Many educational research methods are descriptive; that is, they set out to describe and to interpret what is. Descriptive research, according to Best, is concerned with:

- conditions or relationships that exist; practices that prevail; beliefs, points of views, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing. At times, descriptive research is concerned with how what is or what exists is related to some preceding event that has influenced or affected a present condition or event.

(Best, 1970)

Such studies look at individuals, groups, institutions, methods and materials in order to describe, compare, contrast, classify, analyse and interpret the entities and the events that constitute their various fields of inquiry.

This chapter deals with several types of descriptive survey research, including longitudinal, cross-sectional and trend or prediction studies. Collectively longitudinal, cross-sectional and trend or prediction studies are sometimes termed developmental research because they are concerned both to describe what the present relationships are among variables in a given situation and to account for changes occurring in those relationships as a function of time. The term 'developmental' is primarily biological, having to do with the organization and life processes of living things. The concept has been appropriated and applied to diverse educational, historical, sociological and psychological phenomena. In education, for example, developmental studies often retain the original biological orientation of the term, having to do with the acquisition of motor and perceptual skills in young children. However, the designation 'developmental' has wider application in this field, for example, in connection with Piaget's studies of qualitative changes occurring in children's thinking, and Kohlberg's work on moral development.

Typically, surveys gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared, or determining the relationships that exist between specific events. Thus, surveys may vary in their levels of complexity from those which provide simple frequency counts to those which present relational analysis.

Surveys may be further differentiated in terms of their scope. A study of contemporary developments in post-secondary education, for example, might encompass the whole of Western Europe; a study of subject choice, on the other hand, might be confined to one secondary school. The complexity and scope of surveys in education can be illustrated by reference to familiar examples. The surveys undertaken for the Plowden Committee on primary school children (Central Advisory Council on Education, 1967) collected a wealth of information on children, teachers and parents and used sophisticated analytical techniques to predict pupil attainment. By contrast, the small scale survey of Jackson and Marsden (1962) involved a detailed study of the backgrounds and values of 88 working-class adults who had achieved success through selective secondary education.
Box 8.1
Stages in the planning of a survey

Source Adapted from Davidson, 1970
Whether the survey is large scale and undertaken by some governmental bureau or small scale and carried out by the lone researcher, the collection of information typically involves one or more of the following data-gathering techniques: structured or semi-structured interviews, self-completion or postal questionnaires, standardized tests of attainment or performance, and attitude scales. Typically, too, surveys proceed through well-defined stages, though not every stage outlined in Box 8.1 is required for the successful completion of a survey.

A survey has several characteristics and several claimed attractions; typically it is used to scan a wide field of issues, populations, programmes etc. in order to measure or describe any generalized features. It is useful (Morrison, 1993: 38–40) in that it usually:

- gathers data on a one-shot basis and hence is economical and efficient;
- represents a wide target population (hence there is a need for careful sampling, see Chapter 4);
- generates numerical data;
- provides descriptive, inferential and explanatory information;
- manipulates key factors and variables to derive frequencies (e.g. the numbers registering a particular opinion or test score);
- gathers standardized information (i.e. using the same instruments and questions for all participants);
- ascertains correlations (e.g. to find out if there is any relationship between gender and scores);
- presents material which is uncluttered by specific contextual factors;
- captures data from multiple choice, closed questions, test scores or observation schedules;
- supports or refutes hypotheses about the target population;
- generates accurate instruments through their piloting and revision;
- makes generalizations about, and observes patterns of response in, the targets of focus;
- gathers data which can be processed statistically;
- usually relies on large scale data gathering from a wide population in order to enable generalizations to be made about given factors or variables.

Examples of surveys' are:

- opinion polls (which refute the notion that only opinion polls can catch opinions);
- test scores (e.g. the results of testing students nationally or locally);
- students' preferences for particular courses, e.g. humanities, sciences;
- reading surveys (e.g. Southgate's et al. example of teaching practices in 1981 in the United Kingdom).

A researcher using these types of survey typically will be seeking to gather large scale data from as representative a sample population as possible in order to say with a measure of statistical confidence that certain observed characteristics occur with a degree of regularity, or that certain factors cluster together (see Chapter 20) or that they correlate with each other (correlation and covariance), or that they change over time and location (e.g. results of test scores used to ascertain the ‘value-added’ dimension of education, maybe using regression analysis and analysis of residuals to determine the difference between a predicted and an observed score), or regression analysis to use data from one variable to predict an outcome on another variable.

The attractions of a survey lie in its appeal to generalizability or universality within given parameters, its ability to make statements which are supported by large data banks and its ability to establish the degree of confidence which can be placed in a set of findings.

On the other hand, if a researcher is concerned to catch local, institutional or small scale factors and variables - to portray the specificity of a situation, its uniqueness and particular complexity, its interpersonal dynamics, and to provide explanations of why a situation occurred or why a person or group of people...
returned a particular set of results or behaved in a particular way in a situation, or how a programme changes and develops over time, then a survey approach is probably unsuitable. Its degree of explanatory potential or fine detail is limited; it is lost to broad brush generalizations which are free of temporal, spatial or local contexts, i.e. its appeal largely rests on the basis of positivism. The individual instance is sacrificed to the aggregated response (which has the attraction of anonymity, non-traceability and confidentiality for respondents).

Surveys typically rely on large scale data, e.g. from questionnaires, test scores, attendance rates, results of public examinations etc., all of which would enable comparisons to be made over time or between groups. This is not to say that surveys cannot be undertaken on a small scale basis, as indeed they can; rather, it is to say that the generalizability of such small scale data will be slight. In surveys the researcher is usually very clearly an outsider; indeed questions of reliability must attach themselves to researchers conducting survey research on their own subjects, e.g. participants in a course that they have been running. Further, it is critical that attention is paid to rigorous sampling, otherwise the basis of its applicability to wider contexts is seriously undermined. Non-probability samples tend to be avoided in surveys if generalizability is sought; probability sampling will tend to lead to generalizability of the data collected.

Some preliminary considerations

Three prerequisites to the design of any survey are: the specification of the exact purpose of the inquiry; the population on which it is to focus; and the resources that are available. Hoinville and Jowell's (1978) consideration of each of these key factors in survey planning can be illustrated in relation to the design of an educational inquiry.

The purpose of the inquiry

First, a survey's general purpose must be translated into a specific central aim. Thus, 'to explore teachers' views about in-service work' is somewhat nebulous, whereas 'to obtain a detailed description of primary and secondary teachers' priorities in the provision of in-service education courses' is reasonably specific.

Having decided upon and specified the primary objective of the survey, the second phase of the planning involves the identification and itemizing of subsidiary topics that relate to its central purpose. In our example, subsidiary issues might well include: the types of courses required; the content of courses; the location of courses; the timing of courses; the design of courses; and the financing of courses.

The third phase follows the identification and itemization of subsidiary topics and involves formulating specific information requirements relating to each of these issues. For example, with respect to the type of courses required, detailed information would be needed about the duration of courses (one meeting, several meetings, a week, a month, a term or a year), the status of courses (non-award bearing, award bearing, with certificate, diploma, degree granted by college or university), the orientation of courses (theoretically oriented involving lectures, readings, etc., or practically oriented involving workshops and the production of curriculum materials).

As these details unfold, note Hoinville and Jowell, consideration would have to be given to the most appropriate ways of collecting items of information (interviews with selected teachers, postal questionnaires to selected schools, etc.).

The population upon which the survey is focused

The second prerequisite to survey design, the specification of the population to which the inquiry is addressed, affects decisions that researchers must make both about sampling and resources. In our hypothetical survey of in-service requirements, for example, we might specify the population as 'those primary and secondary teachers employed in schools within a 30-mile radius of Loughborough University'. In this
The population is readily identifiable and, given sufficient resources to contact every member of the designated group, sampling decisions do not arise. Things are rarely so straightforward, however. Often the criteria by which populations are specified ('severely challenged', 'under-achievers', 'intending teachers' or 'highly anxious') are difficult to operationalize. Populations, moreover, vary considerably in their accessibility; pupils and student teachers are relatively easy to survey, gypsy children and headteachers are more elusive. More importantly, in a large survey researchers usually draw a sample from the population to be studied; rarely do they attempt to contact every member. We deal with the question of sampling shortly.

The resources available

The third important factor in designing and planning a survey is the financial cost. Sample surveys are labour-intensive (see Davidson, 1970), the largest single expenditure being the fieldwork where costs arise out of the interviewing time, travel time and transport claims of the interviewers themselves. There are additional demands on the survey budget. Training and supervising the panel of interviewers can often be as expensive as the costs incurred during the time that they actually spend in the field. Questionnaire construction, piloting, printing, posting, coding, together with computer programming - all eat into financial resources.

Proposals from intending education researchers seeking governmental or private funding are often weakest in the amount of time and thought devoted to a detailed planning of the financial implications of the projected inquiries. (In this chapter we confine ourselves from this point to a discussion of surveys based on self-completion questionnaires. A full account of the interview as a research technique is given in Chapter 15.)

From here it is possible to identify several stages to the conduct of a survey. Rosier (1997: 154–62) suggests that the planning of a survey will need to include clarification of:

- the research questions to which answers need to be provided;
- the conceptual framework of the survey, specifying in precise terms the concepts that will be used and explored;
- operationalizing the research questions (e.g. into hypotheses);
- the instruments to be used for data collection, e.g. to chart or measure background characteristics of the sample (often nominal data), academic achievements (e.g. examination results, degrees awarded), attitudes and opinions (often using ordinal data from rating scales) and behaviour (using observational techniques);
- sampling strategies and subgroups within the sample (unless the whole population is being surveyed, e.g. through census returns or nationally aggregated test scores etc.);
- pre-piloting the survey;
- piloting the survey;
- data collection practicalities and conduct (e.g. permissions, funding, ethical considerations, response rates);
- data preparation (e.g. coding, data entry for computer analysis, checking and verification);
- data analysis (e.g. statistical processes, construction of variables and factor analysis, inferential statistics);
- reporting the findings (answering the research questions).

It is important to pilot and pre-pilot a survey. The difference between the pre-pilot and the pilot is significant. Whereas the pre-pilot is usually a series of open-ended questions that are used to generate categories for closed, typically multiple choice questions, the pilot is used to test the actual survey instrument itself (see Chapter 14).

A rigorous survey, then, formulates clear, specific objectives and research questions, ensures that the instrumentation, sampling, and data types are appropriate to yield answers to the research questions, ensures that as high a level of sophistication of data analysis is undertaken as the data will sustain (but no more!).

SOME PRELIMINARY CONSIDERATIONS

Chapter 8
Survey sampling

Because questions to do with sampling arise directly from the second of our preliminary considerations, that is, defining the population upon which the survey is to focus, researchers must take sampling decisions early in the overall planning of a survey (see Box 8.1). We have already seen that due to factors of expense, time and accessibility, it is not always possible or practical to obtain measures from a population. Researchers endeavour therefore to collect information from a smaller group or subset of the population in such a way that the knowledge gained is representative of the total population under study. This smaller group or subset is a ‘sample’. Notice how competent researchers start with the total population and work down to the sample. By contrast, novices work from the bottom up, that is, they determine the minimum number of respondents needed to conduct a successful survey. However, unless they identify the total population in advance, it is virtually impossible for them to assess how representative the sample is that they have drawn. There are two methods of sampling. One yields probability samples in which, as the term implies, the probability of selection of each respondent is known. The other yields non-probability samples, in which the probability of selection is unknown. We refer the reader to Chapter 4 for a discussion of sampling.

Longitudinal, cross-sectional and trend studies

The term ‘longitudinal’ is used to describe a variety of studies that are conducted over a period of time. Often, as we have seen, the word ‘developmental’ is employed in connection with longitudinal studies that deal specifically with aspects of human growth.

A clear distinction is drawn between longitudinal and cross-sectional studies.1 The longitudinal study gathers data over an extended period of time; a short-term investigation may take several weeks or months; a long-term study can extend over many years. Where successive measures are taken at different points in time from the same respondents, the term ‘follow-up study’ or ‘cohort study’ is used in the British literature, the equivalent term in the United States being the ‘panel study’. The term ‘cohort’ is a group of people with some common characteristic. A cohort study is sometimes differentiated from a panel study. In a cohort study a specific population is tracked over a specific period of time but selective sampling within that sample occurs (Borg and Gall, 1979: 291). This means that some members of a cohort may not be included each time. By contrast, in a panel study each same individual is tracked over time.

Where different respondents are studied at different points in time, the study is called ‘cross-sectional’. Where a few selected factors are studied continuously over time, the term ‘trend study’ is employed. One example of regular or repeated cross-sectional social surveys is the General Household Survey, in which the same questions are asked every year though they are put to a different sample of the population each time. A well known example of a longitudinal (cohort) study is the National Child Development Study, which started in 1958, the most recent round of interviews took place in 1991. The British Household Panel Survey has interviewed individuals from a representative sample each year in the 1990s.

Cohort studies and trend studies are prospective longitudinal methods in that they are ongoing in their collection of information about individuals or their monitoring of specific events. Retrospective longitudinal studies, on the other hand, focus upon individuals who have reached some defined end-point or state. For example, a group of young people may be the researcher’s particular interest (intending social workers, convicted drug offenders or university dropouts, for example), and the questions to which she will address herself are likely to include ones such as: ‘Is there anything about the previous experience of these individuals that can account for their present situation?’

Retrospective analysis is not confined to longitudinal studies alone. For example Rose and Sullivan (1993: 185) suggest that cross-sectional studies...
can use retrospective factual questions, e.g. previous occupations, dates of birth within the family, dates of marriage, divorce, though the authors advise against collecting other types of retrospective data in cross-sectional studies, as the quality of the data diminishes the further back one asks respondents to recall previous states or even facts.

A cross-sectional study is one that produces a ‘snapshot’ of a population at a particular point in time. The epitome of the cross-sectional study is a national census in which a representative sample of the population consisting of individuals of different ages, different occupations, different educational and income levels, and residing in different parts of the country, is interviewed on the same day. More typically in education, cross-sectional studies involve indirect measures of the nature and rate of changes in the physical and intellectual development of samples of children drawn from representative age levels. The single ‘snapshot’ of the cross-sectional study provides researchers with data for either a retrospective or a prospective inquiry.

Trend or prediction studies have an obvious importance to educational administrators or planners. Like cohort studies, they may be of relatively short or long duration. Essentially, the trend study examines recorded data to establish patterns of change that have already occurred in order to predict what will be likely to occur in the future. In trend studies two or more cross-sectional studies are undertaken with identical age groups at more than one point in time in order to make comparisons over time (e.g. the Scholastic Aptitude and Achievement tests in the United States) (Keeves, 1997: 141) and the National Assessment of Educational Progress results (Lietz and Keeves, 1997: 122). A major difficulty researchers face in conducting trend analyses is the intrusion of unpredictable factors that invalidate forecasts formulated on past data. For this reason, short-term trend studies tend to be more accurate than long-term analyses. The distinctions we have drawn between the various terms used in developmental research are illustrated in Box 8.2.

**Box 8.2**

Types of developmental research

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**Trend Study**

1. Recorded data on factors
2. Predicted patterns
3. Observations on a, b, c

**Cohort Study**

- Sample A
- Observation 1
- Observation 2
- Observation 3
- Observation 4
- Observation 5

**Cross-Sectional Study**

- Sample A
- Sample B
- Sample C
- Sample D
- Sample E

**Social Processes**

Over time

Prospective
**Strengths and weaknesses of cohort and cross-sectional studies**

Longitudinal studies of the cohort analysis type have an important place in the research armory of educational investigators. Cohort studies of human growth and development conducted on representative samples of populations are uniquely able to identify typical patterns of development and to reveal factors operating on those samples which elude other research designs. They permit researchers to examine individual variations in characteristics or traits, and to produce individual growth curves. Cohort studies, too, are particularly appropriate when investigators attempt to establish causal relationships, for this task involves identifying changes in certain characteristics that result in changes in others. Cross-sectional designs are inappropriate in causal research. Cohort analysis is especially useful in sociological research because it can show how changing properties of individuals fit together into changing properties of social systems as a whole. For example, the study of staff morale and its association with the emerging organizational climate of a newly opened school would lend itself to this type of developmental research. A further strength of cohort studies in schools is that they provide longitudinal records whose value derives in part from the known fallibility of any single test or assessment (see Davie, 1972). Finally, time, always a limiting factor in experimental and interview settings, is generally more readily available in cohort studies, allowing the researcher greater opportunity to observe trends and to distinguish ‘real’ changes from chance occurrences (see Bailey, 1978).

Longitudinal studies suffer several disadvantages (though the gravity of these weaknesses is challenged by supporters of cohort analysis). The disadvantages are first, that they are time consuming and expensive, because the researcher is obliged to wait for growth data to accumulate. Second, there is the difficulty of sample mortality. Inevitably during the course of a long-term cohort study, subjects drop out, are lost or refuse further co-operation. Such attrition makes it unlikely that those who remain in the study are as representative of the population as the sample that was originally drawn. Sometimes attempts are made to lessen the effects of sample mortality by introducing aspects of cross-sectional study design, that is, ‘topping up’ the original cohort sample size at each time of retesting with the same number of respondents drawn from the same population. The problem here is that differences arising in the data from one survey to the next may then be accounted for by differences in the persons surveyed rather than by genuine changes or trends. A third difficulty has been termed ‘control effect’ (sometimes referred to as ‘measurement effect’). Often, repeated interviewing results in an undesired and confusing effect on the actions or attitudes under study, influencing the behaviour of subjects, sensitizing them to matters that have hitherto passed unnoticed, or stimulating them to communication with others on unwanted topics (see Riley, 1963). Fourth, cohort studies can suffer from the interaction of biological, environmental and intervention influences. Finally, cohort studies in education pose considerable problems of organization due to the continuous changes that occur in pupils, staff, teaching methods and the like. Such changes make it highly unlikely that a study will be completed in the way that it was originally planned.

Cohort studies, as we have seen, are particularly appropriate in research on human growth and development. Why then are so many studies in this area cross-sectional in design? The reason is that they have a number of advantages over cohort studies; they are less expensive; they produce findings more quickly; they are less likely to suffer from control effects; and they are more likely to secure the co-operation of respondents on a ‘one-off’ basis. Generally, cross-sectional designs are able to include more subjects than are cohort designs.

The strengths of cohort analysis are the weaknesses of the cross-sectional design. The cross-sectional study is a less effective method for the researcher who is concerned to identify individ-
ual variations in growth or to establish causal relationships between variables. Sampling in the cross-sectional study is complicated because different subjects are involved at each age level and may not be comparable. Further problems arising out of selection effects and the obscuring of irregularities in growth weaken the cross-sectional study so much that one observer dismisses the method as a highly unsatisfactory way of obtaining developmental data except for the crudest purposes. Douglas (1976), who pioneered the first national cohort study to be undertaken in any country, makes a spirited defence of the method against the common criticisms that are levelled against it — that it is expensive and time-consuming. His account of the advantages of cohort analysis over cross-sectional designs is summarized in Box 8.3.

The comparative strengths and weaknesses of longitudinal studies (including retrospective studies), cross-section analysis and trend studies are summarized in Box 8.4 (see also Rose and Sullivan 1993: 184–8). Several of the strengths and weaknesses of retrospective longitudinal studies share the same characteristics as those of ex post facto research, discussed in Chapter 11.

Box 8.3
Advantages of cohort over cross-sectional designs

1. Some types of information, for example, on attitudes or assessment of potential ability, are only meaningful if collected contemporaneously. Other types are more complete or more accurate if collected during the course of a longitudinal survey, though they are likely to have some value even if collected retrospectively, for example, length of schooling, job history, geographical moving.

2. In cohort studies, no duplication of information occurs, whereas in cross-sectional studies the same type of background information has to be collected on each occasion. This increases the interviewing costs.

3. The omission of even a single variable, later found to be important, from a cross-sectional study is a disaster, whereas it is usually possible in a cohort study to fill the gap, even if only partially, in a subsequent interview.

4. A cohort study allows the accumulation of a much larger number of variables, extending over a much wider area of knowledge than would be possible in a cross-sectional study. This is of course because the collection can be spread over many interviews. Moreover, information may be obtained at the most appropriate time, for example, information on job entry may be obtained when it occurs even if this varies from one member of the sample to another.

5. Starting with a birth cohort removes later problems of sampling and allows the extensive use of subsamples. It also eases problems of estimating bias and reliability.

6. Longitudinal studies are free of one of the major obstacles to causal analysis, namely, the reinterpretation of remembered information so that it conforms with conventional views on causation. It also provides the means to assess the direction of effect.

Source Adapted from Douglas, 1976
## Box 8.4

The characteristics, strengths and weaknesses of longitudinal, cross-sectional, trend analysis, and retrospective longitudinal studies

<table>
<thead>
<tr>
<th>Study type</th>
<th>Features</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal studies (cohort/panel studies)</td>
<td>1. Single sample over extended period of time. 2. Enables the same individuals to be compared over time (diachronic analysis). 3. Micro-level analysis.</td>
<td>1. Useful for establishing causal relationships and for making reliable inferences. 2. Shows how changing properties of individuals fit into systemic change. 3. Operates within the known limits of instrumentation employed. 4. Separates real trends from chance occurrence. 5. Brings the benefits of extended time frames. 6. Useful for charting growth and development. 7. Gathers data contemporaneously rather than retrospectively, thereby avoiding the problems of selective or false memory. 8. Economical in that a picture of the sample is built up over time. 9. In-depth and comprehensive coverage of a wide range of variables, both initial and emergent – individual specific effects and population heterogeneity. 10. Enables change to be analysed at the individual/micro level. 11. Enables the dynamics of change to be caught, the flows into and out of particular states and the transitions between states. 12. Individual level data are more accurate than macro-level, cross-sectional data. 13. Sampling error reduced as the study remains with the same sample over time. 14. Enables clear recommendations for intervention to be made.</td>
<td>1. Time-consuming – it takes a long time for the studies to be conducted and the results to emerge. 2. Problems of sample mortality heighten over time and diminish initial representativeness. 3. Control effects – repeated interviewing of the same sample influences their behaviour. 4. Intervening effects attenuate the initial research plan. 5. Problem of securing participation as it involves repeated contact. 6. Data, being rich at an individual level, are typically complex to analyse.</td>
</tr>
</tbody>
</table>
### Box 8.4

**Features**

- 1. Snapshot of different samples at one or more points in time (synchronic analysis).
- 2. Large-scale and representative sampling.
- 4. Enables different groups to be compared.
- 5. Can be retrospective and/or prospective.

**Strengths**

- 1. Comparatively quick to conduct.
- 2. Comparatively cheap to administer.
- 3. Limited control effects as subjects only participate once.
- 4. Stronger likelihood of participation as it is for a single time.
- 5. Charts aggregated patterns.
- 6. Useful for charting population-wide features at one or more single points in time.
- 7. Enable researchers to identify the proportions of people in particular groups or states.
- 8. Large samples enable inferential statistics to be used, e.g., to compare subgroups within the sample.

**Weaknesses**

- 1. Do not permit analysis of causal relationships.
- 2. Unable to chart individual variations in development or changes, and their significance.
- 3. Sampling not entirely comparable at each round of data collection as different samples are used.
- 4. Can be time-consuming as background details of each sample have to be collected each time.
- 5. Omission of a single variable can undermine the results significantly.
- 6. Unable to chart changing social processes over time.
- 7. They only permit analysis of overall, net change at the macro-level through aggregated data.

**Trend analysis**

- 1. Selected factors studied continuously over time.
- 2. Uses recorded data to predict future trends.

- 1. Maintains clarity of focus throughout the duration of the study.
- 2. Enables prediction and projection on the basis of identified and monitored variables and assumptions.

- 1. Neglects influence of unpredictable factors.
- 2. Past trends are not always a good predictor of future trends.
- 3. Formula-driven, i.e., could be too conservative or initial assumptions might be erroneous.
- 4. Neglects the implications of chaos and complexity theory, e.g., that long-range forecasting is dangerous.
- 5. The criteria for prediction may be imprecise.

continued
Box 8.4

continued

<table>
<thead>
<tr>
<th>Study type</th>
<th>Features</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrospective</td>
<td>Retrospective analysis of history of a sample.</td>
<td>1 Useful for establishing causal relationships.</td>
<td>1 Remembered information might be faulty, selective and inaccurate.</td>
</tr>
<tr>
<td>longitudinal studies</td>
<td>2 Individual- and micro-level data.</td>
<td>2 Clear focus (e.g. how did this particular end state or set of circumstances come to be?)</td>
<td>2 People might forget, suppress or fail to remember certain factors.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Enables data to be assembled that are not susceptible to experimental analysis.</td>
<td>3 Individuals might interpret their own past behaviour in light of their subsequent events, i.e. the interpretations are not contemporaneous with the actual events.</td>
</tr>
</tbody>
</table>

Event-history analysis also addresses the problem of attrition, as members leave a study over time. Plewis (1997: 117) suggests that many longitudinal studies suffer from sample loss over time, and attempts to address the issue of censoring – the adjustments necessary in a study in order to take account of the accretion of missing data. *Right censoring* occurs when we know when a particular event commences but not when it finishes; *left censoring* occurs when we know of the existence of a particular event or situation, but not when it began. Plewis (ibid.: 118) suggests that censored events and episodes (where attrition has taken place) last longer than uncensored events and episodes, and, hence, hazard rates that are based on uncensored observations will usually be too high. Event-history is a valuable, and increasingly used technique for research.