

Contents

<i>List of boxes</i>	<i>xiii</i>
<i>Acknowledgements</i>	<i>xvii</i>
<i>Introduction</i>	<i>1</i>

Part I **The context of educational research**

I The nature of inquiry – Setting the field

Introduction	5
The search for truth	5
Two conceptions of social reality	7
Positivism	9
The assumptions and nature of science	11
The tools of science	14
The scientific method	15
Criticisms of positivism and the scientific method	17
Alternatives to positivistic social science: naturalistic approaches	19
A question of terminology: the normative and interpretive paradigms	21
Phenomenology, ethnomethodology and symbolic interactionism	22
Criticisms of the naturalistic and interpretive approaches	25
Critical theory and critical educational research	26
Criticisms of approaches from critical theory	29
Critical theory and curriculum research	30
A summary of the three paradigms	32
The emerging paradigm of complexity theory	33
Feminist research	34

Research and evaluation	41
Research, politics and policy-making	46
Methods and methodology	47

Part 2 **Planning educational research**

2 The ethics of educational and social research

Introduction	51
Informed consent	52
Access and acceptance	55
The field of ethics	58
Sources of tension	58
Voices of experience	61
Ethical dilemmas	62
Ethics and research methods in education	69
Ethics and evaluative research	70
Research and regulation: ethical codes and review	71
Sponsored research	74
Responsibilities to the research community	75
Conclusion	75

3 Planning educational research

Introduction	78
A framework for planning research	78
A planning matrix for research	87

Managing the planning of research	93
A worked example	95
Conclusion	98

4 Sampling

Introduction	100
The sample size	101
Sampling error	106
The representativeness of the sample	108
The access to the sample	109
The sampling strategy to be used	110
Probability samples	110
Non-probability samples	113
Planning a sampling strategy	117
Conclusion	117

5 Sensitive educational research

What is sensitive research?	119
Sampling and access	121
Ethical issues in sensitive research	124
Researching powerful people	127
Asking questions	130
Conclusion	131

6 Validity and reliability

Defining validity	133
Triangulation	141
Ensuring validity	144
Reliability in quantitative research	146
Reliability in qualitative research	148
Validity and reliability in interviews	150
Validity and reliability in experiments	155
Validity and reliability in questionnaires	157
Validity and reliability in observations	158
Validity and reliability in tests	159
Validity and reliability in life histories	164

Part 3

Styles of educational research

7 Naturalistic and ethnographic research

Elements of naturalistic inquiry	167
Planning naturalistic research	171
Critical ethnography	186
Some problems with ethnographic and naturalistic approaches	188

8 Historical and documentary research

Introduction	191
Choice of subject	192
Data collection	193
Evaluation	194
Writing the research report	195
The use of quantitative methods	197
Life histories	198
Documentary research	201

9 Surveys, longitudinal, cross-sectional and trend studies

Introduction	205
Some preliminary considerations	207
Planning a survey	208
Survey sampling	211
Longitudinal, cross-sectional and trend studies	211
Strengths and weaknesses of longitudinal, cohort and cross-sectional studies	214
Postal, interview and telephone surveys	218
Event history analysis	224

10 Internet-based research and computer usage

Introduction	226
Internet-based surveys	226
Internet-based experiments	239
Internet-based interviews	241

Searching for research materials on the Internet	242		
Evaluating web sites	244		
Computer simulations	245		
Geographical Information Systems	251		
11 Case studies			
What is a case study?	253		
Examples of kinds of case study	258		
Why participant observation?	260		
Recording observations	260		
Planning a case study	261		
Writing up a case study	262		
Conclusion	263		
12 Ex post facto research			
Introduction	264		
Co-relational and criterion groups designs	265		
Characteristics of <i>ex post facto</i> research	266		
Occasions when appropriate	268		
Advantages and disadvantages of <i>ex post facto</i> research	268		
Designing an <i>ex post facto</i> investigation	269		
Procedures in <i>ex post facto</i> research	270		
13 Experiments, quasi-experiments, single-case research and meta-analysis			
Introduction	272		
Designs in educational experimentation	274		
True experimental designs	275		
A quasi-experimental design: the non-equivalent control group design	282		
Single-case research: ABAB design	284		
Procedures in conducting experimental research	285		
Examples from educational research	287		
Evidence-based educational research and meta-analysis	289		
14 Action research			
Introduction	297		
Defining action research	297		
Principles and characteristics of action research	299		
Action research as critical praxis	302		
Procedures for action research	304		
Reflexivity in action research	310		
Some practical and theoretical matters	311		
Conclusion	312		
Part 4			
Strategies for data collection and researching			
15 Questionnaires			
Introduction	317		
Ethical issues	317		
Approaching the planning of a questionnaire	318		
Types of questionnaire items	321		
Asking sensitive questions	333		
Avoiding pitfalls in question writing	334		
Sequencing the questions	336		
Questionnaires containing few verbal items	337		
The layout of the questionnaire	338		
Covering letters or sheets and follow-up letters	339		
Piloting the questionnaire	341		
Practical considerations in questionnaire design	342		
Administering questionnaires	344		
Processing questionnaire data	346		
16 Interviews			
Introduction	349		
Conceptions of the interview	349		
Purposes of the interview	351		
Types of interview	352		

Planning interview-based research procedures	356	Parametric and non-parametric tests	414
Group interviewing	373	Norm-referenced, criterion-referenced and domain-referenced tests	415
Interviewing children	374	Commercially produced tests and researcher-produced tests	416
Focus groups	376	Constructing a test	418
The non-directive interview and the focused interview	377	Devising a pretest and post-test	432
Telephone interviewing	379	Reliability and validity of tests	432
Ethical issues in interviewing	382	Ethical issues in preparing for tests	432
		Computerized adaptive testing	433
17 Accounts		20 Personal constructs	
Introduction	384	Introduction	435
The ethogenic approach	384	Characteristics of the method	435
Characteristics of accounts and episodes	384	'Elicited' versus 'provided' constructs	436
Procedures in eliciting, analysing and authenticating accounts: an example	385	Allotting elements to constructs	437
Network analyses of qualitative data	388	Laddering and pyramid constructions	439
What makes a good network?	388	Grid administration and analysis	439
Discourse analysis	389	Procedures in grid administration	439
Analysing social episodes	391	Procedures in grid analysis	439
Account gathering in educational research: an example	391	Strengths of repertory grid technique	442
Problems in gathering and analysing accounts	392	Difficulties in the use of repertory grid technique	442
Strengths of the ethogenic approach	393	Some examples of the use of repertory grid in educational research	443
A note on stories	394	Grid technique and audio/video lesson recording	445
		Focused grids, non-verbal grids, exchange grids and sociogrids	446
18 Observation		21 Role-playing	
Introduction	396	Introduction	448
Structured observation	398	Role-playing versus deception: the argument	450
Critical incidents	404	Role-playing versus deception: the evidence	451
Naturalistic and participant observation	404	Role-playing in educational settings	452
Natural and artificial settings for observation	408	The uses of role-playing	452
Ethical considerations	408	Strengths and weaknesses of role-playing and other simulation exercises	455
Some cautionary comments	410	Role-playing in an educational setting: an example	455
Conclusion	412	Evaluating role-playing and other simulation exercises	456
19 Tests			
Introduction	414		
What are we testing?	414		

Part 5
Data analysis

22 Approaches to qualitative data analysis

Introduction	461
Tabulating data	463
Five ways of organizing and presenting data analysis	467
Systematic approaches to data analysis	469
Methodological tools for analysing qualitative data	473

23 Content analysis and grounded theory

Introduction	475
What is content analysis?	475
How does content analysis work?	476
A worked example of content analysis	483
Computer usage in content analysis	487
Reliability in content analysis	490
Grounded theory	491
Interpretation in qualitative data analysis: multilayered texts	495

24 Quantitative data analysis

Introduction	501
Scales of data	502
Parametric and non-parametric data	503
Descriptive and inferential statistics	503
One-tailed and two-tailed tests	504
Dependent and independent variables	504

Reliability	506
Exploratory data analysis: frequencies, percentages and cross-tabulations	506
Statistical significance	515
Hypothesis testing	519
Effect size	520
The chi-square test	525
Degrees of freedom	527
Measuring association	528
Regression analysis	536
Measures of difference between groups and means	542

25 Multidimensional measurement and factor analysis

Introduction	559
Elementary linkage analysis: an example	559
Factor analysis	560
Factor analysis: an example	570
Examples of studies using multidimensional scaling and cluster analysis	576
Multidimensional data: some words on notation	579
Multilevel modelling	583
Cluster analysis	584

26 Choosing a statistical test

How many samples?	586
Assumptions of tests	591
<i>Notes</i>	593
<i>Bibliography</i>	599
<i>Index</i>	633

Boxes

1.1	The subjective–objective dimension	9	4.2	Distribution of sample means showing the spread of a selection of sample means around the population mean	107
1.2	Alternative bases for interpreting social reality	10	5.1	Issues of sampling and access in sensitive research	124
1.3	The functions of science	12	5.2	Ethical issues in sensitive research	127
1.4	The hypothesis	15	5.3	Researching powerful people	130
1.5	Stages in the development of science	16	5.4	Key questions in considering sensitive educational research	132
1.6	An eight-stage model of the scientific method	16	6.1	Principal sources of bias in life history research	164
1.7	A classroom episode	20	8.1	Some historical interrelations between men, movements and institutions	192
1.8	Differing approaches to the study of behaviour	33	8.2	A typology of life histories and their modes of presentation	199
2.1	The costs/benefits ratio	52	9.1	Stages in the planning of a survey	210
2.2	Guidelines for reasonably informed consent	53	9.2	Types of developmental research	214
2.3	Close encounters of a researcher kind	56	9.3	Advantages of cohort over cross-sectional designs	217
2.4	Conditions and guarantees proffered for a school-based research project	57	9.4	The characteristics, strengths and weaknesses of longitudinal, cross-sectional, trend analysis, and retrospective longitudinal studies	219
2.5	Negotiating access checklist	59	10.1	Problems and solutions in Internet-based surveys	231
2.6	Absolute ethical principles in social research	61	10.2	Geographical Information Systems in secondary schools	251
2.7	An extreme case of deception	67	10.3	Location of home postcodes using Geographical Information Systems	252
2.8	Ethical principles for the guidance of action researchers	70	11.1	Possible advantages of case study	256
2.9	An ethical code: an illustration	76	11.2	Strengths and weaknesses of case study	256
2.10	Ethical principles for educational research (to be agreed <i>before</i> the research commences)	77	11.3	A typology of observation studies	259
3.1	The elements of research design	79	11.4	The case study and problems of selection	261
3.2	Elements of research styles	84	11.5	Continua of data collection, types and analysis in case study research	262
3.3	A matrix for planning research	88			
3.4	A planning sequence for research	94			
3.5	A planning matrix for research	95			
3.6	Understanding the levels of organizational culture	96			
4.1	Sample size, confidence levels and confidence intervals for random samples	104			

13.1	Independent and dependent variables	273	17.6	Parents and teachers: divergent viewpoints on children's communicative competence	393
13.2	The effects of randomization	276	17.7	Justification of objective systematic observation in classroom settings	394
13.3	Interaction effects in an experiment	281	18.1	A structured observation schedule	399
13.4	The ABAB design	285	18.2	Non-participant observation: a checklist of design tasks	401
13.5	An ABAB design in an educational setting	286	18.3	Structured, unstructured, natural and artificial settings for observation	409
13.6	Class size and learning in well-controlled and poorly controlled studies	296	19.1	A matrix of test items	419
14.1	A model of emancipatory action research for organizational change	306	19.2	Compiling elements of test items	420
15.1	A flow chart technique for question planning	319	20.1	Eliciting constructs and constructing a repertory grid	436
15.2	A guide for questionnaire construction	320	20.2	Allotting elements to constructs: three methods	438
15.3	A 10-point marking scale in a questionnaire	330	20.3	Laddering	440
15.4	Potential problems in conducting research	332	20.4	Elements	440
15.5	A flow chart for the planning of a postal survey	347	20.5	Difference score for constructs	441
16.1	Attributes of ethnographers as interviewers	350	20.6	Grid matrix	441
16.2	Summary of relative merits of interview versus questionnaire	352	21.1	Dimensions of role-play methods	449
16.3	Strengths and weaknesses of different types of interview	353	21.2	The Stanford Prison experiment	450
16.4	The selection of response mode	360	21.3	Critical factors in a role-play: smoking and young people	454
16.5	Guidelines for the conduct of interviews	366	21.4	Categorization of responses to four video extracts	456
16.6	Delineating units of general meaning	371	22.1	The effectiveness of English teaching	464
16.7	Units of relevant meaning	371	22.2	The strengths and weaknesses of English language teaching	464
16.8	Clusters of relevant meaning	372	22.3	Teaching methods	465
17.1	Principles in the ethogenic approach	385	22.4	Student-related factors	466
17.2	Account gathering	386	24.1	Frequencies and percentages for a course evaluation	507
17.3	Experience sampling method	387	24.2	Cross-tabulation by totals	508
17.4	Concepts in children's talk	390	24.3	Cross-tabulation by row totals	509
17.5	'Ain't nobody can talk about things being about themselves'	392	24.4	Rating scale of agreement and disagreement	510
			24.5	Satisfaction with a course	510
			24.6	Combined categories of rating scales	510
			24.7	Representing combined categories of rating scales	511

24.8	How well learners are cared for, guided and supported	511	24.32	Significance level in regression analysis	539
24.9	Staff voluntarily taking on coordination roles	511	24.33	The beta coefficient in a regression analysis	539
24.10	Distribution of test scores	512	24.34	A summary of the R, R square and adjusted R square in multiple regression analysis	540
24.11	A line graph of test scores	512	24.35	Significance level in multiple regression analysis	541
24.12	Distribution around a mean with an outlier	513	24.36	The beta coefficients in a multiple regression analysis	541
24.13	A platykurtic distribution of scores	513	24.37	Means and standard deviations for a t-test	544
24.14	A leptokurtic distribution of scores	514	24.38	The Levene test for equality of variances in a t-test	544
24.15	Type I and Type II errors	520	24.39	A t-test for leaders and teachers	545
24.16	Mean and standard deviation in an effect size	522	24.40	The Levene test for equality of variances between leaders and teachers	545
24.17	The Levene test for equality of variances	523	24.41	Means and standard deviations in a paired samples t-test	546
24.18	Mean and standard deviation in a paired sample test	523	24.42	The paired samples t-test	547
24.19	Difference test for a paired sample	524	24.43	Descriptive statistics for analysis of variance	548
24.20	Effect size in analysis of variance	524	24.44	SPSS output for one-way analysis of variance	548
24.21	A 2×3 contingency table for chi-square	526	24.45	The Tukey test	549
24.22	A 2×5 contingency table for chi-square	527	24.46	Homogeneous groupings in the Tukey test	549
24.23	Common measures of relationship	529	24.47	Means and standard deviations in a two-way analysis of variance	551
24.24	Percentage of public library members by their social class origin	529	24.48	The Levene test of equality of variances in a two-way analysis of variance	551
24.25	Correlation scatterplots	532	24.49	Between-subject effects in two-way analysis of variance	552
24.26	A Pearson product-moment correlation	533	24.50	Graphic plots of two sets of scores on a dependent variable	552
24.27	A line diagram to indicate curvilinearity	533	24.51	A cross-tabulation for a Mann-Whitney U test	553
24.28	Visualization of correlation of 0.65 between reading grade and arithmetic grade	535	24.52	SPSS output on rankings for the Mann-Whitney U test	553
24.29	A scatterplot with the regression line	537	24.53	The Mann-Whitney U value and significance level in SPSS	553
24.30	A scatterplot with grid lines and regression line	538			
24.31	A summary of the R, R square and adjusted R square in regression analysis	538			

24.54	Frequencies and percentages of variable one in a Wilcoxon test	554	25.10	Factor analysis of the occupational satisfaction items	574
24.55	Frequencies and percentages of variable two in a Wilcoxon test	554	25.11	Correlations between (dependent) stress and (independent) satisfaction factors and canonical variates	575
24.56	Ranks and sums of ranks in a Wilcoxon test	555	25.12	Biographical data and stress factors	576
24.57	Significance level in a Wilcoxon test	555	25.13	Students' perceptions of social episodes	577
24.58	Cross-tabulation for the Kruskal-Wallis test	556	25.14	Perception of social episodes	579
24.59	Rankings for the Kruskal-Wallis test	556	25.15	Person concept coding system	580
24.60	Significance levels in a Kruskal-Wallis test	556	25.16	Reliability coefficients for peer descriptions	581
24.61	Frequencies for variable one in the Friedman test	557	25.17	Sex, voting preference and social class: a three-way classification table	581
24.62	Frequencies for variable two in the Friedman test	557	25.18	Sex, voting preference and social class: a three-way notational classification	581
24.63	Frequencies for variable three in the Friedman test	558	25.19	Expected frequencies in sex, voting preference and social class	581
24.64	Rankings for the Friedman test	558	25.20	Expected frequencies assuming that sex is independent of social class and voting preference	582
24.65	Significance level in the Friedman test	558	25.21	Sex and voting preference: a two-way classification table	583
25.1	Rank ordering of ten children on seven constructs	561	25.22	Cluster analysis	585
25.2	Intercorrelations between seven personal constructs	562	26.1	Identifying statistical tests for an experiment	587
25.3	The structuring of relationships among the seven personal constructs	563	26.2	Statistical tests to be used with different numbers of groups of samples	587
25.4	Initial SPSS output for principal components analysis	564	26.3	Types of statistical tests for four scales of data	588
25.5	A scree plot	565	26.4	Choosing statistical tests for parametric and non-parametric data	589
25.6	Three-dimensional rotation	566	26.5	Statistics available for different types of data	590
25.7	The rotated components matrix in principal components analysis	567	26.6	Assumptions of statistical tests	592
25.8	Factor analysis of responsibility for stress items	571			
25.9	Factor analysis of the occupational stress items	573			

Part One

The context of educational research

This part locates the research enterprise in several contexts. It commences with positivist and scientific contexts of research and then proceeds to show the strengths and weaknesses of such traditions for educational research. As an alternative paradigm, the cluster of approaches that can loosely be termed interpretive, naturalistic, phenomenological, interactionist and ethnographic are brought together and their strengths and weaknesses for educational research are examined. The rise of critical theory as a paradigm in which educational research is conducted has been spectacular and its implications for the research undertaking are addressed in several ways here, resonating with curriculum research and feminist research (this too has been expanded and updated). Indeed

critical theory links the conduct of educational research with politics and policy-making, and this is reflected in the discussions here of research and evaluation, arguing how much educational research has become evaluative in nature. A more recent trend has been the rise of complexity theory, originally from the natural sciences, but moving inexorably into social science research. This part introduces the field of complexity theory and steers readers to the accompanying web site for further details. That educational research serves a political agenda is seen in the later sections of this part. The intention here is to introduce readers to different research traditions, with the advice that ‘fitness for purpose’ must be the guiding principle: different research paradigms for different research purposes.

The nature of inquiry – Setting the field

Introduction

This chapter explores the context of educational research. It sets out several foundations on which different kinds of empirical research are constructed:

- scientific and positivistic methodologies
- naturalistic and interpretive methodologies
- methodologies from critical theory
- feminist educational research.

Our analysis takes an important notion from Hitchcock and Hughes (1995: 21) who suggest that ontological assumptions give rise to epistemological assumptions; these, in turn, give rise to methodological considerations; and these, in turn, give rise to issues of instrumentation and data collection. This view moves us beyond regarding research methods as simply a technical exercise and as concerned with understanding the world; this is informed by how we view our world(s), what we take understanding to be, and what we see as the purposes of understanding. The chapter also acknowledges that educational research, politics and decision-making are inextricably intertwined, and it draws attention to the politics of educational research and the implications that this has for undertaking research (e.g. the move towards applied and evaluative research and away from 'pure' research). Finally, we add a note about methodology.

The search for truth

People have long been concerned to come to grips with their environment and to understand the nature of the phenomena it presents to their senses. The means by which they set

out to achieve these ends may be classified into three broad categories: *experience*, *reasoning* and *research* (Mouly 1978). Far from being independent and mutually exclusive, however, these categories must be seen as complementary and overlapping, features most readily in evidence where solutions to complex modern problems are sought.

In our endeavours to come to terms with the problems of day-to-day living, we are heavily dependent upon experience and authority. It must be remembered that as tools for uncovering ultimate truth they have decided limitations. The limitations of personal experience in the form of *common-sense knowing*, for instance, can quickly be exposed when compared with features of the scientific approach to problem-solving. Consider, for example, the striking differences in the way in which theories are used. Laypeople base them on haphazard events and use them in a loose and uncritical manner. When they are required to test them, they do so in a selective fashion, often choosing only that evidence that is consistent with their hunches and ignoring that which is counter to them. Scientists, by contrast, construct their theories carefully and systematically. Whatever hypotheses they formulate have to be tested empirically so that their explanations have a firm basis in fact. And there is the concept of *control* distinguishing the layperson's and the scientist's attitude to experience. Laypeople generally make no attempt to control any extraneous sources of influence when trying to explain an occurrence. Scientists, on the other hand, only too conscious of the multiplicity of causes for a given occurrence, resort to definite techniques and procedures to isolate and test the effect of one or more of the alleged causes. Finally, there is the difference of

attitude to the relationships among phenomena. Laypeople's concerns with such relationships are loose, unsystematic and uncontrolled. The chance occurrence of two events in close proximity is sufficient reason to predicate a causal link between them. Scientists, however, display a much more serious professional concern with relationships and only as a result of rigorous experimentation will they postulate a relationship between two phenomena.

People attempt to comprehend the world around them by using three types of reasoning: *deductive reasoning*, *inductive reasoning* and the *combined inductive-deductive* approach. Deductive reasoning is based on the syllogism which was Aristotle's great contribution to formal logic. In its simplest form the syllogism consists of a major premise based on an a priori or self-evident proposition, a minor premise providing a particular instance, and a conclusion. Thus:

All planets orbit the sun.
The earth is a planet.
Therefore the earth orbits the sun.

The assumption underlying the syllogism is that through a sequence of formal steps of logic, from the general to the particular, a valid conclusion can be deduced from a valid premise. Its chief limitation is that it can handle only certain kinds of statement. The syllogism formed the basis of systematic reasoning from the time of its inception until the Renaissance. Thereafter its effectiveness was diminished because it was no longer related to observation and experience and became merely a mental exercise. One of the consequences of this was that empirical evidence as the basis of proof was superseded by authority and the more authorities one could quote, the stronger one's position became. Naturally, with such abuse of its principal tool, science became sterile.

The history of reasoning was to undergo a dramatic change in the 1600s when Francis Bacon began to lay increasing stress on the observational basis of science. Being critical of the model of deductive reasoning on the grounds that its major premises were often preconceived notions which

inevitably bias the conclusions, he proposed in its place the method of inductive reasoning by means of which the study of a number of individual cases would lead to an hypothesis and eventually to a generalization. Mouly (1978) explains it by suggesting that Bacon's basic premise was that, with sufficient data, even if one does not have a preconceived idea of their significance or meaning, nevertheless important relationships and laws would be discovered by the alert observer. Bacon's major contribution to science was thus that he was able to rescue it from the death-grip of the deductive method whose abuse had brought scientific progress to a standstill. He thus directed the attention of scientists to nature for solutions to people's problems, demanding empirical evidence for verification. Logic and authority in themselves were no longer regarded as conclusive means of proof and instead became sources of hypotheses about the world and its phenomena.

Bacon's inductive method was eventually followed by the inductive-deductive approach which combines Aristotelian deduction with Baconian induction. Here the researcher is involved in a back-and-forth process of induction (from observation to hypothesis) and deduction (from hypothesis to implications) (Mouly 1978). Hypotheses are tested rigorously and, if necessary, revised.

Although both deduction and induction have their weaknesses, their contributions to the development of science are enormous and fall into three categories:

- the suggestion of hypotheses
- the logical development of these hypotheses
- the clarification and interpretation of scientific findings and their synthesis into a conceptual framework.

A further means by which we set out to discover truth is *research*. This has been defined by Kerlinger (1970) as the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. Research has three characteristics in

particular which distinguish it from the first means of problem-solving identified earlier, namely, experience. First, whereas experience deals with events occurring in a haphazard manner, research is systematic and controlled, basing its operations on the inductive-deductive model outlined above. Second, research is empirical. The scientist turns to experience for validation. As Kerlinger (1970) puts it, subjective, personal belief has to have a reality check against objective, empirical facts and tests. And third, research is self-correcting. Not only does the scientific method have built-in mechanisms to protect scientists from error as far as is humanly possible, but also their procedures and results are open to public scrutiny by fellow professionals. Incorrect results in time will be found and either revised or discarded (Mouly 1978). Research is a combination of both experience and reasoning and must be regarded as the most successful approach to the discovery of truth, particularly as far as the natural sciences are concerned (Borg 1963).¹

Educational research has absorbed several competing views of the social sciences – the established, traditional view and an interpretive view, and several others that we explore in this chapter – critical theory, feminist theory and complexity theory. The established, traditional view holds that the social sciences are essentially the same as the natural sciences and are therefore concerned with discovering natural and universal laws regulating and determining individual and social behaviour; the interpretive view, however, while sharing the rigour of the natural sciences and the same concern of traditional social science to describe and explain human behaviour, emphasizes how people differ from inanimate natural phenomena and, indeed, from each other. These contending views – and also their corresponding reflections in educational research – stem in the first instance from different conceptions of social reality and of individual and social behaviour. It will help our understanding of the issues to be developed subsequently if we examine these in a little more detail (see <http://www.routledge.com/textbooks/9780415368780> – Chapter 1, file 1.1. ppt).

Two conceptions of social reality

The views of social science that we have just identified represent strikingly different ways of looking at social reality and are constructed on correspondingly different ways of interpreting it. We can perhaps most profitably approach these conceptions of the social world by examining the explicit and implicit assumptions underpinning them. Our analysis is based on the work of Burrell and Morgan (1979), who identified four sets of such assumptions.

First, there are assumptions of an ontological kind – assumptions which concern the very nature or essence of the social phenomena being investigated. Thus, the authors ask, is social reality external to individuals – imposing itself on their consciousness from without – or is it the product of individual consciousness? Is reality of an objective nature, or the result of individual cognition? Is it a given ‘out there’ in the world, or is it created by one’s own mind? These questions spring directly from what philosophy terms the nominalist–realist debate. The former view holds that objects of thought are merely words and that there is no independently accessible thing constituting the meaning of a word. The realist position, however, contends that objects have an independent existence and are not dependent for it on the knower.

The second set of assumptions identified by Burrell and Morgan (1979) are of an epistemological kind. These concern the very bases of knowledge – its nature and forms, how it can be acquired, and how communicated to other human beings. How one aligns oneself in this particular debate profoundly affects how one will go about uncovering knowledge of social behaviour. The view that knowledge is hard, objective and tangible will demand of researchers an observer role, together with an allegiance to the methods of natural science; to see knowledge as personal, subjective and unique, however, imposes on researchers an involvement with their subjects and a rejection of the ways of the natural scientist. To subscribe to the former is to be positivist; to the latter, anti-positivist.

The third set of assumptions concern human nature and, in particular, the relationship between human beings and their environment. Since the human being is both its subject and object of study, the consequences for social science of assumptions of this kind are indeed far-reaching. Two images of human beings emerge from such assumptions – the one portrays them as responding mechanically and deterministically to their environment, i.e. as products of the environment, controlled like puppets; the other, as initiators of their own actions with free will and creativity, producing their own environments. The difference is between *determinism* and *voluntarism* respectively (Burrell and Morgan 1979).

It would follow from what we have said so far that the three sets of assumptions identified above have direct implications for the methodological concerns of researchers, since the contrasting ontologies, epistemologies and models of human beings will in turn demand different research methods. Investigators adopting an objectivist (or positivist) approach to the social world and who treat it like the world of natural phenomena as being hard, real and external to the individual will choose from a range of traditional options – surveys, experiments, and the like. Others favouring the more subjectivist (or anti-positivist) approach and who view the social world as being of a much softer, personal and humanly created kind will select from a comparable range of recent and emerging techniques – accounts, participant observation and personal constructs, for example.

Where one subscribes to the view that treats the social world like the natural world – as if it were a hard, external and objective reality – then scientific investigation will be directed at analysing the relationships and regularities between selected factors in that world. It will be predominantly quantitative and will be concerned with identifying and defining elements and discovering ways in which their relationships can be expressed. Hence, they argue, methodological issues, of fundamental importance, are thus the concepts themselves, their measurement and the identification of

underlying themes in a search for universal laws that explain and govern that which is being observed (Burrell and Morgan 1979). An approach characterized by procedures and methods designed to discover general laws may be referred to as *nomothetic*.

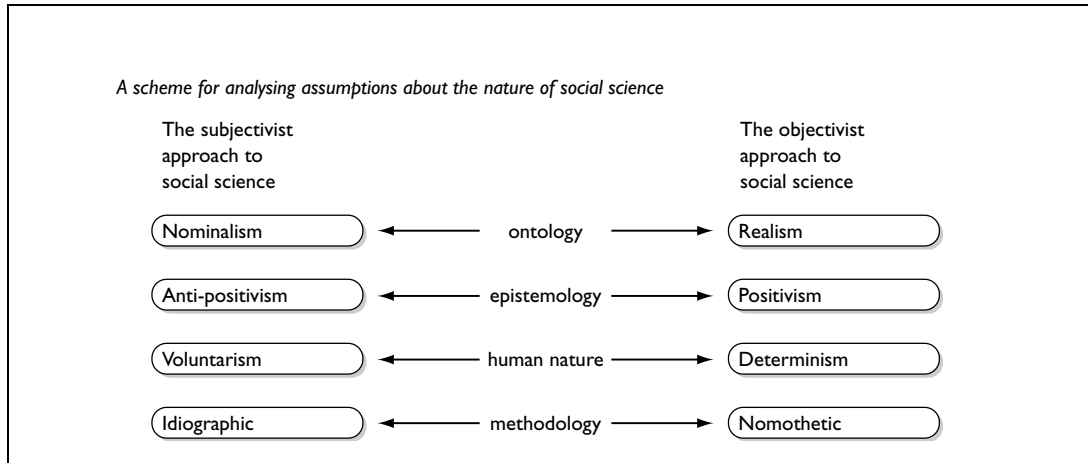
However, if one favours the alternative view of social reality which stresses the importance of the subjective experience of individuals in the creation of the social world, then the search for understanding focuses upon different issues and approaches them in different ways. The principal concern is with an understanding of the way in which the individual creates, modifies and interprets the world in which he or she finds himself or herself. The approach now takes on a qualitative as well as quantitative aspect. As Burrell and Morgan (1979) and Kirk and Miller (1986: 14) observe, emphasis here is placed on explanation and understanding of the unique and the particular individual case rather than the general and the universal; the interest is in a subjective, relativistic social world rather than an absolutist, external reality. In its emphasis on the particular and individual this approach to understanding individual behaviour may be termed *idiographic*.

In this review of Burrell and Morgan's analysis of the ontological, epistemological, human and methodological assumptions underlying two ways of conceiving social reality, we have laid the foundations for a more extended study of the two contrasting perspectives evident in the practices of researchers investigating human behaviour and, by adoption, educational problems. Box 1.1 summarizes these assumptions along a subjective–objective dimension. It identifies the four sets of assumptions by using terms we have adopted in the text and by which they are known in the literature of social philosophy.

Each of the two perspectives on the study of human behaviour outlined above has profound implications for research in classrooms and schools. The choice of problem, the formulation of questions to be answered, the characterization of pupils and teachers, methodological concerns, the kinds of data sought and their mode of treatment,

Box 1.1

The subjective–objective dimension



Source: Burrell and Morgan 1979

all are influenced by the viewpoint held. Some idea of the considerable practical implications of the contrasting views can be gained by examining Box 1.2 which compares them with respect to a number of critical issues within a broadly societal and organizational framework. Implications of the two perspectives for research into classrooms and schools will unfold in the course of the text.

Because of its significance for the epistemological basis of social science and its consequences for educational research, we devote much discussion in this chapter to the positivist and anti-positivist debate.

Positivism

Although positivism has been a recurrent theme in the history of western thought from the Ancient Greeks to the present day, it is historically associated with the nineteenth-century French philosopher, Auguste Comte, who was the first thinker to use the word for a philosophical position (Beck 1979). His positivism turns to observation and reason as means of understanding behaviour; explanation proceeds by way of scientific description. In

his study of the history of the philosophy and methodology of science, Oldroyd (1986) says:

It was Comte who consciously ‘invented’ the new science of society and gave it the name to which we are accustomed . . . For social phenomena were to be viewed in the light of physiological (or biological) laws and theories and investigated empirically, just like physical phenomena.

(Oldroyd 1986)

Comte’s position was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can be advanced only by means of observation and experiment. Following in the empiricist tradition, it limited inquiry and belief to what can be firmly established and in thus abandoning metaphysical and speculative attempts to gain knowledge by reason alone, the movement developed what has been described as a ‘tough-minded orientation to facts and natural phenomena’ (Beck 1979).

Although the term positivism is used by philosophers and social scientists, a residual meaning is always present and this derives from an acceptance of natural science as the paradigm of human knowledge (Duncan 1968). This includes