma can have on therapists and other helping professionals. It is a quantitative study, and it explains its critical realist position as follows:

> The present study holds the view that concepts such as VT exist due to shared theoretical understandings of the world with acceptance that there will be variations of individual realities (e.g. contexts, experiences, appraisals, perceptions). This epistemological position aligns with that of Critical Realism (CR) which emphasises that knowledge about the reality of a concept is based on practical engagement with and collective appraisal of that concept socially, historically, and theoretically (Bhaskar & Danermark, 2006; Maxwell, 2012; Uher, 2018). CR also posits that whilst there may be an objective reality, there are multiple interpretations of that reality and as such, knowledge is relative and subjective (Bhaskar, 2013) as well as partial and changeable (Albert et al., 2020). Constructs such as VT are therefore only accessible through socially mediated accounts and fallible measurement tools (Bhaskar, 2008; Fletcher, 2017; Maxwell, 2012).
>
> Tunstall (2026, p. 48)

The phrase "fallible measurement tools" sums up the position. The study still measures, but it acknowledges that a questionnaire only approximates something real that cannot be observed directly. Where a study measures something its author believes is real but hard to pin down, critical realism may describe that position better than positivism does.

5.2 Postmodernism

Postmodernism sits at the subjective end of the line. It focuses on language and power, holding that what counts as "truth" is shaped by dominant ideas and that some voices are left out (Saunders et al., 2019). Postmodernist researchers often use methods such as discourse analysis, looking for what is missing or silenced in a text. It is far less common in dissertations than the other four philosophies, and it demands a high degree of reflexivity from the researcher (continual attention to how the researcher's own position shapes the analysis), so it should be chosen deliberately.

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5.3 Philosophy in the research onion

In the research onion, Saunders et al. (2019) place research philosophy as the outermost of six layers. Moving inward, the other five layers are:

1. The approach to theory development (deduction, abduction or induction)
2. The methodological choice (mono method, multi-method or mixed method, using quantitative data, qualitative data or both)
3. The research strategy, such as an experiment, survey, case study, ethnography or grounded theory
4. The time horizon (cross-sectional or longitudinal)
5. At the core, the techniques and procedures for data collection and analysis

Every decision inside the onion, from the approach to theory down to the data analysis, has to be consistent with the philosophy chosen at its outer layer.

6. Choosing a Research Philosophy

Table 1 compares the four philosophies that researchers most often adopt on the two features that matter most for a study: what each assumes about reality, and the methods it usually leads to.

Table 1. Four research philosophies compared.

Philosophy	What it assumes about reality	Methods it usually leads to
Positivism	One objective reality that can be measured	Quantitative: experiments, surveys, statistics
Interpretivism	Reality is built from people's meanings	Qualitative: interviews, observation, documents
Critical realism	A real world, much of it not directly observable	Either or both, aimed at explaining causes
Pragmatism	Starts from the problem, not a fixed view of reality	Whatever answers the question, often mixed

The research question, rather than a philosophy textbook, is the better starting point. In most cases the question already points to a philosophy, and the researcher's task is to recognize it and name it. The wording of the question usually shows which one:

- "Does X affect Y?" or "How much…?" suggests positivism.
- "How do people experience…?" or "What does X mean to…?" suggests interpretivism.
- "Why does X happen here and not there?" suggests critical realism.
- "What works to solve this problem?" suggests pragmatism.

The choice should then be checked against two things. The first is the planned methods. A positivist philosophy will look mismatched with an open-ended interview study, and an interpretivist philosophy will look mismatched with a survey analyzed by statistical tests. The second is the department's conventions. The methodology chapters of two or three recent dissertations from the same program show which philosophies are used there and how much space they are given.

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7. Writing the Philosophy Section

Not every program expects a philosophy section. Many laboratory-based and quantitative dissertations never mention one, so the program handbook should be checked first. Where a section is expected, a clear one usually does four things, in this order:

1. **Names the philosophy,** using the term the program's methods textbook uses.
2. **Defines it with a source,** in a sentence or two.
3. **States what it means for the study:** what counts as evidence, and the role of the researcher.
4. **Ties it to the research question,** so that the reader sees why this philosophy fits this study.

The education thesis quoted in Section 4.2 does all four in one paragraph (Barnes, 2019), which is about the right length for a master's dissertation. A doctoral thesis may go further and state its ontology, epistemology and axiology separately, as the public health thesis in Section 4.3 does (Munn, 2026, pp. 42–43). Once the philosophy is settled, the rest of the methodology should follow from it: the design, the sampling and the analysis.

8. Conclusion

A research philosophy is the set of assumptions about reality, knowledge and values on which a study rests, and the study's methods should follow from it. Positivism points to measurement and quantitative designs, interpretivism to meanings and qualitative designs, critical realism to explaining the causes behind what can be observed, and pragmatism to whatever answers the problem, often through mixed methods. Postmodernism, which is less common, examines how language and power shape what counts as truth. The research question usually reveals which of these fits a study, so it is a better starting point than a list of definitions. In the methodology, the philosophy should be named, defined with a source, explained in terms of what it means for the study and tied to the research question.

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