Sage Research Methods

Beginning Quantitative Research

For the most optimal reading experience we recommend using our website. [A free-to-view version of this content is available by clicking on this link](#), which includes an easy-to-navigate-and-search-entry, and may also include videos, embedded datasets, downloadable datasets, interactive questions, audio content, and downloadable tables and resources.

The Social Context of Quantitative Research

Introduction

We began this volume by noting that all social research is located within the political and social worlds in which it is carried out. Not only is the process of research a social act, but its motivation through choices of things to investigate is also socially motivated, and the consequences of its findings have social effects. Critics of quantitative research will claim that this social embeddedness undermines our claims to be scientific, because value freedom is impossible to achieve when values determine its direction and execution at every stage. A moral position sometimes follows from this, that quantitative methods reflect and further a hegemonic social structure.

This is, in our view, simplistic, but equally is the one that sees the only important social effects as arising from the **ethics** of how we treat our respondents. Though this is important, it is the narrow view of ethics committees, as much concerned about litigation as ethical scientific research. This view treats quantitative methods as if they are socially neutral. It is true that these positions are perhaps expressed in more nuanced terms, but they serve to illustrate two pole positions about the social situatedness (or not!) of quantitative methods. For us, the question of values, context and ethics are closely entwined, and in this chapter our aim is to sketch out (and it can be no more than that, in the space available) a holistic approach to the relationship between scientific inquiry, social context and ethical research.

In this chapter, we do three things. Firstly, we explore the social and political context of social research, but specifically how can socially situated research be objective? Secondly, we examine the ethics of inquiry, once the research has been proposed, and in the final section, we bring together political, ethical and methodological issues in a checklist of what to look for in research – how to assess good and bad research.

Where does social inquiry come from?

The philosopher of science Karl Popper used to ask his students to look around the classroom and tell him what they observed during a minute of silence. Unsurprisingly, this elicited several and varied responses. As

Popper noted, this was not just about observing different things but also the cognitive priorities that led to the observations. He might also have added (perhaps stating the obvious) that what they observed would be limited to what there was to observe in the room.

This is a good analogy for social research – it is those things that interest us, or are seen as societal priorities, that we research. This is equally true of the natural sciences, and an excellent example is that geologists know more about oil-bearing shales than any other rock, because the geology of oil-bearing shales has been a scientific priority ever since society wanted oil (Proctor, 1991, p. 10). This is equally true in social science. In December 2017, the funding opportunities of the UK Economic and Social Research Council (ESRC) contained the following headings (www.esrc.ac.uk/funding/funding-opportunities):

> Addressing the challenge of antimicrobial resistance in India
> New models of sustainable development
> Understanding of the impacts of hydrometeorological hazards in South East Asia
> Dementia research initiative 2018 – prevention, interventions and care delivery
> Climate change priority

These are not the totality of what the ESRC was, is or will fund, but they are a snapshot of priorities at a moment in time, and these particular priorities are organised around the theme of environment and sustainability. They could have been other things, and indeed each year the ESRC, as do other funding bodies in the UK and other countries, sets their funding priorities for that year. In the past, priorities have included governance, education and health. Indeed, for a period in the late 1990s and 2000s, socio-medical research received a comparatively large slice of UK funding, to the point where in some years the medical sociology research group of the British Sociological Association (MedSoc) had more delegates attending its conference than its parent body. To a great extent, priorities will exist across all levels of research from large centres to PhD research. This matters, because, as we said in Chapter 4, all research requires resources. The most important of these is money, to pay for staff and, where appropriate, other costs such as fieldwork. Consequently, what is researched is largely the result of what is funded, and what is funded is decided by a relatively narrow range of people in government, the third sector and in the senior echelons of universities. We are not saying that this is either a good thing or a bad thing, and possibly it is inevitable in any society where funding decisions must be narrowed to priorities, and almost by definition, priority decisions can only be eventually made by a minority, however widely they consult.

In this volume (and indeed in the *The SAGE Research Quantitative Kit*), we refer to large data sets which have

been 'curated' not with a specific research question or questions in mind but rather as resources. These might include the census (in several countries), in the UK *Understanding Society*, the *Millennium Cohort Study*, the *Labour Force Survey* and the *National Child Development Study* (see the analysis example in [Chapter 7](#), amongst many others) and in the USA *The National Longitudinal Study of Youth* or *The General Social Survey*. Because they are not answering any specific questions, they might be seen to be more scientifically 'neutral', and indeed it is true that they can be used to answer a huge variety of research questions, some of which may be potentially politically 'opposed'. But they are not value free, because someone or a group of people must decide which questions are asked. In long-running or panel studies, despite a lot of continuity of questions, some topics (and questions) change over time. Take, for example, the existence of certain facilities available to households and asked in the England and Wales census over the decades. In 1971, respondents were asked if they had access to running water, cooking facilities, indoor toilets and bathrooms. By 1981, this became indoor toilets and bathrooms, and by 1991 this was dropped in favour of a question about central heating (see Dale & Marsh, 1993). In these decades, housing conditions changed and the earlier questions became irrelevant, as virtually everyone had those facilities. At the time of writing, 95%[i] of dwellings in the UK had central heating, and this too will become less useful as a question. Though, over time, these measures have stood in as 'proxy' for relative levels of poverty in households.

So what is funded and what is asked in every study is socially situated and more often than not the result of political priorities in given societies.

Social situatedness is not only an important consideration as to what places a research topic on to the agenda and the research questions it leads to but also an aspect of measurement itself. How we measure things like sex/gender, social class and ethnicity are what one of us has termed *sociological variables* (Williams, 2003), that is what they measure as changes between one time and another, or one place and another.

The measurement of social class has long been controversial (Payne et al., 1996), because for one thing it mostly represents socio-economic status usually measured through occupation type. Can occupation stand in for class relations and the cultural component of class? We will not try to answer that question but merely state it as an example of the challenge of social measurement.

At the time of writing, debate has begun about the measurement of sex/gender (e.g. see Fugard, 2020[ii]; Sullivan, 2020). Sociologists, for a long time, have pointed out that biological sex cannot stand in for the complex set of characteristics that gender is. Survey researchers have responded by saying that the categories male/

female are not meant to be measures of gender but only biological sex, and moreover, sex (as measured) remains an important predictor of male/female life chances. But a growing debate about transgender indicators has led to calls for a third (or more) categories. Possibly a third category would be useful, though it brings us back to the question of whether we are then measuring sex or gender? It is perhaps less of a methodological problem than that of measuring attributes that have several categories, such as ethnicity. The latter is particularly difficult, because although ethnicity is an attribute, ethnic identity is subjectively held, though ethnic relations are often objectively experienced, by individuals, though racism. Nevertheless, two individuals with the same heritage background may regard themselves as belonging to different ethnic groups (Williams & Husk, 2013).

Part of this problem is the number of available ethnic categories available to a respondent. For the researcher, there is a methodological/sociological trade-off. A small number of categories are easier to analyse because they produce larger cell sizes, but they are less valid measures of ethnicity, and a large number of categories, which produces better validity, but small cell sizes,[iii] may not be statistically significant, and this will have consequences for the analysis (Williams & Husk, 2013).

What we research, what we measure and how we measure it are inevitably socially situated, but this is actually true also of the statistics we use for analysis. Though it is true – and this is actually very important – that a particular statistical or analysis procedure is *as used* socially 'neutral', which analyses and statistical procedures *we choose* are socially situated. In some instances, different statistical procedures will produce the same outcomes in the same data set (a form of triangulation), regardless of the social motivation of the research or questions arising. On other occasions, the choice of which procedure to adopt can be a question of political motivation. Take the case of odds ratios[iv] in a logit model (see Volume 8), for example, as in the case of Herrnstein and Murray's *The Bell Curve* (see methodological critique of this by Drew et al., 1995). What is much more common are social trends in the choice of types of analyses, or statistical procedures. For example, mathematical statisticians and decision analysts have long favoured Bayesian methods of statistical inference, but only very recently have they been more widely adopted in other social science disciplines. Structural equation modelling (see Volume 10), once mainly used by psychologists and then economists, is now widely used, whereas discriminant function analysis (assigning individuals to outcome classes on the basis of a set of predictor variables), popular some years ago, is little used. Factor analysis (now a component of structural equation modelling known as a 'measurement model') is being eclipsed by propensity score matching (creating comparison groups on the basis of multivariate profiles), and cluster analysis (defining ho-

mogeneous groups of individuals on the basis of a measure of 'closeness', e.g. as used in symptom profiling) is undergoing something of a revival! We hesitate to call these fashions; no doubt the practitioners of the currently popular methods (most recently, e.g., machine learning and neural networks) would claim that these methods are more fit for purpose than those they superseded, but equally social processes are at work in supervisor–student relations, the number and quality of training courses and/or other resources available.

A question of values

So far in this chapter we have painted a picture of quantitative methods as hugely influenced and shaped by non-methodological social processes and influences. If this argument holds (at least intuitively), how can we be good scientists? Particularly, how can we be objective scientists?

The decision to fund X or Y, to ask a particular question and not another, to structure questions in one way rather than another or to opt to use one type of analysis rather than another are a matter of values. Values are so often presented as only consisting of moral values, but they are more complex than that, and it is perhaps helpful to think of values as existing along a continuum. Let us think first of those with the least social content – those of numeric values – the mathematics that underlie our statistics. These are grounded in probability and at first sight have no social content, but wait! There are different interpretations of probability, each fulfilling the axioms of probability theory, for example, the frequency interpretation of probability (that underpins survey research), the propensity interpretation of probability (which underlies certain statistical procedures) and the 'subjective', or Bayesian, interpretation (Gillies, 2000). That the first of these has dominated social science is the result of particular events in the history of statistics, but it could have been otherwise.

Next in the value continuum might be the methodological values that lead to choices about whether to conduct primary research, or use secondary analysis, the type of survey used (e.g. self-completion or interview schedule) and the choice of analysis strategy (as mentioned in Chapter 7), as outlined above. These decisions may themselves rest on resource decisions, such as time, money or expertise (see Chapter 4).

Finally, there are the research questions that are asked and the political values that underwrite the funding regimes and research topics that are investigated.

Values in social research are not discrete, they are actually continuous, and if you think about the above examples, it is possible to imagine how one set of values shades into another. One obvious conclusion of this

is that claims to value freedom are both a performative contradiction (because the claim itself is a value) and that moral values (what is usually meant by value freedom) are not so easily separated from other values.

Objectivity as socially situated

This then brings us to the matter of **objectivity**. For the proponents and opponents of value freedom, objectivity is seen as the attempt to be value free in social research (Williams, 2006). But value freedom and objectivity are not the same thing. The former is not possible, the latter is.

The latter is possible if we treat it as a value in itself. This in turn has important implications for how we think of the methodology, politics and ethics of social research.

Science itself is built on values, and indeed if those values had not come to the fore during its history, then there would be no science as we know it. Values such as parsimony (https://effectiviology.com/parsimony), consistency, rationality, truth and objectivity are at the basis of scientific method, in natural and social science. Some of these values, such as parsimony (see Nolan, 1997) and truth, transcend time and place, but objectivity is situated in time and place, but it also has generic characteristics than can transcend time and place (Newton-Smith, 1981).

Objectivity has been defined in many different ways (see Janack, 2002), but what most definitions have in common is a desire to provide a historically and socially neutral term. But, the problem with this is that it ignores the context in which objectivity operates. All research has purpose, and this seems to be a necessary (if trivial) condition. Thus, we might think of objectivity starting from a particular purpose, which will determine which questions or methods are appropriate. A second characteristic of investigation is that scientists treat phenomena as if they are real (and consequently have causal consequences). Those causal consequences, particularly in the social world, will depend on the question asked in the first place, so purpose and phenomena are linked. Finally, the search for truth, where truth is in agreement with reality, is a goal which transcends any context, but its search is shaped by that context (Williams, 2006).

A more sociological understanding of objectivity is that it is a value which itself transcends time and place but operates in the context of time and place. If an investigative priority is the social conditions and determinants of health and illness, then this will lead to questions and methods appropriate to its investigation. Had the priority been environmental sustainability, then these are likely to be different. So though we begin with values

and values suffuse the whole investigative process (Longino, 1990), within these objectivity remains possible and necessary for good science. This was neatly summed up by Alvin Gouldner (1973):

> The physician is not necessarily less objective because he has made a partisan commitment to his patient and against the germ. The physician's objectivity is in some measure vouchsafed because he has committed himself to a specific value: health. (p. 58)

The politics of social research

If objectivity is socially situated and methodological choices are taken within the context of what is researched, does this mean that, like taxis at the rank, researchers are available to research anything that is the political choice of those who command the resources that make one research topic possible to research and another not so? Should researchers absolve themselves of any moral qualms about what they research as long as they assiduously search for the truth and uphold the other kinds of scientific values we indicated above? Does it follow from this that objectivity could even operate within a research agenda that began from questionable moral assumptions?

This is complicated, because one person's questionable moral assumption is another's moral good. Added to this are the power relations that exist in the research process. We have used the term *researchers* in a rather simple way that blurs the distinction between seniority, in particular, and other nuanced differences such as gender and ethnicity. Most of the contributors to the volumes in this Kit are 'tenured' professors and are to some extent in a position to choose, on political, moral and methodological grounds, which research they will pursue, though they too must pursue funding opportunities, consultancies and so on, as conditions of employment. In other words, they are free, though not entirely free, to exercise their choices as citizens to inform the research they do as scientists. But the early-career researcher, fresh from their PhD and possibly with a young family to support has fewer choices and may feel compromised into doing research that, in other circumstances, they would not undertake.

In Western countries, these political choices are rarely to be made on the basis of accepting questionable moral values. Funded research rarely begins from a basis of racism, sexism or homophobia. Things are much more nuanced than that, and actually, the problem often lies with *not* being able to research those topics that one, as a researcher, feels to be important. It is a politics of omission, rather than commission, much of

the time. The sifting often begins at the level of PhD research. Several candidates may apply to study for a PhD at any given university and may each be as qualified and motivated as the other. Methodologically their proposals may be equally sound, but often the successful candidates will be those who propose topics that are relevant to research programmes currently in favour. Indeed, many research programmes will build PhD research into their work, and a candidate must choose (or not) to apply to research that topic.

Occasionally, it is not the topic itself that is politically controversial, but where the funding for it comes from. There is, for example, a history (particularly in the USA) of the military funding social research for its own ends, some of which have been seen as highly questionable by social scientists (Horowitz, 1967). Yet, even some military-funded and motivated research can yield unexpected insights, such as that of the sociologist Samuel Stouffer (Stouffer, 1949), who conducted organisational research with the US army, just after World War II, that had profound effects on our understanding of the structure of organisations more generally.

Sometimes questionable research with overt political agendas produces findings that are arrived at through a flawed methodological process or interpretation/selection of the results.

A good example of this and one quite controversial at the time was Peter Saunders's (1990) research of home ownership. Saunders, unusually amongst sociologists, is on the political 'right', and he claimed that his work was intended to confront the left academic orthodoxy (p. 7). He was primarily interested in the consequences of the growth of home ownership on individuals and British society more generally. His initial motivation and his conclusion was that this is overall a good thing.

His research was an interview-based survey with members of 450 households (522 individuals) living in three towns and in three types of housing, all at the lower end of the market and characterised by a preponderance of recent buyers, though around a third of the sample were council (public housing) tenants. His conclusions supported his initial views about the benefits of home ownership, specifically a greater likelihood to partici-pate in local organisations and have a greater social engagement generally, that home ownership generates greater ontological security and, importantly, that homeowners have made substantial gains from buying prop-erty and it will have major consequences for the distribution of wealth and life chances in Britain. Indeed, he concluded, home ownership should be further encouraged to prevent non-owners from slipping into a mar-ginalised underclass. Only through home ownership can such groups escape state dependency and become active citizens participating in the market.

Fiona Devine and Sue Heath (1999) presented a number of criticisms of Saunders's (1990) research: some

are methodological and others are that he makes unsubstantiated claims from the data to support his position. The former criticisms include the choice of three industrial towns, rather than a national sample. These towns are almost certainly not typical, and generalisations to Britain as a whole are unwarranted. Second, the sample size is too small. This presents problems of cell sizes (see above) in the multivariate analysis and reduces the scope to examine the 'association between several variables at once' and 'estimates from sample statistics to population parameters are imprecise', and apparently, substantial differences between groups in the sample might not signal real differences across the population (Devine & Heath, 1999, p. 95). Third, non-response was high, and in some groups possibly influenced findings.

The second kind of criticism concerns Saunders's overall claims, particularly in respect of the equity advantages gained by the home owners. These were far from equally distributed across classes, and from Saunders's data it is clear that the middle classes benefited disproportionately. Devine and Heath (1999) also draw attention to analyses that were not made/presented but should have been. What were the differences between home owners and tenants in respect of 'sex, age, ethnicity, employment status and occupational class to get a feel for the two categories of people whose attitudes and behaviour Saunders subsequently compares and contrasts' (p. 101).

In some ways, Saunders (1990) was an easy target, because, unlike other researchers, he was transparent about his methods, but though he began from an ideological position, the weakness of his methods and the overclaiming that followed undermined his initial position. Moreover, what is especially interesting about this historical example is that many now believe that the expansion of home ownership, at the expense of public housing, severely undermined social solidarity (Jacobs et al., 2003); thus, more contemporary research begins from quite different ideological premises.

However, whilst ideology is inevitably in the background and often the motivation for our theories, it does not have to be a determinant of our methods and results. A search for the truth would commit us to most effective methods to test our theories. In the Saunders (1990) case, either his research lacked methodological competence (unlikely in such an experienced researcher) or what he wanted to find to support his theoretical conjecture led him to the methods he used. Other more rigorous methods, particularly in respect of sampling, would have generated different results.

Ethics in a social context

One can perhaps view the search for truth as the key ethic of science, but in social science, as we have indicated, this will inevitably be in a social context. Yet, beyond complex ideological considerations, the ethics of what we should and shouldn't research often enjoy a widespread consensus in the research community. For example, research for, or funded by, the tobacco or arms industry is seen as unethical by most researchers. Research with vulnerable adults and with children, though not impossible, is usually subject to a number of constraints intended to protect these groups.

Many professional bodies (e.g. the Social Research Association, in the UK, The British Sociological Association and the American Psychological Association) publish ethical guidelines for research that they expect their members to adhere to. Although there is little or no discussion of prior motivations or ideological agendas, these guidelines often have a commonality in respect of the key ethical tenets. Versions of these, in turn, often form the basis of university ethical policies. In these, the broader political and ideological issues we have described above are often left implicit, and the ethical concerns are principally about respondents.

Most ethical codes of conduct outline four key ethical principles in respect of the researcher–respondent/participant relationship.

The avoidance of harm: what effects will the research have on others?

No research act is without some social consequences, though mostly these are entirely benign. However, the literature in psychology, anthropology and sociology is replete with examples of research that had well-intended aims having serious effects on participants, or others, who happened to be in the vicinity. For survey researchers, adverse effects are rare but are not absent. In 1997, researchers at the Universities of Wolverhampton and Birmingham were forced to abandon a survey researching post-traumatic stress disorder. The self-completion questionnaire was sent to a sample of residents of Dunblane, where a number of children had been shot in the local school some months before.[v] The researchers withdrew the questionnaire and apologised.

More mundanely, in designing one's questionnaire, careful consideration should be given to the effects particular questions might have on certain groups. For example, sensitivity to religious beliefs and practices or

questions that are of a very personal nature.

But the researcher's duty does not finish in the ethical design and execution of research. What will the findings be used for and could they be misused? Obviously, researchers are powerless to stop others taking their findings out of context, or deliberately misinterpreting or misrepresenting them. If the sponsors of one's research have a particular ideological goal, then it should not surprise us if they then use the findings to further that goal. But, this aside, misinterpretation or misrepresentation can be mitigated to an extent by very clear presentation of findings and where perhaps statistical uncertainty, for example, is present, then an honest appraisal of the findings is a much safer strategy than overclaiming!

The avoidance of deception

Under what circumstances is it acceptable for a researcher to deceive? There is an important methodological point that because researchers are scientists, then inevitably their knowledge of the area of investigation will be greater than that of the lay person. In most surveys, for example, there would not be time or would respondents usually welcome a detailed explanation of what the survey was about. Yet, in most cases, a written or spoken introduction (depending on the mode of data collection) explaining what the research is about is usual and right and proper. This can be done usually in a few sentences, and these days it is not uncommon for further details to be available on a website. Obviously, within the survey, strategies to test knowledge, beliefs and attitudes, perhaps through items in scales (as illustrated in Chapter 7 regarding the assessment of cognitive function and well-being), are a mild form of deception, but at this level, providing this does not lead to psychological harm, then it is legitimate.

The right to privacy

In quantitative research, the issue of privacy is primarily one of which data can be collected and who has access to it, at the time of the research and later. Respondents' right to privacy is, to some extent, enshrined in laws such as the Data Protection Act in the UK, for example, or the Freedom of Information Act in the USA.

So what kinds of issues can arise? The one that has long been present is that of anonymity. Most social research surveys will be prefaced or ended by a guarantee of anonymity – that the data collected will only be

used for statistical purposes and respondents will not be identified. Most universities have policies regarding the storage and access to subsequent data that will uphold such declarations.

Privacy is more likely to be violated by accident than design, particularly in surveys. Survey data are usually anonymised. This means that respondents are not anonymous, but their identity cannot be discerned from the output from analyses. Unfortunately, small cell sizes have the potential to reveal a person's identity. This is primarily a problem in cross-tabulations, with a third or more control variables – for example, rather than have a simple cross-tabulation for ethnicity and self-reported health for the whole sample, the relationship you might want to examine is the relationship between biological sex and/or state or county of residence and a dependent variable with several categories. One of us (Malcolm) conducted research on living alone, using the UK *Office for National Statistics Longitudinal Study*, for England and Wales (Ware et al., 2007). This is a longitudinally linked sample of census records with 500,000 cases! Possibly one of the largest data sets available in the world. A 12-category household structure variable was derived, but when this was used in cross-tabulations that had previously selected two other variables, one of the cells in the table actually had less than five people in it!

Government surveys and censuses often go to great trouble to anonymise records (Dale & Marsh, 1993, pp. 119–125), and sometimes they insist on the inspection of any output prior to publication. Data presented in cross-tabulations may be subject to the 'suppression' of cells with a count of less than five, such as that indicated above. This is possibly of dubious value, because it is fairly easy to calculate the number in the cell from the row and column counts.

However, it is likely to be a smaller-scale survey where this becomes an important issue where the total sample size (*N*) is just a few hundred cases. What might make a difference here is the specificity of the community research, either its geographical location or a community of interest. For example, research on sufferers (or carers of) a rare disease may have used the database of a support group to obtain the sample, and consequently the subsequent identification of members of that group would not be difficult for a third party.

The principle of informed consent

Informed consent and the avoidance of deception are somewhat linked, though as with the former this does not imply that respondents should have a detailed knowledge of the research. They should, however, know

enough of the purpose of the research and what happens to their data, before they agree to participate. In large-scale 'curated' surveys, such as *Understanding Society*, the data will be analysed mostly as a secondary resource for many purposes, unlike, for example, a one-off cross-sectional survey about attitudes to the building of a new airport runway. Thus, the storage of data, rules of disclosure, anonymity and secure access by only approved persons become very important issues, and in effect, respondents are placing trust in researchers to get these things right. This has become an even more crucial and controversial issue in recent years, when the merging of data sets, or the linking of individual survey data to the same individual's record in administrative data (or parts thereof), became technically possible (see Calderwood & Lessof, 2009; Meyer & Mittag, 2019). Similarly, some cohort studies (such as the UK *Millennium Cohort Study*) collect biological and genetic samples (Joshi & Fitzsimmons, 2016).

Sometimes, again particularly when reanalysing data or repurposing administrative data for other research, individual consent is not always possible. The UK Data Service provide some specific guidelines on this, so that if research without informed consent is to be conducted,

- there must be clear value and benefit from doing the research,
- no alternative research design can achieve the same result – that is, the deception or lack of consent is essential and
- there is no or very minimal risk of harm to participants.

UK Data Service (www.ukdataservice.ac.uk/manage-data/legal-ethical/consent-data-sharing/surveys) provide detailed and useful information and resources on their website that might be used across a range of quantitative research, including consent forms and consent statements. It is also worth consulting a seminal article on the codification of statistical ethics by (the late) Roger Jowell (1986; former Director of the National Centre for Social Research and the European Social Survey).

How do we decide on the nature/quality of evidence from other studies?

This is where ethics and literature review connect! Poor research will cherry-pick earlier research to find that

which is conducive to its theoretical position, or if opposed can easily be shown to be poor or misconceived. Good research will sift through the previous research and look for that which was the most thorough and methodologically robust. In quantitative research, this would include a large enough and representative sample, a good-quality data collection instrument (e.g. a questionnaire) that had been thoroughly piloted, administered and tested. There may not be one form of analysis that is appropriate, but nevertheless it is possible to scrutinise analyses for appropriateness. Were the correct dependent variables and control variables chosen and statistical analysis and conclusions supported by the data? Were the analyses statistically significant? If multivariate analyses were used, were things like odds ratios or goodness of fit (a family of various measures used to assess how close your observed [raw] data are to values predicted by an underlying statistical model or procedure) interpreted correctly? More difficult to call, were the analyses 'parsimonious' or were extremely elaborate methods used and results selectively chosen? In other words, did the researchers torture the data to get their results!

Assessing the **research quality** of the work of others can make us better researchers, because it alerts us to the political and methodological basis of the research, helping us to avoid the pitfalls that such an assessment uncovers. But also an assessment of research, during a literature review, can help you make decisions about citation, or replication of elements of that research, say its sample strategy, questionnaire or analyses. Below is a checklist of some of the things to look out for in the research of others.

Box 8.1: A Research Quality Checklist

✓ Who funded the research and what was the origin of the research questions?
✓ What might have been counterfactual questions? In other words, was the research setting out to prove a position or phenomenon?
✓ Who would be the beneficiaries of the research?
✓ Was the conduct of the fieldwork ethical?
✓ Did the sampling strategy adequately reflect the population composition?
✓ What kind of survey was conducted (e.g. face to face, online or telephone)?
✓ What questionnaire piloting was conducted?
✓ Are the questions reliable and valid?
✓ Are important questions missing?
✓ What checks on data quality were conducted?
✓ What was the level and nature of non-response?

✓   What is the extent of item non-response, and are there any patterns in this?

✓   Were strategies such as weighting or imputation used?

✓   Was the analysis strategy justified, by the researchers, and was it appropriate?

✓   Do the analyses support any conclusions drawn?

Except in large national studies, of the kind mentioned above, it would be hard to answer all of the questions above, in respect of most studies. Data archives will often require some of this information, but journal articles themselves will rarely provide it, on the practical grounds of space, but they may provide a link to supplementary information about the data, research strategy, additional analyses and checks, as well as the data source itself.[vi]

In recent years, there have been a number of initiatives to make visible these kinds of things. Much of these efforts are part of the Open Science Movement. This is not a single organisation, but cumulative efforts to make scientific research accessible, not just to other scientists but also to the public generally. What the principles of the movement are and its nature are the subject of debate (Fecher & Friesike, 2014), and different positions advocate different priorities, such as open data, knowledge creation, measurement, governance and so on. Although the movement has gained momentum, in recent years, the sentiment toward openness in science goes back much further. In the last century, Karl Popper (1966) saw open science as the cornerstone of an open society, one that develops through testing and problem solving. Helen Longino (1990), whose work was grounded in feminist empiricism, saw the scientific community as the arbiter of truth. Indeed, what we describe as 'situated objectivity' also requires transparency of intention, data and methods.

What does this mean in practice for quantitative researchers? The move to open access, for published findings, has gained particular momentum. Traditionally, academic publishing in journals required a subscription to the journal, or, more commonly nowadays, payment to view an article. But now there is pressure, particularly from funding councils, to make results accessible to all through 'Open Access'. In practice, this means that the researcher, or their organisation, pays the publishing fee so that the reader can simply download the paper.

Conclusion

All science has a social context. Science itself is a social product, albeit one whose results can transcend particular social contexts. For social science research, this is even more of a challenge, because researchers are part of the social context they are researching. That is, the questions asked mostly come from the society in which the researcher is a social actor and the questions asked inevitably have a political or ideological origin. This does not mean objectivity is not possible, but objectivity is a social value that exists in context but can transcend that context through good scientific method. Good science should also be open to scrutiny, and the careful examination of how other researchers go through their data and reached their conclusions is a valuable part of the process of learning to be a social researcher.

For social researchers, the 'materials' of their science are people themselves, and this places limits on what kind of research can be done and how it can be done. The ethics of social research are both broad and narrow. Broad in the sense that society and the community of social scientists will set ethical limits on what kind of research can be conducted and things like how it is funded and who will benefit from it. And narrow in the sense that at the level of data gathering the data comes from individuals, who are seen to have rights over their own data.

Chapter Summary

- No research takes place in a moral or political vacuum; moreover, in our view, there is no such thing as value-free research. These things are connected, and in this chapter we discuss three important issues: firstly, we examine some of the issues in the context of social research, such as policy priorities and funding regimes.
- Secondly, the ways in which research, though it must begin from a value position, can nevertheless be objective. This then has implications for research ethics and the role of the researcher in conducting ethical and responsible research.
- Finally, in this chapter, we offer some brief advice on assessing research quality.

Further Reading

Letherby, G., Scott, J., & Williams, M. (2013). *Objectivity and subjectivity in social research*. Sage.

Much of the writing on objectivity and subjectivity is somewhat simplistic, but if you want to look at a more nuanced approach – that is a debate between three similar but differing perspectives – you may wish to read the above.

Hammersley, M. (1995). *The politics of social research*. Sage.

Although many textbooks will discuss the ethics of research, in respect of participants, few discuss in detail the politics of research. And yet social research has become politicised. Martyn Hammersley asks must we choose between this and 'value freedom'?

Notes

i www.statista.com/statistics/289137/central-heating-in-households-in-the-uk.

ii The full debate can be found at www.tandfonline.com/toc/tsrm20/23/5?nav=tocList

iii Suppose you have a cross-tabulation of self-reported health and ethnicity. You have conducted this analysis to see whether different ethnic groups report health differently. Now, further suppose that there are very few people in one ethnic group, so that one 'cell' in your table is very small. Other cells will have (say) hundreds of respondents, but one cell has four respondents. The problems are this. That cell may be too small for any statistical test of association to be meaningful or 'statistically significant' (a concept you will encounter in Volumes 2 and 3). Secondly, it might be possible to discover the identity of those respondents, because there are so few of them. We discuss this later.

iv An 'odds ratio' is the ratio of one odds to another. The size of any relationship is measured by the difference (in either direction) from 1.0. An odds ratio less than 1.0 indicates an inverse or negative relation. An odds ratio greater than 1.0 indicates a direct or positive relationship.

v Reported in the *Guardian* newspaper 15 January 1997.

vi Many journals now require that data and instruments from research, and referred to in academic articles, are also made accessible to the reader. In practice, this may consist of anonymised data files, codebooks and questionnaires.

https://doi.org/10.4135/9781529682809