1

What do we mean by educational research?

Marlene Morrison

Thinking about educational research

The aim of this chapter is ambitious though, on the surface, straightforward. It is to convey a sense of educational research as twin-focused — a systematic inquiry that is both a distinctive way of thinking about educational phenomena, that is, an *attitude*, and of investigating them, that is, an *action* or *activity*. Others have dubbed this as 'a mode of interrogation for education' (Brown and Dowling, 1998). To trumpet its distinctiveness is a necessary though insufficient starting point; educationists are living through times when research outputs have often received a hostile reaction, interestingly, if disturbingly, from both within the educational research community (Hargreaves, 1996; Tooley with Darby, 1998) and without (Woodhead, 1998; Barber, 1996). At first sight, such 'spats' may seem far removed from the world of the first-time or small-scale researcher in educational management. Yet they remain critical because the published outcomes of educational research form the bedrock from which postgraduate researchers start their own research journeys. As importantly, at the macro-level, they raise awareness about the extent of political manipulation in which research intentions and frameworks are bounded, and sound warnings about possible replications at the micro-level, especially the balance between what is 'researchable' and what is permitted or celebrated as research. More broadly, I want to argue that making visible the various debates that determine what constitutes educational research is complex and fruitful for *all* researchers, whether incoming or continuing.

My experience of conducting research over the past fifteen years, and of encouraging others, would suggest that for managers of educational institutions, departments, and classrooms, some but not all criticisms of educational research are well founded. Tendencies towards academic elitism, the inaccessibility of research outcomes, and the perceived irrelevance of educational research may have left some managers, and teachers, in 'a vacuum, with the so what? or what next? factors failing to be addressed' (Clipson-Boyles, 2000, 2–3). The growth of professional doctorates and research-focused

postgraduate degrees is seen as a counterpoint to such tendencies. Educational managers might now feel that they have an ownership of research knowledge and practice. Yet, becoming researchers rather than research recipients brings other challenges, described graphically by Brown and Dowling (1998) in terms of the emergence of 'all singing/all dancing practitioner researcher[s]' (1998: 165) with attendant tendencies to deny the existence of 'research as a distinctive activity' and a 'plundering' of techniques which may lead to 'a fetishizing of methods' (1998: 165).

Such tendencies may fail to distinguish 'professional educational practice' from 'educational research practice' (*ibid.*). One manifestation is training in educational research that is almost totally associated with the acquisition of research skills that enable individual small-scale researchers to collect, process, and analyse research data. Asking important 'Why?' questions may be sacrificed upon the altar of immediacy and urgency in the rush to answer 'how to' questions, as if research were 'only' a matter of skills acquisition for a technical craft. If educational research *is* both an attitude and an activity, then the task of this chapter is to invite readers to consider and re-consider educational research not just as a 'rule-driven' means of 'finding out' what educational managers did not know before (even if they suspected!), but as an approach to skilful and intellectual inquiry that is rooted in, and shaped by a number of research traditions, and, as importantly, multiple ways of viewing the educational worlds we inhabit.

Some, but not all of this discussion will focus upon the appropriateness of quantitative and qualitative approaches to educational research, and the extent to which earlier debates about usefulness have been superseded by more recent methodological debates. This will not be a focus upon 'isms' or, indeed, research jargon for its own sake. It is well understood that small-scale researchers need to balance the practicalities of doing research with the philosophies that underpin, sometimes implicitly, their engagement with it. Yet research in educational management, whatever its primary concerns, makes claims about what counts as legitimate 'knowledge' and for whom. Traditionally, educational researchers have justified those claims by pointing to the robustness of the methods that inform their research. Some educational researchers may spend months, even years, convincing themselves and others that the techniques associated with their research endeavours are necessarily 'objective' whilst failing to recognise that the term 'objectivity' — being neutral, unbiased, and making sure one's personal values do not enter the research — is *itself* a value-implicit position in which it is assumed that there is a world of educational management 'out there' to be studied that is 'independent of knowers' (see also Usher, 1997: Introduction).

So, in order to explore the meanings of educational research, we need to consider the range of intentions, claims, and purposes that underpin it, pay-

ing specific attention to educational management. Let us begin with definitions.

Exploring definitions

What do we mean by 'research'?

Bassey (1999) provides readers with a useful starting point:

> Research is systematic, critical and self-critical enquiry which aims to contribute towards the advancement of knowledge and wisdom. (1999: 38)

Some key terms are used here. 'Systematic' implies a sense of order and structure: whilst some research relies more on innovative design than others, the implication is that there is a connectedness about research which involves the planning and integration of design, process, and outcomes. The terms 'critical' and 'self-critical' are clearly important: the assumption is that the research design, and in particular, its methodological integrity, should be open to the scrutiny and judgement of others, and that all aspects of research are subject to reflection and re-assessment by the researcher.

In her text on research methods in educational management, Johnson (1994: 3) substitutes the adjective 'focused' for 'critical' as part of her definition, considering that research needs always to concern itself with a specific issue/topic/question. In these terms, 'educational management' is an insufficiently specific topic for enquiry although 'structures for the introduction and development of a staff appraisal system in a college of further education', for example, might well be. Furthermore, for Johnson, the processes and outcomes of such an enquiry will be that the researcher obtains data that moves 'beyond generally available knowledge to acquire specialised and detailed information, providing a basis for analysis and elucidatory comment on the topic of enquiry' (1994: 3). What does this mean? For Johnson, research conclusions 'should not' derive from 'received wisdom about a subject' but rather from what the researcher discovers during the course of the study; this will 'help other interested parties think freshly about the subject' (1994: 4). One discerns hesitancy, even reluctance, on Johnson's part to consider the values implicit in the choice of research subject, design, process, or data analysis. There is little such hesitancy in Bassey's definition. The terms 'critical', 'self-critical', and 'advancement of knowledge and wisdom' are each value-laden. Research will bring 'more' knowledge and 'more' wisdom, though at this point of definition we might be less sure about who benefits.

So far, our definitions seem to imply that research will make known, or at least make known in terms of a new or different situation, location, or context, that which was not known before; for small-scale researchers, this

might be to themselves *or* those colleagues with whom they work *or* to a much wider audience if the successful thesis is published. To explore this further, researchers need to look at the empirical and theoretical fields in which they operate. For Brown and Dowling (1998), research should always justify the claims it makes to knowledge 'in terms of reference to experience of the field to which these knowledge claims relate' (1998: 7). Specifically, 'it must justify those claims further in relation to the empirical settings, which is the local space in which the researcher is operating' (1998: 9). What is meant by the word 'justify'?

Let us consider the role of 'manager'. Readers will not embark upon research that has a management focus without having some idea about what management means to them, or indeed what they think it means to and for others. For example, we all carry preconceptions about what we think 'effective' management is or ought to be. Though researchers may not always be fully conscious of the preconceptions they bring to their research, they need to make as overt as possible the conceptual structures that they bring to their projects. This is what Brown and Dowling (1998) have called 'the theoretical problem' and this is, in turn, embedded in a range of published literature that the researcher will unpack as part of 'the theoretical field' (1998: 10). But researchers do not, and probably could not, study all there is to know in their area of interest; theoretical development occurs as researchers progressively focus their areas of research; at different stages in the research process more attention is given to theoretical than to empirical development, and to the theoretical and empirical fields or sites for investigation, and vice versa. Focused upon our understanding of the subject of research and the fitness for purpose of the research design, the movement between theoretical and empirical development is ongoing. Depending upon the research questions asked, some aspects of the theoretical field will become more relevant than others.

As an example, readers might wish to consider differences in the theoretical fields that writers like education management consultant Daphne Johnson and academic Professor Stephen Ball might bring to their investigation of management principles and practices, and of the relationship between those fields and the research questions addressed. For Johnson (1994):

> The ethos of research into educational management is to assist the development of effective school and college management. Your [she refers to researchers in educational management] research-based enquiry is meant to lead to professional reflection and, where appropriate, a commitment to change. The hope is that all concerned with your enquiry will be helped by it (1994: Preface)

Links between effective management and professional reflection are assumed,

and these are, in turn, linked to different aspects of management such as:

- the principles of educational management and their translation into practice;
- leadership and strategic management;
- curriculum management;
- the management of staff; and
- managing finance and external relations. (1994: 93–4)

For Ball (1999) a core educational 'myth' is the assumption that 'good management makes good schools'. He paints a 'grim picture' (1999: 88) that questions 'the social and moral costs' of an increasingly pervasive managerialism in which, the head teacher, for example:

> is the main carrier and embodiment of managerialism and is crucial to the transformation of the organisational regimes of schools. That is, the dismantling of professional organizational regimes and their replacement with market-entrepreneurial regimes .... Some heads have been aggrandized and others damaged by the requirements of managerial leadership and its attendant responsibilities. (Ball,1999: 89)

Furthermore:

> one aspect of the effectivity of managerialism is its 'dislocation', that is, management is no longer identified simply with the activities of one group, or role or office. . . . We need to evaluate the desirability of these changes carefully. We need to ask the question — what are we doing to ourselves? (1999: 90–11)

Even if agreement can be reached about the overall purposes and intentions of research enquiry, the preceding extracts would suggest that as an attitude and an activity, research in educational management does not exist in an objective or neutral vacuum in which understandings about the term 'management', for example, remain uniform or uncontested.

What do we mean by 'education'?

The concerns of this book are to do with empirical research in the field of educational management. All researchers, including first time researchers, need to revisit the term 'education' because, as Bassey (1999) has pointed out, 'every researcher needs to be clear what he or she means by [the term]' (p.37). For Bassey, education is:

> First, the experience and nurture of personal and social developments towards worthwhile living.

> Second, the acquisition, development, transmission, conservation, discovery, and renewal of worthwhile culture. (1999: 37)

A noteworthy feature of this definition is its open-endedness; 'worthwhile' and 'culture' are or might be what others recommend or prescribe or denounce. Meanings that underpin research frameworks are therefore always imbued with values. The term 'lifelong education' provides another example; it is a slippery concept which seems attractive to a wide variety of distinctive and differing 'totalitarian' and 'liberal' interests (Tight, 1996: 36). As Bagnall (1990) points out:

> The term 'lifelong education' has been used in recent educational literature to advocate or denote the function of education as being: the preparation of individuals *for* the management of their adult lives, the distribution of education *throughout* individual lifespans, the educative function *of* the whole of one's life experience, and the identification of education *with* the whole of life. (Bagnall, 1990: 1, original emphasis)

Lacking a standard model of what lifelong education might look like, researchers need to makes their meaning frameworks explicit and comprehensible if research problems linked to lifelong education are to be addressed coherently.

So, what is 'educational research'?

The study of education is both multi-disciplinary and inter-disciplinary. In part this is what makes educational studies exhilarating as well as challenging! A range of aims and purposes guides all educational research; decisions to 'settle upon' one research project rather than another are guided implicitly and explicitly by researchers' practical, personal, professional and/or disciplinary interests, even if, at the start of the research journey, such interests may lack the coherence of later stages. Bassey (1999) is in no doubt about what constitutes educational research, and expresses this as:

> Critical enquiry aimed at informing educational judgements and decisions in order to improve educational action. This is the kind of value-laden research that should have immediate relevance to teachers and policy makers, and is itself educational because of its stated intention to 'inform'. It is the kind of research in education that is carried out by educationists. (1999: 39)

For others, research may be about *using* research for 'working towards justice, fairness, and openness in education' (Griffiths, 1998: 1). Although, for Griffiths, 'research into organizations — or into educational management —

is not, routinely, described as "for social justice"' (1998: 19), educational management, she argues, does not need to be excluded:

> On the face of it, research related to organizational theory (and educational management) could be thought of as one of the less promising areas, since it has a history of being theorized to reflect the interests and needs of educational managers (Ball,1987: 5). . . A closer look [at some examples of educational research output in the area] reveals the underlying concern with social justice. (1998: 19)

Stances advocated by Michael Bassey and Morwenna Griffiths show some similarity. Here are views that educational research 'can lay no claim to abstract neutrality or being a curiosity-driven quest for knowledge . . . rather, in the short run and in the long run, it is action-orientated' (Griffiths,1998: 67). Whilst such an orientation implies no one particular methodological approach, educational action is foregrounded, and the making of knowledge claims, for the claim's sake, is relegated. Bassey (1999) distinguishes between action-oriented research, with its intentions to effect action, and what is described as 'discipline research' which is primarily concerned with *understanding* the phenomena of educational activities and actions. Thus:

> Discipline research in education aims critically to inform understandings of phenomena pertinent to the discipline in educational settings. (1999: 39)

Such perspectives on educational research do not go uncontested. Writers like Burgess (in Bryman and Burgess, 1994), Bryman (1988), Jonathon (1995) and Hammersley (1995) in varying degrees come closest to a view of educational research as 'disinterested inquiry' which follows the methods and methodologies of sociology, psychology, anthropology and so on. Other researchers deploy a *hybrid* approach in which problems may be conceived primarily as 'sociological' or 'psychological'; the whole panoply of theoretical discourse derived from specific disciplines is then applied to the research problem.

With regard to policy-orientated research, for example, Ozga (2000) draws upon a social scientific framework in order to explore the ways in which theoretical positions inform all aspects of research design including the selection and analysis of evidence. She refers to Cox (1980) in order to elaborate the difference between problem-solving and critical theory as they are applied respectively to policy research in education:

> Theory can serve two distinct purposes. One is a simple, direct response, to be a guide to help solve the problems posed within a particular perspective which was the point of departure. The other is more reflective upon the processes of theorising itself, to become clearly

> aware of the perspective which gives rise to theorising, and its relation to other perspectives (to achieve a perspective on perspectives), and to open up the possibility of choosing a different valid perspective from which the problematic becomes one of creating an alternative world. Each of these purposes gives rise to a different kind of theory. . . .
>
> The first purpose gives rise to *problem-solving theory*. It takes the world as it finds it, with the prevailing social and power relationships and the institutions into which they are organised, as the given framework for action. The general aim of problem-solving is to make these relationships and institutions work smoothly by dealing effectively with particular sources of trouble [such troubles may constitute the research problem]. . . .
>
> The second purpose leads to *critical theory*. It is critical in the sense that it stands apart from the prevailing order of the world and asks how that order came about. Critical theory, unlike problem-solving, does not take institutions and social and power relations for granted but calls them into question by concerning itself with their origins and how and whether they might be in the process of changing. . . .
>
> As a matter of practice, critical theory, like problem-solving theory, takes as its starting point some aspect of a particular sphere of human activity [for our purposes, the management of education at whatever level]. But whereas the problem-solving approach leads to further analytical sub-divisions and limitation of the issues to be dealt with, the critical approach leads towards the construction of a larger picture of the whole . . . and seeks to understand the processes of change in which both the parts and the whole are involved. (Cox, 1980: 128–30, quoted in Ozga, 1999: 45–6)

Whilst readers of this chapter are likely to be researchers who will conduct research single-handedly and on a small scale, they will be joining an educational research community in which there is 'a lively and sometimes agitated debate within the traditions of educational studies about its status and forms of inquiry' (Ranson, 1996: 528). In trying to make sense of the world in which educational research operates, researchers work within a range of beliefs about the ways in which education and research are/can be understood as practice. Sometimes disputes about forms of enquiry appear to be conducted at the level of method or technique, with relatively little attention paid to issues of epistemology, ontology, or methodology. Yet, researchers need to consider how and why such issues matter, and to whom, and it is to those issues that the chapter now turns.

Epistemology, ontology and methodology

Why do we need to make connections?

Research enquiry is full of challenges and uncertainties. As researchers we want to know if the conclusions we reach are the 'right' ones; at the same time, our literature searches and reviews tell us that the history of published research into educational management, as for other educational areas, is one in which a range of published authors appear to reach different as well as similar conclusions about the same or very similar phenomena. As McKenzie (1997) points out, 'research is embedded in a churning vortex of constructive and destructive tensions in which old educational 'certainties' are replaced by new 'certainties' (1997: 9). That tension is historical. For researchers, two questions are key:

> What is the relation between what we see and understand [our claims to 'know' and our theories of knowledge or *epistemology*] and that which is reality [our sense of being or *ontology*]?
>
> In other words, how do we go about creating knowledge about the world in which we live? (McKenzie, 1997: 9)

Epistemology, then, is central to research endeavour. All researchers ask questions about knowledge — how we find it, how we recognise it when we find it, how we use it, and how it distinguishes truth from falsehood. Educational researchers bring a wide range of theoretical perspectives to their work. Perhaps the widest of these is an *ontology*. This consists of a range of perceptions about the nature of reality. *Methodology* is also critical in this regard since ontology and epistemology affects the methodology that underpins researchers' work; crucially, methodology provides a rationale for the ways in which researchers conduct research activities.

From this perspective, methodology is much more than *methods* or *techniques* or *tools* for research like 'conducting an interview' or 'keeping a research diary'. The methodological rationale provides researchers with underlying reasons for 'conducting an interview'; as importantly, in choosing to conduct serial life history interviews with a secondary school head of science, for example, rather than a questionnaire survey with a number of heads of science, the researcher is arguing that interviews provide a 'more informed' way of claiming knowledge than a questionnaire could provide in order to address one or more of his/her specific research questions. (This is not to argue that a questionnaire might not be appropriate to address *another* research question.)

Epistemological and methodological concerns are implicated at every stage of the research process. There might be a tendency to think that the infor-

mation collected by researchers is transformed into 'data' and then into 'knowledge' as if this were both automatic and linear. Not so. Information is transformed into data by the process of analysis; information is collected in a range of forms, as qualitative or quantitative information, or as combinations of both.

Paradigms

In making sense of research information and transforming it into data, researchers draw implicitly or explicitly upon a set of beliefs or a *paradigm* about how that analysis might be patterned, reasoned, and compiled. Researchers who adhere to a specific paradigm will hold a kind of consensus about what does or should count as 'normal' research. (The term 'normal' is set in inverted commas deliberately; a range of practitioners, researchers, and policy makers may hold rather different perceptions about what constitutes 'normal' research. This may leave some readers feeling rather uncomfortable, especially those who seek assurance that all research proceeds according to rules 'set in stone'; it is to be hoped that such discomfort will reduce as readers progress.)

Bassey (1999) describes a paradigm as:

> a network of coherent ideas about the nature of the world and the function of researchers which, adhered to by a group of researchers, conditions the patterns of their thinking and underpins their research actions. (1999: 42)

One way of illustrating the important connections between *epistemology, ontology, methodology* and *paradigm* is to recognise that a range of 'isms' (Silverman, 2001: 38) and/or 'idioms' (Gubrium and Holstein, 1997) implicitly or explicitly underpin the activities and language of educational research. *Feminism* and *post-modernism* are examples of two such 'isms' and readers are warmly encouraged to engage with the literature on either or both. The brief excursion into feminist research that follows should at least alert readers to the potential and actual influence of 'isms' upon the subject, design, processes, and outcomes of educational research. An exploration of the terms *positivism* and *interpretivism* — also introduced in the next section — will be expanded in the second half of the chapter.

Feminist research

All discussions about the methodology of educational research require researchers to familiarise themselves with philosophical debates about the meaning of education, the nature of educational enquiry, and whether that enquiry will be influenced by individual ontologies. From a feminist ontology, the focus will be specifically and primarily upon gender inequalities in

education, and upon epistemologies that provide greater understanding of such inequalities. Crucially, feminists will be drawn towards a set of ideas which provides an explanatory framework for the existence and persistence of male domination in all aspects of society, including education. The critical framework is extended to the educational research community which, it is argued, has provided and continues to provide knowledge that supports the continuation of male domination. Such criticism extends to the selection of research problems and topics for enquiry.

For example, the recent and persistent outcry about the under-achievement of predominantly white, male, and working-class boys, has been seen by some feminists as a 'moral panic' in which policy makers attempt to regain or reinforce patriarchal forms of education and power that have been central to education (Weiner *et al.*, 1997). As more research funding is given to the 'problem' of male under-achievement, these writers question why and how female success is being viewed 'as a corollary to male failure' (1997: 620). Instead, they call for research that first, pays particular attention to the way in which the curriculum continues 'to implicitly produce the gender differences it seeks to eradicate' (1997: 629); second, focuses upon *all* 'low-fliers', whether male or female; and third, mounts a strong challenge to 'new, hegemonic educational orthodoxies such as those of so-called male under-achievement. . . . What we are seeing may be, in fact, merely a new rendition of the old patriarchal refrain'(1997: 629).

Feminists are especially critical of research that treats people studied as objects rather than subjects, and they challenge and reject claims to value-neutrality and objectivity in educational research. Instead, research is seen as an inter-subjective experience which should empower rather than exploit. Not surprisingly, the methodology that has underpinned feminist approaches has tended to be interpretive, and often (but not always) micro in nature. Thus the micro-details of gender-as-lived and gender-as-experienced by girls and women, who constitute the subjects of research *and* the researchers, have been central concerns. Research provides not only a source of politicisation and consciousness raising, but also raise questions about the wider functioning of society.

It has also been argued that there is an interpretive and constructivist methodology that is distinctively feminist. This is mainly conducted *by* women *for* and *with* women rather than *upon* women as objects. Feminist criticisms of educational research extend beyond positivist approaches to conventional ethnography where, they would argue, the emphasis has been upon 'mere' description rather than a focus upon emancipation and positive change for women. The extent to which feminist methodology *is* distinctive from other methodologies has been the focus for vigorous debate (Hammersley, 1992a; Ramazanoglu,1992). Currently, feminists are turning their attention

to the epistemological and methodological relationships between feminist research and recent strands of post-modernism, some readings of which might be variously described as supportive or anathema to feminist goals.

So far, we have briefly considered the effect on research of one 'ism'. Feminism makes reference to the over-arching and distinctive contributions of positivism and interpretivism (if only to reject or amend aspects of them). In the following sections, discussion turns to the respective influences of positivism and interpretivism upon a range of educational research activities and environments. Whilst academic debates between these traditions have often been heated, the core aim here is to introduce readers to epistemological and methodological issues that are frequently reduced to matters of 'quantity' and 'quality'. Finally, arguing against a 'naïve' use of any one paradigm, prospects for combination will be considered and implications for research practice summarised.

Readers should again be alert to over-simplifications that an introductory chapter may engender. Alan Bryman's text on *Quantity and Quality in Social Research* (1988) still provides one of the most cogent accounts of the debate about the nature and values of quantitative and qualitative approaches to research.

Introducing positivism

Four issues confront readers who wish to explore the term *positivism* for the first time.

1. As Bryman (1998) articulates, there is a range of definitions attributed to positivism.
2. The term is not always recognised by educational researchers who may work implicitly within the paradigm. Especially with regard to first-time researchers, it is not always easy to discern whether the approach being used is seen 'simply' as the most appropriate or 'scientific' way of conducting research, and/or whether this reflects a cultural preference for one paradigm or methodology over another (see also Dimmock, Chapter 2 of this volume).
3. The term is sometimes used pejoratively, particularly by those who would reject this paradigm in favour of (an) alternative(s).
4. The educational community includes researchers who, for reasons that might be ideological, technical, or pragmatic, engage in 'mix-and-match' approaches to research methodology and method. They may not perceive, or indeed value, the need for a specific distinctiveness in paradigmatic approaches to research activities. Readers will be invited to consider 'combination' frameworks in the final section of this chapter. (Meanwhile, 'mix-and-match' approaches may also be viewed as a research response to criticisms from research sponsors who berate the boldness or 'exaggera-

tion' of research claims emanating from one paradigm, frequently interpretive.)

The key point about positivist approaches to educational research is its adherence to the scientific method. The positivist tradition has a number of key features:

- People — pupils, students, heads of departments, principals, and parents — are the *objects* of educational research, notwithstanding their uniqueness as one from another and from the other objects of the natural world.
- Only educational phenomena that are amenable to the researcher's senses, in other words, are *observable* through experience, can validly be considered as knowledge. 'Feelings' as the objects of educational research activity, therefore, need to be ruled out, unless they can be rendered observable and measurable.
- Scientific knowledge is obtained through the collection of verified 'facts'. Such facts can be observed 'out there' in an educational world that is distinct from the observer. These facts feed into theories about educational management, for example; theories, in turn, represent the accumulated findings of educational research. Theories are likely to have law-like characteristics because they are based upon empirically established *regularities*. The notion that a theory of educational management . . . or learning . . . or leadership can be built upon an edifice of empirically established facts is called *inductivism*.
- Theories also provide a backdrop to empirical research because *hypotheses* can be generated from them, usually in the form of postulated *causal connections*. This implies that educational research is also *deductive*.
- Positivists take a particular stance with regard to values. As Bryman (1988: 15) articulates, they do so in two senses. The first involves the need for educational researchers to 'purge' themselves of values which may impair their objectivity and undermine the validity of the research. The second is to draw a distinction between scientific statements and normative ones. Thus 'whilst positivists recognise that they can investigate the implications of a particular normative position, they cannot verify or falsify the position itself' (1988: 15).
- Human characteristics and attributes can be considered as *variables*. When combined, they can capture the essence of either human beings or the educational activities in which they are engaged. Discoveries about the relationship between variables should enable positivists to explain the world they have uncovered. Because positivists do not consider themselves as 'inside' the research milieux they investigate, then it should not matter who does the research, provided that others are as 'expert' as they are in applying the scientific method. One would expect that other researchers handling similar data would come to similar conclusions.

- Positivists may predict, in the sense that observations in the past may enable them to predict what will happen in the future, given similar circumstances and significant associations between variables.

What is the relation between positivism and quantitative research?

Quantitative research as a rational, linear process has been heavily influenced by the application of the scientific method which has, in turn, been seen mainly in positivist terms. Bryman (1998) provides an 'idealised' model in which he reminds us that 'the truth' is often messier than the ideal, with theory playing a smaller role in quantitative research than is frequently assumed:

> Quantitative research is often conceptualised by its practitioners as having a structure in which theories determine the problems to which researchers address themselves in the form of hypotheses derived from general theories. These hypotheses are invariably assumed to take the form of expectations about likely causal connections between the concepts which are the constituent elements of the hypotheses. Because concepts in the social sciences are frequently believed to be abstract, there is seen a need to provide operational definitions whereby their degrees of variation and co-variation can be measured. Data are collected by social survey, experiment … Once the survey or experimental data have been collected, they are then analysed so that the causal connection specified by the hypothesis can be verified or rejected. The resultant findings then feed back into, and are absorbed by, the theory that set the whole process going in the first place. (1998: 18)

Quantitative research has a number of core features:

1. The relation between *concept formation*, observation and *measurement* is central. How we objectify, observe and measure 'leadership styles', 'intelligence', 'educational attainment', 'reading ages', and 'home-school partnerships', for example, are key concerns; with this comes the important notion of 'breaking down' the research problem into manageable 'bits' that can be observed and measured. The use of structured observation and questionnaires are common in educational research for measurement purposes.
2. Quantitative research is also interested in *causality*, or what Babbie (1979: 423) described as 'some things are caused by other things'. So, quantitative researchers will make frequent use of independent and dependent variables, frequently associated with experimental and cross-sectional survey design, and more recently, mathematical modelling. What makes a school 'effective'? How can we tell a 'good school' from a 'bad school'? How do we know that a school has 'improved'? By 'how much' and 'why'?

3. In cross-sectional studies, three conditions have to be met in order to establish causal relations (Bryman, 1988: 30-34). First, researchers need statistical techniques to show that there is a relationship between variables; second, they need to show that the relationship is non-spurious; third, the analyst needs to show that there is a temporal order to the data being studied.
4. Following the model of the natural sciences, quantitative researchers have a central interest in showing that their findings can be *generalised* beyond the location of their project. Hence the concern among such researchers about the representativeness of survey samples, or the extent to which the results of experiments can be generalised beyond the circumstances of the original experiment.
5. As suggested in the introduction, few educational researchers, whether disposed towards qualitative or quantitative research, subscribe to the view that research can be *entirely* value-free. Therefore, the interest of the quantitative researcher turns more generally on whether the research can be (rather than is) replicated.
6. In quantitative research, the emphasis is very much upon the individual as the object of research; the aggregation of individualised data provides overall measures. Thus in a survey sample of 300 women managers and 300 male managers designed to ascertain a 'measure' of gendered leadership styles, individual responses may be aggregated in order to give a summative measurement. Following Bryman (1988), there may be a kind of perversity in reifying aggregated data on 'gendered management styles' on the one hand, and placing an emphasis upon individual, unconnected, and discrete responses on the other.

Introducing interpretivism

As with positivism, a range of issues confronts readers who may be exploring the term 'interpretivism' for the first time:

1. The term 'interpretivism' encompasses a number of philosophical traditions. The substitute term *anti-positivism* sets the paradigm in binary opposition to positivism. In the following section, the terms 'phenomenology', 'ethnomethodology', 'symbolic interactionism', 'naturalism', and 'ethogenics' are introduced; boundaries overlap and some traditions are excluded (see Silverman, 2001: 38–40 for additional terms and approaches, for example.) For some, ethnography is also a branch of this paradigm, although it is not always clear that there is agreement about whether ethnography is a philosophy or a method. (Pole and Morrison, forthcoming)
2. The term is not always recognised by educational researchers who work within the paradigm. Recognising the inter-subjectivity of educational