

The Nature of Educational Research

2

Robert Coe

Introduction

Many books on research methods start with a section that describes a range of different views about what research is. For some, understanding these different views is a prerequisite to thinking about doing any kind of research: you cannot do or understand research unless you are clear about the fundamental philosophical issues of ontology, epistemology and axiology. Moreover, these issues really are fundamental in the sense that the philosophical position you adopt determines the kinds of research that are worth doing, the kinds of questions you can ask and the methods you will use. The different positions are often presented as a package, with a collection of apparently coherent views about different aspects of research combining to form a 'paradigm' – a world-view or perspective – being shared by groups of researchers who adopt the whole paradigm as the one true way and defend it in opposition to any other set of views.

My approach here is pragmatic and eclectic. Whether or not the philosophical positions determine the research approach, it is important for researchers to understand their own and others' views about the nature of reality (ontology), how we can know about it (epistemology) and the different values (axiology) that may underpin enquiry, along with a number of other differences. It probably is true that certain views tend to go together and will influence choices about what kinds of questions researchers believe to be interesting and important, as well as the methods they adopt to answer them. It may be important for researchers

to understand how alternative positions have arisen as a reaction to what was seen as the constraining dominance of a particular view. It is true that researchers are influenced by each other and tend to gravitate towards common understandings across a range of issues. However, it is also true that in practice many researchers are often not as consistent as the philosophers might exhort them to be: although allegiance to a particular 'paradigm' may be a fundamental commitment for some, others can see the merits of both sides of an argument about opposing views, and may be willing to move between positions and back again. Different researchers differ in their perspectives on these issues: for example, even within this volume you will find different views presented in Chapter 3 by Waring and Chapter 20 by Biesta.

The next section offers an outline of some of the different positions researchers may take along a number of dimensions. Next we discuss different views about how, if at all, these positions can be reconciled. A third section discusses different aims for educational research. The last two sections of this chapter present, respectively, an attempt to define what distinguishes research from other forms of enquiry and what distinguishes good research from bad.

Dimensions of difference: paradigms?

In Table 2.1 each row represents a dimension or aspect of difference in views about the nature of research. The two columns present the extreme or

6 Research Methods & Methodology in Education

opposing views on this dimension. A simplistic interpretation would be to identify the positions outlined in the left-hand column with ‘positivism’ and quantitative research, while those on the right present the ‘constructivist’, qualitative paradigm. However, as we discuss below, the whole notion of a ‘paradigm’ is problematic and should probably be treated somewhat more critically than it often is.

What is a paradigm?

The use of the word ‘paradigm’ to describe a particular way of seeing the world derives from the work of the philosopher of science Thomas Kuhn. Kuhn (1970) explained the development of new ideas in science in terms of shared understandings or ‘paradigms’ within the social community of

Table 2.1 Differences in views about the nature of research

The world and phenomena are real and exist independent of perception	Social phenomena are always perceived in a particular way; they have no ‘reality’ independent of perception
There is truth and objective knowledge about the world	All knowledge is subjective and socially constructed
It is possible to find universal laws and knowledge that are generalisable	Individual social contexts are unique; generalisation is neither desirable nor possible
Research should aim to discover general (generalisable) explanations for phenomena and to make generalisable predictions	Research should aim to understand individual cases and situations and to focus on the meaning that different actors bring to them
The kinds of objective knowledge and facts discovered by research are not dependent on the values and beliefs of particular researchers	Understanding the values and beliefs of researchers is crucial to understanding their claims
Power relationships are not relevant to the truth	Power, and particularly imbalances of power, are central to understanding social phenomena. A key purpose of research is to emancipate and transform
Research aims to develop and test hypotheses. Hypotheses must be clearly stated before a study can be designed to test them	Research is inductive, following an unending dialectical cycle of thesis, antithesis, synthesis. Hypotheses and theory emerge in the course of researching; they are critically tested and refined against data and theory. Researchers aim to avoid making assumptions before collecting data
The world is fundamentally mechanistic and deterministic, in which human behaviour is governed by general laws and is capable of manipulation	Human beings are active participants in the researched world, interacting with rather than reacting to their environment, constructing situations by bringing their own meanings and acting freely
Phenomena can be understood by analysis of their component parts (reductionist)	Social phenomena are more than the sum of their parts and can be understood only holistically
Causal laws exist, determine behaviour and can be discovered by the methods of science (e.g. experiments)	The complexity, level of interactivity, situational specificity and contextual dependence of social phenomena prevent the traditional concept of causation from being useful or appropriate
Constructs must be operationalised to be used in research. Many constructs can be quantified and treated as having measurement properties. Characteristics such as validity and reliability are crucial	Many constructs cannot usefully be quantified; only rich qualitative description can capture their essence. Representations of phenomena must be authentic, based on studying things in their natural settings
Generalisation from observed samples to wider populations is justified in terms of statistical representativeness and probability sampling	Observed cases can be a basis for generalisable theory and understandings, even where the number of cases is small (perhaps even one) and they are selected for some particular characteristics
Quantitative	Qualitative
Positivist, neo-positivist, post-positivist	Anti-positivist, constructivist (constructionist), interpretivist (interpretivist)

scientists. At any time there are known inconsistencies, but these are generally treated as ‘puzzles’ to be worked on within the rules of ‘normal science’. Periodically, they become ‘anomalies’ that are so troublesome they trigger a ‘scientific revolution’ in which the dominant paradigm is replaced by a new one, generally as an older generation of scientists is replaced by a new generation rather than as a result of individuals being persuaded. The old and new paradigms are ‘incommensurable’ in the sense that they offer wholly different ways of understanding the world and there is no higher set of values or logic by which their relative merits can be easily or objectively compared.

Although it had not always been the case, by the time Kuhn was putting forward these ideas in the 1960s and 1970s the dominant view of educational research in countries like the UK and USA was essentially a scientific perspective, with most research adopting statistical, experimental and hypothesis-testing approaches (Nisbet, 2005). Kuhn’s work was seen as supporting a challenge to this hegemony – a challenge which also drew on established qualitative traditions in anthropology and sociology, and new (or newly applied) ideas from other disciplines, such as phenomenology, poststructuralism, postmodernism and critical theory. These new approaches were (and still are) often presented as new paradigms, though the use of this word is not really consistent with Kuhn’s original use (Hammersley, 2012). Moreover, Kuhn argued that his account of scientific revolution did not apply to the social sciences which are characterised by a lack of consensus on the appropriateness of different procedures, theories and metaphysical assumptions, and hence may more appropriately be seen as an immature science in a ‘pre-paradigm’ period (Bird, 2018).

Despite this distortion of Kuhn’s use of the word, it is still common to see particular collections of philosophical and methodological preferences for educational research described as paradigms. Hammersley (2012) describes a number of different ways of classifying educational research, including a standard two-paradigm typology (quantitative/positivist vs qualitative/interpretive/constructivist), a three-paradigm typology (the previous two, with

the addition of a critical/emancipatory paradigm), and various typologies that subdivide further into multiple paradigms (including participatory research, mixed-methods, human ecology, ecological psychology, holistic ethnography, (cognitive) anthropology, ethnography of communication, symbolic inter-actionism, sociolinguistics, ethnomethodology, qualitative evaluation, neo-Marxist ethnography and feminist research – see Jacob, 1987; Atkinson et al., 1988; Tashakkori and Teddlie, 2003; Hammersley, 2012).

Reconciling the different views

There are a number of different possible ways of dealing with the existence of different paradigms.

Incommensurability

The first is to accept the fundamental nature of these paradigms along with the need for consistency within each, and to see them as basically incommensurable. Under this view it is not possible to pick and mix from the available options; a philosophical commitment to a particular way of seeing the world necessarily implies the adoption of certain approaches and the rejection of others. If you believe, for example, that our knowledge of social phenomena is inevitably subjective and socially constructed then it makes no sense to seek general laws to describe the world. Nor is it possible to compromise between these discrete, defensible positions. Either you believe the world exists independent of our knowledge of it, or you do not; there is no middle way.

One consequence of the belief that different paradigms are incommensurable is that there is no way to compare or evaluate the relative merits of the approaches and results of research conducted under different paradigms. The choice to adopt, or believe the findings from, one particular paradigm over another cannot in principle be justified logically, since by definition such a logical argument can only be made within a particular paradigm (Pring, 2000).

Compatibility

A second approach allows that researchers must take a philosophical stance on fundamental issues such as the nature of reality and knowledge and on core values, but that these do not necessarily constrain other choices about the kinds of questions and methods they adopt. In this view the differences are real and important, but in the words of Gage (1989), 'Paradigm differences do not require paradigm conflict.' For example, one may believe in a realist ontology but still emphasise an interpretive approach, focusing on the meanings that participants bring to a situation and using naturalistic observation with qualitative data to study them. Or a feminist/emancipatory researcher may adopt the use of randomised controlled trials (e.g. Oakley, 2006; Mertens, 2019).

There is arguably some asymmetry in this perspective, however, since it may be harder to imagine a researcher who believes all knowledge is subjective and personal wanting to conduct large-scale surveys involving statistical analysis of quantitative data. For this reason, this perspective might be seen as a kind of positivism, albeit softened by the adoption of qualitative methods and the inevitable acceptance of subjectivity they imply, but in which those qualitative methods are essentially subservient to the quantitative. Certainly, an acceptance of compatibility is likely to depend on an environment in which researchers with different perspectives are able to respect the differences of others and feel confident enough of the security of their own position to be tolerant of others.

Pragmatism

A third perspective adopts the philosophical stance of pragmatism, rejecting the traditional philosophical dichotomies of realist vs idealist ontology and subjective vs objective epistemology. Some have linked pragmatism with an explicitly mixed-methods approach and even argued that the use of mixed methods is a paradigm in its own right (e.g. Johnson and Onwuegbuzie, 2004). However, another reading of the pragmatic approach is to see

the whole notion of paradigms as problematic and unhelpful (Biesta, 2020). In this sense, pragmatism is not just another philosophy, but is itself an anti-philosophy – not another paradigm, but a challenge to the whole notion of paradigms. According to this view, research may be conducted for particular reasons, for example to find answers to certain questions or to redress key inequities or injustices. The choice of those reasons is likely to be influenced by the values and beliefs of the researchers (including their, perhaps implicit, metaphysical beliefs); the particular questions or aims they select will also influence the research methods they use.

There are therefore practical and logical reasons why philosophy and methodology are not independent. However, it is an oversimplification – and unnecessary constraint – to see all research as having the characteristics of one of a small number of paradigms.

Different aims for educational research

Alongside the different paradigms and approaches to reconciling these, it is important to recognise that research is conducted for a range of very different reasons. As mentioned above, in some presentations of the different paradigms these reasons or research aims are combined with the philosophical and methodological differences outlined above to form further paradigms, such as the emancipatory paradigm or feminist research. Identifying a particular research aim with its own paradigm may be a way of emphasising the importance of that aim, since for those who adopt it, it fundamentally transforms everything they do. However, it is also clear that a single piece of research often has a mixture of aims of different kinds, and that different research studies with very different approaches may nevertheless overlap in their aims. For this reason we see the aims of a piece of research as a separate dimension from its values, assumptions and methodology, and present the following typology of different aims for educational research.

Scientific

The first set of aims for research may be described as scientific, in the broadest sense. This kind of research sets out to understand the world, to build, test and support theory, to discover or create knowledge. 'Scientific' here is not meant to imply a preference for a particular approach, such as quantification, or even a preference for empirical enquiry, but simply a search for knowledge. It is probably unusual for any educational research not to include some scientific aims.

Political

A second category of research aims is essentially political, in the sense that the research aims to change the world. If we hope our research may be used to help improve education in some way then it has at least partially political aims. Although research may not have explicitly political aims, it is perhaps unusual for these not to be at least implied; research funders increasingly call for research to have 'impact'.

Therapeutic

A third class of aims covers research that sets out to help individuals. The distinction between this and the previous category is that the individuals are in some sense participants in the research. This would be the case, for example, in action research, in which a practitioner–researcher works in a particular context alongside other actors to help address particular problems in that context.

Aesthetic

A final category of research aims may be described as aesthetic. Research with this kind of aim attempts to express, affirm or represent human experience, to 'engage, surprise, attract, shock, delight, connect the unconnected, stir the memory and fertilise the unconscious', or to 'communicate something ultimately unsayable' (Saunders, 2003). The research may have a poetic or literary quality,

setting out to tell a story, perhaps using arts-based forms to present its messages, and aiming to connect with readers on an emotional or spiritual level (Barone and Eisner, 2006).

Other ways of classifying different types of educational research

There are a number of other distinctions that can be made and it may be helpful to understand these differences.

Applied vs basic

This distinction is made by many writers. Applied educational research is focused on questions of practice or policy, with the intention of informing or improving some aspect of them and often containing explicit recommendations for action. Reports are likely to be publicly available and may be written for a lay audience. Applied research is sometimes commissioned by a particular agency with a specific agenda and is governed by an explicit contract with the researchers.

Basic research, by contrast, is conducted for the advancement of knowledge, with no concern about whether the research is directly or immediately useful in any way. This kind of research is typically conducted within an academic community, often within a particular disciplinary structure; reports of the work are written primarily for other scholars and there is less direct accountability for the delivery of any specific, predetermined outcomes.

Empirical vs theoretical

Empirical educational research is grounded in observation. It takes phenomena (things that exist or happen), or at least our perceptions of phenomena, as its starting point, and attempts to represent them as data which can then be analysed. In this way, empirical research aims to represent, describe and understand particular views of the educational world.

10 Research Methods & Methodology in Education

Theoretical research focuses on ideas rather than phenomena, though of course both kinds of research require both. Theoretical educational research may present, for example, a philosophical argument, a critique or a methodological advance.

Nomothetic vs idiographic

Nomothetic educational research seeks understanding of the general case (*nomos*, 'the law' in Greek). It aims to discover general (and explicitly generalisable) explanations for phenomena and to make generalisable predictions to further cases. Theory consists of sets of such rules, together with the conditions under which they apply. Idiographic research, on the other hand, focuses on the individual case (*idios*, 'belonging to an individual' in Greek). It aims to describe and understand what is unique and distinctive about a particular context, case or individual.

Intervention vs descriptive

A final distinction is less commonly made but is perhaps at least as important as any of the others listed here. Intervention research actively sets out to introduce some change into the educational world, then studies the reaction. It includes types of research that may traditionally not usually have been put together, such as action research (which often has a critical, emancipatory emphasis – see Carr and Kemmis, 1986) and randomised controlled trials (generally advocated from a scientific, positivist perspective). Nevertheless, these approaches share a belief in the importance of change and the view that we can really only fully understand the world if we understand how to change it.

Descriptive research simply describes what is, without directly attempting to change it. Again, diverse approaches may be grouped together here, from ethnography (with a focus on natural settings and rich description) to large-scale surveys (characterised by generalisable, quantified measures). Of course, much apparently descriptive educational research actually has an (explicit or implicit) intention to provoke or support changes in the educational world. The point

of making the distinction between intervention and descriptive research is to emphasise that we should not underestimate the difficulties of inferring implications for making changes from research that has not itself involved changing anything.

Characteristics of research

Given the variety of different kinds of educational research, the different reasons for doing it, the beliefs underpinning it and methods employed to conduct it, we may question whether there are any common elements that distinguish research from other kinds of activity. We would argue that research generally has the following characteristics, though we would also acknowledge that not all educational research will necessarily exhibit all these qualities (for other attempts to define or discuss the characteristics of research, see, for example, Kerlinger, 1970; Bridges, 2006).

Critical

Educational research is critical in the sense that it actively seeks to question its own claims, assumptions and methods, and those of others. Where explanations are offered, the research process seeks to verify them, generating and testing alternatives. Obvious and popular perceptions or explanations are treated with caution and subjected to scrutiny. Attempts are made to identify and remove extraneous influences and confounded explanations.

Systematic

Educational research is a deliberate, planned, intentional activity. It takes a specific question or questions which provide its focus and direction. Questions may be predetermined or emergent. Research sets out to exhaust those questions, providing answers that are as full as possible. Research aims to consider all the evidence that may be relevant to its questions, not just what is easy to access or supports a particular view.

Transparent

Educational research is transparent in the sense that its aims, methods, assumptions, arguments, data and claims are stated explicitly and clearly. Results, and their supporting justifications, are disclosed fully, taking care to minimise the danger of misinterpretation, and made widely available. Prior beliefs, conflicts of interest and biographies of researchers are disclosed, where appropriate. Sufficient information is given that the work could be replicated or checked by another researcher.

Evidential

Educational research appeals to evidence, not opinion, authority or common sense, as the basis of its justification. Empirical research is grounded in phenomena and their authentic representation as data. Clear, logical arguments link those phenomena, or other premises, to their interpretations and the claims made.

Theoretical

Educational research is guided by theory, but also seeks to build and test theory. Theory attempts to help make sense of phenomena, to allow predictions to be made, to clarify thinking, to provide conceptual tools, and to enable subsequent research to build cumulatively on what has been done before.

Original

Educational research aims to add to existing knowledge in some way, be it through a new discovery, confirmation of previous findings, new theory or enhanced understandings. Research does more than simply re-present existing ideas, even if communicated in new or more effective ways.

How is educational research different from other kinds of research?

Defining what makes educational research different from any other research is not straightforward.

Indeed, the most defensible answer may be that it is not different in any fundamental way. The notion of an academic discipline – a community of scholars who share common methods of investigation of particular types of questions, with agreed rules and criteria for judging the strength and quality of their claims – may be employed to try to define the discipline of education. Yet, as has been discussed above, such agreement about methods, questions, rules and criteria may be hard to find among those who would describe themselves as educational researchers.

We might try to avoid these differences by identifying as ‘educational’ any research that seeks to understand, inform or improve the practice of education. But education itself is hard to define in a way that is broad enough to include all the different kinds of activity that might come under this heading, while still retaining some common set of distinguishing characteristics.

Ball and Forzani define education as ‘the deliberate activity of helping learners to develop understanding and skills’ (2007: 530). Where this occurs in schools or similar institutions they say it is characterised by interactions among four elements: teachers, students, content and environments. These multiple interactions (‘active processes of interpretation’) constitute the ‘instructional dynamic’, which is the defining feature of education.

One problem in defining educational research is that research questions that relate to education can be found in many other, generally longer established, disciplines. For example, significant parts of psychology are concerned with learning and much psychological research addresses questions on this issue. Claiming this research as educational might be seen as an unnecessary and unwelcome attempt to appropriate something that already had a perfectly good disciplinary home. Similar arguments could be made about the existence of educational research questions in older disciplines such as sociology, philosophy, history, economics, anthropology, geography, linguistics, political science, business and health sciences. Ball and Forzani (2007) make a distinction between ‘research related to education’ that adopts a perspective from another discipline,

12 Research Methods & Methodology in Education

and 'research in education' that focuses on the 'instructional dynamic' of education by considering the multiple interactions among all four elements. Even if this definition is useful, however, it seems likely that it might include quite a small proportion of the research that is conducted by people who would describe themselves as educational researchers or that is published in educational research journals.

When education began to stake its claim to be seen as a discipline in its own right in the 1960s it became common to present it as built on the four 'foundation disciplines' of philosophy, history, psychology and sociology. The development of education as a university subject was, in the UK at least (according to Simon, 1983), a response to a political drive to establish teaching as a graduate profession, and hence to locate the professional training of teachers in universities. In a search for academic respectability beyond what R. S. Peters (cited in Bridges, 2004) had described as the 'undifferentiated mush' of existing teacher education, education studies drew on these more established disciplines. In the 1970s, a focus on the curriculum as an object of study, the rise of classroom action research and the flourishing of new research methodologies (Bridges, 2004) contributed to a weakening of the foundation disciplines. Later developments – such as the growing demands of research funders (including governments) for educational research to have direct applications in policy or practice, the increasingly instrumental focus of teacher training, and the influence of a much wider repertoire of methodologies and theories on educational research – have further displaced the original four disciplines. Today, whether education is itself a discipline and, if so, what differentiates it from other disciplines is very much open to debate.

Research quality

Perhaps an even harder task than defining educational research is defining good research. Given the breadth of approaches to doing educational research, it seems unlikely that there will be any universal

criteria. We present here a list of questions that it may be appropriate to ask in evaluating the quality of a piece of research:

- What are the research questions/aims?
- Are they clearly stated?
- Are they relevant/important?
- Does the research actually address them?
- Is the methodology appropriate to them?
- Could the research add to existing knowledge?
- Does the research build systematically on what is already known?
- Are any of the assumptions or beliefs of the researcher(s) made clear?
- Is it clear who funded or supported the research and whether there are any potential conflicts of interest?
- Are any definitions of terms or constructs clear?
- Are these definitions appropriate (not too broad/narrow)?
- Is it clear how phenomena have been represented?
- Are any constructs operationalised appropriately?
- Is any interpretation of constructs (e.g. measures, scores, variables) supported by a convincing validity argument?
- How realistic or representative are the contexts in which the research was done? Are they described adequately?
- Are any samples adequate? In what sense are they representative?
- Is there enough information about the participants? Who were they? Are we told what the study meant to them?
- How were participants chosen? Who is included/excluded? Is any non-response disclosed?
- Are the claims clear and explicit?
- Are there implicit causal claims?
- Does the evidence support the claims?
- How far are the claims generalised? Is any generalisation justified?
- Are alternative explanations offered/challenged?
- What is arbitrary? How might things have been done otherwise? Are the choices made by the researchers transparent?
- Has there been any selection in what is reported?

- If the data might have been interpreted or analysed differently, could this have led to different conclusions?

Questions for further investigation

1. In each row of Table 2.1 we have presented two opposing views. Is it helpful to see these as simplistic, caricatured extremes rather than strongly defensible, alternative positions? Is it possible to agree with both positions in a row, or are they mutually contradictory?
2. To what extent should researchers be consistent in their adoption of the views presented in either column of Table 2.1? Is it possible to mix elements from the right- and left-hand columns and still be philosophically coherent?
3. Is it possible to define research in a way that distinguishes it from other forms of enquiry or writing? What distinguishes educational research from other research?
4. Of the questions listed under 'research quality', which are the most important?

Suggested further reading

- Hammersley, M. (2012) 'Methodological Paradigms in Educational Research', British Educational Research Association on-line resource. Available online at www.bera.ac.uk/wp-content/uploads/2014/03/Methodological-Paradigms.pdf
- Lincoln, Y.S., Lynham, S.A. and Guba, E.G. (2018) 'Paradigmatic Controversies, Contradictions, and

Emerging Confluences, Revisited', in N.K. Denzin and Y.S. Lincoln (eds), *The SAGE Handbook of Qualitative Research*, 5th edn. Thousand Oaks, CA: Sage. pp. 108–50.

Schwandt, T.A. (2000) 'Three Epistemological Stances for Qualitative Inquiry', in N.K. Denzin and Y.S. Lincoln (eds), *Handbook of Qualitative Research*, 2nd edn. Thousand Oaks, CA: Sage. pp. 189–213.

References

- Atkinson, P., Delamont, S. and Hammersley, M. (1988) 'Qualitative research traditions: a British response', *Educational Researcher*, 58(2): 231–50.
- Ball, D.L. and Forzani, F.M. (2007) 'What makes education research "educational"?', *Educational Researcher*, 36(9): 529–40.
- Barone, T. and Eisner, E. (2006) 'Arts-based Educational Research', in J. Green, G. Camilli and P. Elmore (eds), *Complementary Methods in Research in Education*. Mahwah, NJ: Lawrence Erlbaum.
- Biesta, G.J.J. (2020) *Educational Research: An Unorthodox Introduction*. London: Bloomsbury.
- Bird, A. (2018) 'Thomas Kuhn', in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018 Edition), available at: <https://plato.stanford.edu/archives/win2018/entries/thomas-kuhn/> (accessed 14 August 2020).
- Bridges, D. (2004) 'The disciplines and discipline of educational research'. Paper presented at the Annual Conference of the British Educational Research Association, Manchester Metropolitan University, September.
- Bridges, D. (2006) 'The disciplines and discipline of educational research', *Journal of Philosophy of Education*, 40(2): 259–72.
- Carr, W. and Kemmis, S. (1986) *Becoming Critical: Education, Knowledge and Action Research*. Lewes: Falmer.
- Gage, N.L. (1989) 'The paradigm wars and their aftermath', *Educational Researcher*, 18(7): 4–10.
- Hammersley, M. (2012) 'Methodological Paradigms in Educational Research', *British Educational Research Association online resource*. Available at: www.bera.ac.uk/wp-content/uploads/2014/03/Methodological-Paradigms.pdf
- Jacob, E. (1987) 'Qualitative research traditions: a review', *Review of Educational Research*, 57(1): 1–50.

14 Research Methods & Methodology in Education

- Johnson, R.B. and Onwuegbuzie, A.J. (2004) 'Mixed methods research: a research paradigm whose time has come', *Educational Research*, 33(7): 14–26.
- Kerlinger, F.N. (1970) *Foundations of Behavioral Research*. New York: Holt, Rinehart & Winston.
- Kuhn, T.S. (1970) *The Structure of Scientific Revolutions*, 2nd edn. Chicago: University of Chicago Press.
- Mertens, D.M. (2019) *Research and Evaluation in Education and Psychology: Integrating Diversity with Qualitative, Quantitative, and Mixed Methods*, 5th edn. Thousand Oaks, CA: Sage.
- Nisbet, J. (2005) 'What is educational research? Changing perspectives through the 20th century', *Research Papers in Education*, 20(1): 25–44.
- Oakley, A. (2006) 'Resistances to "new" technologies of evaluation: education research in the UK as a case study', *Evidence and Policy*, 2(1): 63–87.
- Pring, R. (2000) 'The "false dualism" of educational research', *Journal of Philosophy of Education*, 34(2): 247–60.
- Saunders, L. (2003) 'On flying, writing poetry and doing educational research', *British Educational Research Journal*, 29(2): 175–87.
- Simon, B. (1983) 'The study of education as a university subject in Britain', *Studies in Higher Education*, 8(1): 1–13.
- Tashakkori, A. and Teddlie, C. (eds) (2003) *Handbook of Mixed Methods in Social and Behavioral Research*. Thousand Oaks, CA: Sage.

Finding Your Theoretical Position

3

Michael Waring

Introduction

This chapter highlights the relationship between the four 'building blocks' of research (ontology, epistemology, methodology and methods) (Grix, 2002, 2018). It begins with an exploration of the nature of educational research, presenting various ways in which the researcher might see the world. It then links those assumptions with how the researcher sees what is possible with knowledge of that world. The text will then explore how this relates to certain procedures or logic to be followed in association with the researcher's views of the world and notions of knowledge within it. Having linked the first three building blocks of research, the relationship with the final block is made: the process of selecting and using appropriate techniques to collect data is outlined.

Fundamentally, research is about disciplined, balanced enquiry, conducted in a critical spirit (Thomas, 2013). However, the nature of educational enquiry and subsequently those attempts to define educational research have been and continue to be problematic (see Phillips, 2005, 2006, 2011; Morrison, 2007; Lingard and Gale, 2010; Whitty, 2016; Mertler, 2018; Biesta, 2020). The debate revolves around a number of issues but mainly relates to the complexity of the educational context, conceptual confusion, inappropriate adoption of positivistic interpretations of 'scientific' method and notions of rigour, as well as the dichotomy between practice and theory. Cohen et al.'s (2018: 1) definition of educational research is an

acceptable one in that it acknowledges and accommodates many of the contentious issues: 'the systematic and scholarly application of the principles of a science of behaviour to the problems of teaching and learning within education and the clarification of issues having a direct and indirect bearing on those concepts'. Importantly, the use of the term 'science' here is taken to imply both normative and interpretive perspectives.

Over recent decades there have been, and continue to be, a debate and competition over the foremost set of beliefs which will inform and guide enquiry over and above all others (Entman, 1993; Guba and Lincoln, 1994; Lincoln et al., 2013). The debate will not be continued or reiterated to any great extent here – others offer more comprehensive accounts of this (see McNamara, 1979; Bradley and Sutton, 1993; Denzin and Lincoln, 2013). The purpose here is to identify the fundamental set of assumptions that underpin all research and to make clear their interrelationship and implications.

Ontology, epistemology, methodology and methods

All researchers need to understand that their research is framed by a series of related assumptions. These assumptions can be framed around four key questions, as identified in a simplistic fashion in Figure 3.1. These questions have an order.

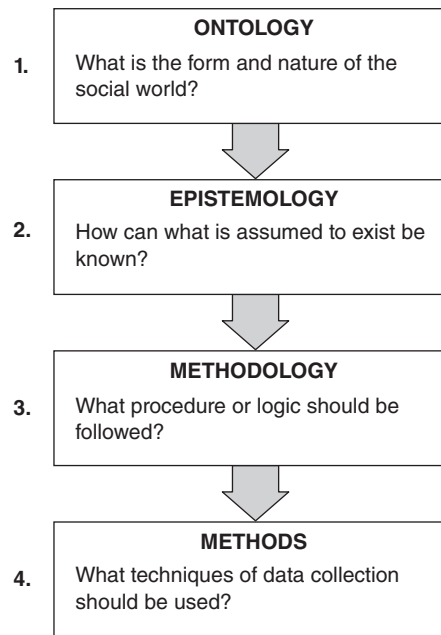


Figure 3.1 The relationship between ontology, epistemology, methodology and methods

Question 1

The first question that a researcher needs to ask relates to 'ontology'. That is, 'what is the nature or form of the social world?' These assumptions will form the starting point for all research. Ontological positions can be seen to exist in a simplistic fashion along a continuum from left to right from realism to constructivism. In realism there is a singular objective reality that exists independent of individuals' perceptions of it. At the other end of the continuum, under constructivism, reality is neither objective nor singular, but multiple realities are constructed by individuals. It is on the basis of the answers to the ontological question that the epistemological question can be asked and assumptions are made.

Question 2

Epistemology relates to knowledge and the researcher should ask the question 'how can what is assumed to exist be known?' Taking the same continuum and extreme positions as identified above, the corresponding epistemological

positions to realism and constructivism would be positivism and interpretivism respectively. Existing within a realist ontology, positivism sees it as possible to achieve direct knowledge of the world through direct observation or measurement of the phenomena being investigated. At the other end of the continuum, existing under a constructivist ontology, interpretivism does not see direct knowledge as possible; it is the accounts and observations of the world that provide indirect indications of phenomena, and thus knowledge is developed through a process of interpretation.

Question 3

Methodological assumptions are a reflection of the ontological and epistemological assumptions. Methodology asks 'what procedures or logic should be followed?' Developing the notion of the continuum, to the left (under realist ontology/positivist epistemology) the answer 'is nomothetic and experimental in nature'. To the right (under constructivist ontology/interpretivist epistemology) it is 'ideographic, dialectical and hermeneutical in nature'.

Question 4

The fourth question is associated with methods. Methods are the techniques or procedures used to gather data. The question to be asked is 'what data collection techniques or procedures should be used?' Simply answered, it is those techniques and procedures which allow the researcher to gather data that are appropriate to answer the research question(s). The kind of methods can take various forms such as surveys, questionnaires, interviews, observations, video and still images, etc. Grix's (2002: 179) illustration of the interrelationship between the building blocks of research reinforces the fact that the method(s) are closely linked with the research question(s) posed and the sources of data collected. In other words, the methods which are used should be ethical and able effectively to collect appropriate qualitative and/or quantitative data from relevant and readily accessible sources, which can then be analysed to help the researcher address the research question(s). So the researcher needs to consider carefully not just what methods can be employed to gather appropriate data, but also whether it is ethical to collect those data and is it practical to do so.

All researchers should fully appreciate the research process and so should be able to understand and acknowledge in their decisions and choices the fundamental relationship between the ontological, epistemological and methodological assumptions that underpin their research and inform their choice of methods. In the research literature, methods are often inappropriately used interchangeably with the term 'methodology'. Grix (2002: 176), in his paper about the need for clarity in the use of generic research terminology, reinforces this when he says that

a clear and transparent knowledge of the ontological and epistemological assumptions that underpin research is necessary in order: (1) to understand the interrelationship of the key components of research (including methodology and methods); (2) to avoid confusion when discussing theoretical debates and

approaches to social phenomena; and (3) to be able to recognise others', and defend our own, positions.

The nature of paradigms: making sense of reality

Kuhn (1962) is commonly associated with the notion of the paradigm and believed it to be a set of interrelated assumptions about the social world which provided a philosophical and conceptual framework for the organised study of that world. Over time numerous authors have similarly defined it as a set of 'belief systems' (Guba and Lincoln, 1989), a 'world view' (Patton, 1978; Guba and Lincoln, 1994) and a particular 'lens for seeing and making sense of the world' (Sparkes, 1992), all of which emphasise the many definitions that mark out a paradigm.

A paradigm represents a person's conception of the world, its nature and their position in it, as well as a multitude of potential relationships with that world and its constituent parts. Therefore, as that person brings along with them the 'baggage' of their previous life experiences and knowledge base to any research context, it is this very amalgamation which constructs their competence and credibility as a member of any given research community, as well as their answers to certain fundamental questions which will determine such acceptance in and of that community. Proponents of any given paradigm can summarise their beliefs relative to their responses to those ontological, epistemological, methodological and methods questions identified.

Table 3.1 outlines those basic responses which proponents located at either end of a continuum of paradigms (from positivist to interpretivist) would make in reaction to those fundamental questions. This table is intended to be a basic framework/continuum which offers extreme positions (responses) to assist the readers in their discussion to locate themselves.

It is important to note that while the identification of paradigms at either end of a continuum is

Table 3.1 Basic assumptions fundamental to the positivist and interpretive paradigms

Assumptions	Positivism	Interpretivism¹
<i>Ontology</i>	External realist Basic posture is reductionist and deterministic. Knowledge of 'the way things are' is conventionally summarised in the form of time- and context-free generalisations, some of which take the form of cause-and-effect laws	Internal-idealist, relativist (local and specific constructed realities, holistic and dynamic) Realities are apprehendable and mind-dependent. ² There are multiple realities with the mind playing a central role by determining categories and shaping or constructing realities. We cannot see the world outside of our place in it. There is no separation of mind and objective since the two are inextricably linked together – the knower and the process of knowing cannot be separated from what is known and the facts cannot be separated from values
<i>Epistemology</i>	Dualist objectivist The investigator and investigated 'object' assumed to be independent entities; enquiry takes place as if in a one-way mirror. Investigator does not influence or is not influenced by the object. Replicable findings are 'true'	Subjectivist, transactional, interactive The investigator and the object of the investigation are assumed to be interactively linked so that the 'findings' are literally created as the investigation proceeds. Therefore, the conventional distinction between ontology and epistemology dissolves ³
<i>Methodology</i>	Nomothetic, experimental, manipulative; verification of hypotheses Questions and/or hypotheses are stated in proportional form and subjected to empirical test to verify them; possible confounding conditions are carefully controlled (manipulated) to prevent the outcome from being improperly influenced	Ideographic, dialectical, hermeneutical The variable and personal nature of social constructions suggests that individual constructions can be elicited and refined only through interaction between and among investigator(s) and respondent(s). Conventional hermeneutical techniques are used in interpretations and compared and contrasted through a dialectical interchange. It is not a matter of eliminating conflicting or previous interpretations, but to distil a more sophisticated and informed consensus construction
<i>Enquiry aim</i>	Explanation, prediction and control Over time attempt increasingly to explain so that ultimately one can predict phenomena be they human or physical	Understanding, interpretation and reconstruction Over time, everyone formulates more informed and sophisticated constructions and becomes more aware of the content and meaning of competing constructions

1. The term 'interpretivism' has been chosen because, as Sparkes (1992) has identified, it refers to a whole family of approaches which are in direct contrast to a positivist sense of social reality.

2. Mind-dependence here does not mean that the mind 'creates' what people say and do, but rather how we interpret their movements and utterances; the meaning we assign to the intentions, motivations and so on of ourselves and others becomes social reality as it is for us. In other words, social reality is the interpretation (Smith, 1989, in Sparkes, 1992: 27).

3. The dashed line represents the challenge which such a posture represents between ontology and epistemology; what can be known is inextricably linked with the interaction between a particular investigator and a particular object or group.

Source: Based upon Guba and Lincoln (1994) and Sparkes (1987, 1992)

convenient in terms of clarifying the relationship between the fundamental assumptions and allows for familiarisation with key terminology, such a simple and clinical distinction is an incomplete and artificial one. As Silverman (2014: 27) highlights, dichotomies or polarities of this fashion can be dangerous if they are allowed to create a siloed mentality of 'armed camps'. Therefore, when considering Table 3.1 and the many others like it that you will come across in the research methods literature (see Lincoln et al., 2013: 208; Cresswell and Poth, 2017: 36), it is important to focus on the process of enquiry and not to isolate thoughts to just one paradigm or another. Instead be prepared to question and explore those 'shady' areas between research paradigms where the boundaries shift (see Grix, 2010: 62). Lincoln et al. (2013: 207) identify how those who are 'familiar with several theoretical and paradigmatic strands of research will find that echoes of many streams of thought come together' and create dialogue and the dynamic shifting and blurring of paradigms. However, such evolution has to be set within a research methodologies landscape in which there has and continues to be contestation and confrontation over what research is valued and what criteria are used in judgement of its quality.

Hammersley (1992: 131) commented that: 'There is no doubt that the 1980s and early 1990s have seen growing debates among educational researchers about methodology, sometimes taking the form of conflicts between incommensurable paradigms in which philosophical terms have been used as weapons.' Sparkes (2013) also highlights this by recounting Sage's (1989) description of what was named the 'paradigm wars' of the 1980s and Denzin's (2009) contention of the continuation of such wars, the associated conflict between quantitative and qualitative researchers, and the need to be mindful that such a dialogue and the blurring of paradigms are challenged and confined by methodological fundamentalism, as well as notions of power and politics on many different levels. Lincoln et al. (2013: 257) also recognise the dynamic and tensions between the 'positivist and new-paradigm forms of enquiry' as well as within and between new and emergent paradigms as they

'either look for common ground or to find ways in which to distinguish their forms of enquiry from others'.

As part of the broader paradigmatic debate being rehearsed here it is important to acknowledge the increasingly popular and influential use of mixed-methods research (see Johnson and Onwuegbuzie, 2004; Bryman, 2008, 2016). Biesta (see Chapter 20 in this book) provides a very useful account of mixing methods in education in which he outlines the context and nature of mixed-methods research, and different mixed designs. In relation to the paradigm debate it is helpful here to highlight the fact that the combination of qualitative and quantitative research approaches which basically defines mixed-methods research and its pragmatic approach can create confusion and problems in terms of meaning and application. In response to the ambiguity of what is actually being mixed, Biesta (2010) provides seven dimensions at which mixing might take place: Data; Methods; Designs; Epistemologies; Ontologies; Research Purposes; and Practical Orientations. The questions asked particularly in relation to the last four of these dimensions (Epistemologies; Ontologies; Research Purposes; and Practical Orientations), their relationship with each other and the associated implications are seen as complicated and potentially controversial. For example, considering if it is possible to combine different ontological and epistemological views, and given the response to that, how does it inform the possibility of combining an intent to generate interpretive understanding and causal explanation, and then ultimately how does all this connect with the researcher's intended achievements for the research and its contribution to the field and practice, which are associated with the potential for combining a critical understanding and analysis with the production of solutions? As part of considering your response to the potential of such combinations and understanding your theoretical location, see Coe (Chapter 2 in this book) who highlights dimensions of difference and paradigms, along with the reconciliation of different views and different ways of dealing with the existence of different paradigms. Hammersley (2012) is

also helpful with a succinct outline of key divisions, issues and debates in educational research and the place of paradigms.

It is discerning while at the same time encouraging to know that many researchers experience and acknowledge confusion over the terminology employed in this whole paradigmatic debate (Cohen et al., 2018). A host of authors (Smith, 1989; Guba, 1990; Tesch, 1990; Blaikie, 2007; Grix, 2010; Hammersley, 2011; Weed, 2013) have identified a multiplicity of labels which have been attached to research, resulting in a confusion over the meaning and conceptual level of such terminology: 'Sometimes it is difficult to distinguish clearly labels that denote an epistemological stance and those that refer to method' (Tesch, 1990: 58). One other point on terminology relates to the use of the terms 'qualitative' and 'quantitative research'. These do not actually exist. 'Qualitative' and 'quantitative' refer to data which can be gathered and used in combination or singularly in any form of research.

Conclusion

Educational research is complex and there continue to be a host of debates about the nature of the educational enquiry and associated terminology. However, regardless of the definition of educational enquiry adopted, all researchers should appreciate how the research process and their research are framed by a series of fundamental questions associated with ontology, epistemology, methodology and methods. Having ownership of the process of generating assumptions allows researchers to be informed about the interrelationship between the key components of research, to minimise confusion, and to enhance their ability to critique and appreciate their own research position and that of others. Such an ability promotes understanding and in so doing the potential for 'intellectual, theoretical and practical space for dialogue, consensus, and confluence to occur' (Lincoln et al., 2013: 207), and a transparency in what research is done and why it is done.

Questions for further investigation

1. Where do you stand as an educational researcher between the different paradigms? What philosophical standpoints inform your position?
2. Why are research paradigms relevant in thinking about research processes and methods in education?
3. With regard to epistemological and ontological assumptions, what differences and commonalities underpin various research paradigms?

Suggested further reading

- Conrad, C.F. and Serlin, R.C. (eds) (2011) *The SAGE Handbook for Research in Education: Pursuing Ideas as the Keystone of Exemplary Inquiry*, 2nd edn. Thousand Oaks, CA: Sage. This is a comprehensive text which identifies the different issues that educational researchers face in their research endeavours, and explores the multiple purposes and challenges of enquiry by offering many examples of how researchers have addressed the key questions in their research.
- Denzin, N.K. and Lincoln, Y. (eds) (2017) *The SAGE Handbook of Qualitative Research*, 5th edn. Thousand Oaks, CA: Sage. This book rehearses at length the paradigm debate, offering the reader an illustration of critical issues associated with a host of differing research perspectives.
- Thomas, G. (2017) *How to Do Your Research Project: A Guide for Students*, 3rd edn. London: Sage. This is an accessible text which addresses many of the fundamental questions and issues facing the researcher conducting a research project. It provides an engaging and practical source of information for any researcher.
- Wyse, D., Selwyn, N., Smith, E. and Suter, L.E. (eds) (2017) *BERA/SAGE Handbook of Educational Research*. London: Sage. A comprehensive two-

volumed publication which gathers a broad and impressive field of international authors to present and debate an extensive range of contemporary issues around the education research, policy and practice nexus.

References

- Biesta, G. (2010) 'Pragmatism and the Philosophical Foundations of Mixed Methods Research', in A. Tashakkori and C. Teddlie (eds), *The SAGE Handbook of Mixed Methods in Social and Behavioral Research*, 2nd edn. Thousand Oaks, CA: Sage. pp. 95–118.
- Biesta, G. (2020) *Educational Research: An Unorthodox Introduction*, London: Bloomsbury Academic.
- Blaikie, N. (2007) *Approaches to Social Enquiry: Advancing Knowledge*, 2nd edn. Cambridge: Polity.
- Bradley, J. and Sutton, B. (1993) 'Reframing the paradigm debate', *Library Quarterly*, 63(4): 405–10.
- Bryman, A. (2008) 'The End of the Paradigm Wars?', in P. Alasuutari, J. Brannen and L. Bickman (eds), *The SAGE Handbook of Social Research Methods*. Thousand Oaks, CA: Sage. pp. 13–25.
- Bryman, A. (2016) *Social Research Methods*, 5th edn. Oxford: Oxford University Press.
- Cohen, L., Manion, L. and Morrison, K. (2018) *Research Methods in Education*, 8th edn. London: Routledge.
- Cresswell, J.W. and Poth, C.N. (2017) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 4th edn. Thousand Oaks, CA: Sage.
- Denzin, N.K. (2009) *Qualitative Inquiry Under Fire*. Walnut Creek, CA: Left Coast Press.
- Denzin, N.K. and Lincoln, Y.S. (2013) 'The Discipline and Practice of Qualitative Research', in N.K. Denzin and Y.S. Lincoln (eds), *The Landscape of Qualitative Research*, 4th edn. Thousand Oaks, CA: Sage. pp. 199–265.
- Entman, R.M. (1993) 'Framing: toward clarification of a fractured paradigm', *Journal of Communication*, 43(4): 51–8.
- Grix, J. (2002) 'Introducing students to the generic terminology of social research', *Politics*, 22(3): 175–86.
- Grix, J. (2010) *The Foundations of Research*, 2nd edn. Basingstoke: Palgrave Macmillan.
- Grix, J. (2018) *The Foundations of Research*, 3rd edn. Basingstoke: Palgrave Macmillan.
- Guba, E. (ed.) (1990) *The Paradigm Dialog*. Newbury Park, CA: Sage.
- Guba, E. and Lincoln, Y. (1989) *Fourth Generation Evaluation*. Beverly Hills, CA: Sage.
- Guba, E. and Lincoln, Y. (1994) 'Competing Paradigms in Qualitative Research', in N.K. Denzin and Y.S. Lincoln (eds), *The SAGE Handbook of Qualitative Research*. Thousand Oaks, CA: Sage. pp. 105–17.
- Hammersley, M. (1992) 'The paradigm wars: reports from the front', *British Journal of Sociology of Education*, 13(1): 131–43.
- Hammersley, M. (2011) 'Objectivity: A Reconceptualisation', in M. Williams and W.P. Vogt (eds), *The SAGE Handbook of Innovation in Social Research Methods*. Thousand Oaks, CA: Sage.
- Hammersley, M. (2012) 'Methodological Paradigms in Educational Research', British Educational Research Association online resource. Available online at www.bera.ac.uk/wp-content/uploads/2014/03/Methodological-Paradigms.pdf
- Johnson, R.B. and Onwuegbuzie, A.J. (2004) 'Mixed methods research: a research paradigm whose time has come', *Educational Researcher*, 33(7): 14–26.
- Kuhn, T. (1962) *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Lincoln, Y.S., Lynham, S.A. and Guba, E.G. (2013) 'Paradigmatic Controversies, Contradictions, and Emerging Confluences, Revisited', in N.K. Denzin and Y.S. Lincoln (eds), *The Landscape of Qualitative Research*, 4th edn. Thousand Oaks, CA: Sage. pp. 199–265.
- Lingard, B. and Gale, T. (2010) 'Defining educational research: a perspective of/on presidential addresses and the Australian Association for Research in Education', *Australian Educational Researcher*, 37(1): 21–49.
- McNamara, D.R. (1979) 'Paradigm lost: Thomas Kuhn and educational research', *British Educational Research Journal*, 5(20): 167–73.
- Mertler, C. (2018) *Introduction to Educational Research*, 2nd edn. Thousand Oaks, CA: Sage.
- Morrison, M. (2007) 'What Do We Mean by Educational Research?', in A.R.J. Briggs and M. Coleman (eds), *Research Methods in Educational Leadership and Management*, 2nd edn. Thousand Oaks, CA: Sage. pp. 13–36.
- Patton, M. (1978) *Qualitative Evaluation Methods*. Beverly Hills, CA: Sage.

22 Research Methods & Methodology in Education

- Phillips, D.C. (2005) 'The contested nature of empirical educational research (and why philosophy of education offers little help)', *Journal of Philosophy of Education*, 39(4): 577–97.
- Phillips, D.C. (2006) 'Exploring the Multiple Purposes of Inquiry and Key Stake Holders: Introductory Essay', in C.F. Conrad and R.C. Serlin (eds), *The SAGE Handbook for Research in Education: Engaging Ideas and Enriching Inquiry*. Thousand Oaks, CA: Sage. pp. 3–5.
- Phillips, D.C. (2011) 'Exploring the Multiple Purposes of Inquiry and Key Stakeholders', in C.F. Conrad and R.C. Serlin (eds), *The SAGE Handbook for Research in Education: Pursuing Ideas as the Keystone of Exemplary Inquiry*, 2nd edn. Thousand Oaks, CA: Sage.
- Sage, N. (1989) 'The paradigm wars and their aftermath: a "historical" sketch of research and teaching since 1989', *Educational Researcher*, 18(1): 4–10.
- Silverman, D. (2014) *Interpreting Qualitative Data*, 5th edn. London: Sage.
- Smith, J.K. (1989) *The Nature of Social and Educational Inquiry: Empiricism versus Interpretation*. Norwood, NJ: Ablex.
- Sparkes, A.C. (1987) 'The Genesis of an Innovation: A Case of Emergent Concerns and Micropolitical Solutions'. PhD, Loughborough University.
- Sparkes, A.C. (ed.) (1992) *Research in Physical Education and Sport: Exploring Alternative Visions*. London: Falmer.
- Sparkes, A.C. (2013) 'Qualitative research in sport, exercise and health in the era of neoliberalism, audit and new public management: understanding the conditions for the (im)possibilities of a new paradigm dialogue', *Qualitative Research in Sport, Exercise and Health*, 5(3): 440–59.
- Tesch, R. (1990) *Qualitative Research: Analysis Types and Software Tools*. London: Falmer.
- Thomas, G. (2013) *How to Do Your Research Project: A Guide for Students in Education and Applied Social Sciences*, 2nd edn. London: Sage.
- Weed, M. (2013) 'Research Quality Considerations for Grounded Theory Research in Sport and Exercise Psychology', in A.E. Clarke and K. Charmaz (eds), *Grounded Theory and Situational Analysis*, Volume 2. Thousand Oaks, CA: Sage.
- Whitty, G. (2016) *Educational Research and Policy in an Imperfect World*. London: UCL IOE Press.