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ON EPISTEMIC INTEGRITY IN SOCIAL RESEARCH[1]

The term 'research integrity' (or sometimes 'researcher integrity') has come to be widely used in recent years, especially in official documents relating to the governance of social and psychological research (see Banks 2015). Its current popularity is quite closely related to the rise of ethical regulation; and there are problems with what it is taken to entail that arise from this – a tendency to interpret it as requiring the '*following* procedures or protocols', or '*adherence* to principles', etc. In short, we might say that what is promoted is a 'compliance' conception of integrity. Nevertheless, this popularity of the concept of research integrity has served a useful function in drawing attention to aspects of the role obligations of researchers that have not received the attention they deserve: those relating to the actual task of producing knowledge, as compared with ethical issues to do with the treatment of participants in research.[2]

There is, though, some uncertainty about what the phrase 'research(er) integrity' means in current discourse, and clarification is clearly required if it is to be used effectively. The uncertainty lies, in part, in its relationship with 'research ethics'. In some usage the two terms appear to be treated as complementary, so that 'integrity' is taken to refer to important aspects of researchers' behaviour that are not always included in, and are certainly not usually central to, discussions about research ethics, such as avoidance of plagiarism, the declaration of conflicts of interest, and a commitment to research rigour (see, for instance, Shamoo and Resnick 2015). However, at other times, the term 'research integrity' appears to operate as an overarching category that *includes* those issues normally discussed under the heading of 'research ethics'.[3]

In this paper I will use the term in an overarching sense, to refer to all of the role obligations of social researchers. However, I will draw a distinction between 'epistemic' and 'ethical' aspects of research integrity. To some degree, this distinction points to two different sets of values that are relevant to the research process, though what is perhaps more important is the *function* that these values play. Truth is the most obvious epistemic value, but we can add justifiability, relevance, feasibility, and honesty. Elsewhere I have argued that these values have an intrinsic relationship to the research process, while ethical (along with prudential) values operate as important *external* constraints (see Hammersley and Traianou 2012:ch2). However, for the purposes of this paper the reader does not need to accept this argument, only that there is

[2] Of course, integrity has long been recognized as an important moral quality, in relation to research and more generally. As regards research, it is central to Weber's (1917, 1919) notions of 'value freedom' and 'science as a vocation', and its general ethical importance can be traced back to the writings of Aristotle.

[3] The task of gaining clarity here is not eased by the fact that there are also problems about the meaning of 'research ethics': Hammersley and Traianou 2012:ch1.

an important aspect of research integrity that is concerned with epistemic matters, in other words with the production of sound knowledge, one that relates to researchers both individually and collectively as members of research teams and communities.

The importance of epistemic integrity at the present time can hardly be exaggerated. More than ever, we live in a world in which factual claims are distorted, or simply made-up – by advertisers, governments and politicians, tabloid newspapers, online 'news' sources, and others. Moreover, in public disputes, for example those around climate change, scientists are sometimes pushed by the media, or by their own strongly held commitments, to go beyond the evidence, while those who find particular research findings not to their liking raise spurious questions about them. While it may be an exaggeration to say that we live in a 'post-truth world', these processes are increasingly frequent and they seriously damage the production and distribution of sound evidence relevant for important decisions facing not just policymakers and practitioners of various kinds but also individual service-users and consumers.[4] There are also specific threats to the quality of research at the present time. Israel (2014:3) has argued that 'the pressures on academic integrity are growing. The greater dependence of universities and their researchers on sponsorship and the linking of government grants and salary increments to research performance have heightened the prospects of unethical behaviour by researchers'.[5] In this situation it is incumbent upon researchers not only to uphold in public the need for integrity in producing and handling evidence but also (more than ever) to try as best they can to meet the requirements of integrity in their own work.

Above all, epistemic integrity requires that a researcher strives to make sound judgments regarding *what would be best in pursuing a particular project so as to produce sound knowledge, the validity of the findings produced in a study, and the current state of knowledge in a field*. While some aspects of this have been identified and discussed by a number of authors (Macfarlane 2009; Hammersley and Traianou 2012:ch1; Banks 2015), the full range of relevant issues has rarely been spelt out, and this is what I will attempt here, under headings that relate to key aspects of the research process.

Selecting and developing research questions

A first requirement for epistemic integrity is that research questions, whether these are relatively vague and open-ended in character or constitute much more specific hypotheses, have some worth, in that the answers would, at the very least, be of general human relevance or interest. This is a complex and contentious matter, in the sense that it is subject to differential interpretation – ranging from very narrow to much broader conceptions of what would be of value. It is a common complaint about some kinds of social research that they deal with matters of only 'academic' interest, where this word is taken to imply that they are of no relevance to the

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[4] On the notion of a post-truth world, Leith (2017) provides a review of the recent crop of books on this topic.
[5] In the terms I am using here, the last part of what Israel writes should read: 'the prospects of a lack of epistemic integrity on the part of researchers'.

lives of ordinary people, or that they do not address important public issues.[6] By contrast, others argue that academic research should not be tied to current policy priorities or even to lay people's most pressing concerns – that researchers should be free to investigate a wide range of issues, including ones that may seem relatively trivial in themselves, so long as these have at least some indirect relevance or importance (in general, or at some particular place and time).

Such differences in view take us into the question of what should be the social function of research, and how it ought to be organised and controlled. In recent years – in the UK, and elsewhere – there have been increasing attempts strategically to manage social research, for example with funders identifying priority areas, as against operating in responsive mode – where they simply consider whatever applications for funds, on whatever topic, are submitted by researchers. Universities have also begun to engage in specifying research topics on which 'their research' will concentrate, requiring that the work of 'their' academics be related to these. Such strategic management has frequently involved a blurring of the distinction between applied and academic research, with the latter tending to be reduced to the former (Hammersley 2011:Intro).

Also involved here is a conflict between two very different conceptions of how academic research needs to be organised if it is to flourish. Many years ago, Polanyi (1962) offered a strong critique of attempts strategically to control natural science, outlining the endogenous mode of organisation that had facilitated its success in the nineteenth and early twentieth centuries.[7] However, this mode of operation has largely been abandoned in many fields of natural science today, partly under the influence of the high costs involved in such research, as well as both commercial and governmental pressure to focus on areas that are taken to be of the highest priority in technological or practical terms (Ziman 2000). And, in the field of social research, there have been increasing calls for a move away from the traditional mode of operation, close in character to that recommended by Polanyi, to a new, more flexible interdisciplinary, in fact postdisciplinary, mode that is concerned with tackling specific, practical problems (see, for instance, Gibbons 2000; Huff 2000; Novotny et al 2001).

These different conceptions of the basis on which topics for research should be selected, and of how research should be organised, tend to lead to very different conclusions about what are and are not justifiable research questions. It is my view that the narrow conception of relevance, along with attempts strategically to control academic research, are undesirable and have damaging consequences, intended and unintended (Hammersley 2011:Intro). Equally, though, I believe that social research must be strongly oriented collectively to building knowledge over time that relates to important social issues. For the purposes of the present discussion, though, my point is simply that research questions should be formulated with a view

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[6] This criticism has also been applied to some areas of natural science. For a spirited recent contribution to the debate about 'meaningful' research, see Alvesson et al 2017.

[7] The attempts at strategic management that Polanyi criticised (which, interestingly, were partly prompted by the Soviet Union's 'planning' of science) are also at odds with academic freedom, which has an elective affinity with the endogenous model of scientific organisation he proposes. On academic freedom and the threats to it, see Fish 2014; Traianou 2015; Hammersley 2016.

to what is worth investigation, and that the conception of worth employed in deciding this needs to be given consideration.

A second, equally important, consideration regarding research questions is that they must be capable of being answered by means of empirical research. It perhaps needs to be emphasised that not every interesting and important question is open to effective investigation; indeed, much of the time, only a small proportion are. One reason for this is that being able to answer some questions (and sometimes even being able to *formulate* them effectively) relies upon having answered prior ones. In this important sense social research is, or should be, a developmental process; so that what questions can be addressed effectively will depend upon the relative stage of development in the field concerned.

More than this, though, many 'big questions' are not open to empirical investigation *in principle* because they concern, for instance, whether a policy or practice is desirable or undesirable, right or wrong; and empirical research, by its very nature, cannot answer such questions on its own (Weber 1917; Hammersley 2014). Furthermore, while it can, in principle, answer questions about what happened in some situation, about the features of particular events or institutions, and about causes and effects, it cannot tell us what will happen in the future. The best it can do is to provide some of the resources that are necessary for answering value questions, and for anticipating future outcomes.

Equally important is the issue of available material resources. There are research questions that it may be possible to address *in principle* at the present stage of inquiry, but that would require a level of resources that is not likely to be available. This, again, should rule out some research questions, however important they may be. While there is much pressure to tackle 'big', or highly policy-relevant, questions, attempts to answer many of these will, very often, be futile; especially through a single study and with the level of resources usually available to most academics in the social sciences.

So, epistemic integrity requires that researchers only tackle questions that are open to effective investigation, and it also demands that they are honest about the limits to this. Above all, it requires that they do not pretend to have answered questions that their research did not tackle effectively, and perhaps could not have tackled.

Both the issue of what is worth investigating and what is realistically open to effective investigation can be difficult to resolve with certainty, nevertheless some decision about what to focus on must be made at the beginning of any research project, at least in broad terms; though, of course, the judgments involved can often be revised over the course of inquiry. Indeed, they may *need* to be revised, since all manner of contingencies can occur, anticipated and unanticipated, that can change what is a worthwhile and feasible focus of inquiry. So, the issue of whether the research questions being addressed are appropriate must be continually revisited as the research develops.

Resourcing research

Not only must researchers take into account the resources likely to be available to them, they will also of course often need to bid for those resources, and here too issues arise that are relevant to epistemic research integrity. A first one concerns from whom funds for research should *not* be accepted. Some potential sources may be ruled out on *ethical* grounds, for example organised crime. However, epistemic integrity is also relevant where there are likely to be conflicts of interest involved with particular funders. For instance, if one were planning to investigate the reasons that lead people to quit smoking, one might reasonably hesitate before accepting funds from a tobacco company for this work (were they to be available).

There is also the question of the *terms* on which funds are allocated, in other words what 'strings' are (or may be) attached. It is not uncommon to find funding bodies laying down various requirements and restrictions. These may involve the provision of interim reports privately to them about the progress of the research (opening up the possibility of termination of the research if they are not happy with the direction in which it is going). They may also require permission to be sought before publication of the findings, or even assignment to the funder of the right to embargo or modify research reports. Such restrictions are not uncommon in government contracts for research, and in commercial ones as well. While they may be reasonable enough from the point of view of the funder, they threaten the process by which research can be carried out effectively, especially given the extent to which this is dependent upon the validation of any knowledge produced by the wider research community. For this reason, careful thought needs to be given to what is and is not legitimate here, *from the perspective of academic research*. Moreover, any restrictions under which the research was funded should be made public in research reports.

Another issue concerns how, in applying for funds, the research is presented to the funding body. There may be a temptation to exaggerate the value of the likely findings, and to downplay the problems that could be involved in doing the research. One may also be inclined to exaggerate the scope of the inquiry that will be possible, for example proposing investigation of a larger sample than is likely to be feasible in practice, aiming at a higher response rate than will probably be achievable, proposing a more in-depth or more extensive analysis than will likely be possible, and so on. Clearly this verges on, if it does not amount to, dishonesty.

However, this is not a simple matter, any more than is deciding what restrictions exercised by a funder are acceptable. Prudential considerations are also involved. What if many other researchers oversell their proposed research, at least those do who are successful in getting funds? What if the expectations of funding bodies are unreasonable about what can be investigated with what level of resources? Does having integrity allow engaging in 'reasonable exaggeration', or does it rule this out? Even from a 'strategic' point of view one would, of course, be wise not to promise a great deal more than is likely to be deliverable. But should we at least adopt an 'optimistic' rather than a 'pessimistic' assessment of what will be possible? Here, as elsewhere, reasonable discretion must be exercised, but what is and is not reasonable will clearly be open to dispute.

Use of the existing literature

A researcher has an obligation adequately to search for relevant literature. Of course, searches can never be absolutely exhaustive. One reason for this is that time and other resources are scarce, and those that are allocated to searching the literature are not available for other activities, including reading and reviewing what is found. More fundamentally, there are no built-in limits to what could count as relevant literature. Indeed, it would be better to think of relevant research *literatures*, since there are often different ones relating to different aspects of the research questions, as well as to the methods that it is proposed to use. Moreover, in each case, what could be relevant extends indefinitely, potentially, so that some judgment has to be made about cut-off points. Nevertheless, if researchers do not search effectively for relevant literature, there is a danger that they will go over much the same ground without learning from the past. And my sense is that this frequently happens.

We should also note that what is relevant literature for a project may well change as research questions develop, and as methodological strategies are adapted to deal with emerging conditions and the developing process of inquiry. There is a need, then, to recognise the changing needs of a project as regards use of the literature, and to carry out new searches as appropriate. It is thus unlikely that one will be able to write the final version of a literature review, to be incorporated in the research report, before one has collected *and* analysed the data.

Equally important, time and effort must of course be put into reading and assessing the relevant literature that has been found. There are different kinds of reading, and for some purposes some relevant literature can simply be scanned, but it is essential that the most relevant material is studied in depth and with care. Furthermore, crucial to this is making assessments of the likely validity of the findings of studies, and of how well those studies were carried out, with a view to learning all that can be learned from them for the purposes of one's own research. There is danger in relying entirely on secondary sources, such as previous reviews of the literature, accounts in textbooks, etc, since these may be inaccurate. At the same time, it is important that relevant secondary literature is given attention, particularly that which itself engages in critical assessment of the works concerned. Failure to do this is not uncommon. An example, on a considerable scale, can be found in research that draws on so-called 'post-structuralist' French philosophy, where Derrida, Foucault, Deleuze, et al are quoted from English translations of their work, but without much apparent attention to the substantial critical literature, in French and English, that has grown up around this work.

There is also a research integrity issue regarding how one should present relevant previous studies in research reports. There may be a temptation here to downplay or even misrepresent their contribution, in order to clear the way for one's own study. This is perhaps especially likely when studies are used as illustrations of the inadequacies of previous research, or as exemplifying a misguided approach. Unfortunately, it is not uncommon for previous work to be caricatured in this process, which is not to deny that it may well have major failings. Research integrity requires that the literature is shown appropriate respect, in other words sufficient effort must be made to grasp what previous authors have done, and why; the evidence

and methods they have used; and the reasons for the choices they made in carrying out their work. It is easy to pigeon-hole their work under some general category, or to dismiss it completely on the basis of some perceived flaw, or on the grounds of their supposed political commitments or motives.

Equally to be avoided is the misinterpretation of previous work where it is used as a positive source or model for one's own work: here there may be a tendency for criticisms that have been made of these studies to be neglected or downplayed. It is not uncommon for past work to become seriously misrepresented in this way, indeed a tradition of misrepresentation sometimes builds up that results in authors routinely being taken to have argued almost the opposite of what they did in fact argue.[8] Once again, this points to the need to read the original work, not just commentaries on it.

More specifically, care must be taken in using quotations from other people's writings, to try to make sure that these are not 'presented out of context', in the sense that, as quoted, they carry different implications from what seems originally to have been intended. It is not uncommon, for example, to find a quotation being used from part of a text where the author was presenting two sides of an argument, while the quotation only relates to one of these sides. Errors may also occur where a quotation cuts out words from within a sentence, even when the omission is indicated. For example, a qualification an author attaches to a statement may be omitted. Such errors can occur inadvertently as a result of relying on one's notes rather than going back to the original source. Checking the sources of quotations is essential.

Much more obviously, integrity requires that plagiarism is avoided: the incorporation of others' words into one's own writing without any indication that quotation is involved, or without appropriate citation. Also to be guarded against, though, is the inclusion of too much quotation, a practice offered a justification in the notion of 'uncreative writing' (Goldsmith 2011). Sometimes this is associated with a failure to read carefully what has been quoted, and frequently it involves a failure to consider how it could have been expressed better. But, equally important, excessive quotation amounts to a failure to take full responsibility for the argument being presented. Nevertheless, direct quotation is sometimes essential.

While the literature must be respected, this does not, of course, mean that it should not be critically assessed, especially in the case of the key studies directly relevant to one's work; and this assessment must be made explicit. There is an obligation to engage in such criticism, and this can focus on a number of features: the concepts used – how well-formulated they are, how appropriate, and how well they are used; the formulation of research questions; the selection of cases for investigation; the types of data employed and how these are presented in the report; and the likely validity of the findings and the conclusions. Such evaluations are sometimes done with a view to making a case for a new research proposal or a new study, and I noted the dangers of

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[8] Examples include Becker's article 'Whose side are we on?' (Becker 1967), on which see Hammersley (2000:ch3), and Rosenthal and Jacobson's (1968) *Pygmalion in the Classroom*. Sometimes this sort of distortion derives from the feeling that some ideas or findings are 'too good to be false' (see Hammersley 2011:ch5).

bias resulting from this earlier. But reviews can be research products in their own right, designed to summarise what is known about some topic. Where this is done for a lay audience, there may be the threat of bias resulting from a desire to maximise the 'impact' of the research findings, or even to move a policy issue up the public agenda or to push policy in a particular direction. These, too, are dangers to be guarded against in the name of research integrity.

Selecting cases for investigation

It is an obvious requirement that the cases selected for study must be appropriate for the research questions being investigated. However, cases can serve different functions. Is the aim to select one or more cases that are *typical* of some category, or representative of some population? If so, what category or population is involved, what exactly does 'typicality' or 'representativeness' mean in this case, and how can it be best achieved? Or is the aim comparative analysis of some kind? In which case, decisions need to be made about whether the aim is to minimise or maximise differences between the cases, as well as about which differences are relevant. Of course, a case may be selected initially as an instance of something interesting and/or important, with a view to providing a description and explanation of its unique features. But in most research, including much qualitative inquiry, more general claims will come to be made explicitly or implicitly, and when this happens the rationale for generalisation (empirical or theoretical) needs to be considered, and stated. There is a whole host of issues here, then, that researchers must take into account if they are to do their research well.

A number of ancillary points can be mentioned. One is that while sampling based on statistical theory can be a very useful technique, it does not, in itself, facilitate the task of selecting cases for comparative analysis. Nor is it always feasible or necessary even when the concern is with what is typical or representative. Its use is certainly not mandatory for research integrity. What *is* mandatory is attention to how well whatever sampling strategy adopted serves the purposes of the research, both in principle and in practice (for example when 'non-response' is taken into account). It also needs to be remembered that if the research questions change over the course of an inquiry it may be necessary for the sampling strategy to be modified: what that strategy must serve is the research questions that are eventually addressed in the research report, not those that were initially formulated.

Thus, where the aim is generalisation to some finite population the nature of this population must be made clear, and the grounds for assuming that the case(s) studied are representative examined. Similarly, where the goal is to identify some conditional causal relationship among categories of phenomena, the nature of that relationship and the evidence for concluding that it operates must be carefully considered. Neither kind of generalisation is unproblematic in the context of social science, and achieving either with a high level of likely validity is challenging. It is important that there is honesty about what is being attempted and the degree of success likely to be achieved or actually achieved.

The other side of this issue is that, given that it is not possible to represent any case exhaustively, there must be clarity about which aspects of cases are to be represented and why. Of course, in the early stages of research what is relevant may not be clear to the researcher: it is

unavoidable, indeed often desirable, to operate on the basis of 'hunch', relying on one's best judgment about what will be fruitful. But, as the research goes on, the rationale for what is being focused on and what ignored in studying particular cases (along with why study of these cases is appropriate) needs to be made as explicit as possible, and evaluated.

Data collection or production

A first question that needs to be addressed under this heading is whether, in fact, new data are required. There should be at least some consideration given to whether the necessary data are already publicly available or can be accessed in an archive. There is now a considerable amount of archived research data, especially quantitative but also qualitative; and it is often argued that this is seriously under-utilised. While, very often, these data will not be sufficient to address the research questions of a new study, they may sometimes be, and they can also supply a worthwhile supplement to new data.

Given that what type of question is being addressed can make a significant difference regarding what (if any) new data need to be collected, careful attention must be given to this relationship, throughout the research process. For example, if the aim is to produce a *description* of some phenomenon, what is necessary will be different from where the aim is to *explain* the occurrence or nature of that phenomenon. Producing explanations still requires descriptions (of cases in which what is to be explained occurs or is absent, and perhaps also of those in which various potential explanatory factors are present or absent, or are present to some degree), though here the descriptions will be tailored to the explanatory task. And explanation also requires some sort of comparative analysis, even if this amounts to a thought experiment rather than a systematic comparison of actually existing cases of different kinds. Careful consideration needs to be given to what is the most productive comparison, and what conclusions can be drawn from it. And some assessment of this will need to be provided in research reports. Furthermore, there can be change in the requirements of description and explanation, as the research questions become clarified and the research process becomes more progressively focused. All this reinforces a point made earlier: that integrity requires that we be as clear as possible at each stage of the research process about our goal, and about the requirements of achieving it, make adjustments to the research design, as appropriate.

Even with clarity about the intended product of the research, how to obtain the data required is usually by no means a straightforward matter: it requires the exercise of intelligence if the research is to be done well – which is what integrity requires our goal to be. For example, setting up interviews with people and asking them questions designed directly to answer our *research* questions will rarely be effective. Instead, ways will usually need to be found to gain data that will enable us to answer the research questions *indirectly*.

Another important element of epistemic integrity is that the researcher must consider the full range of methods that could be used to obtain data relevant to answering the research questions. There may be a tendency for researchers to choose from a relatively narrow range of methods; it has been claimed, for instance, that there is an increasing tendency among qualitative researchers to opt immediately for interviews. It is important to remember not only that there are

several other sources of social data available (observation, use of documents), but also that interviews (like other methods) can be carried out in a variety of ways: the number of participants may vary (on both sides), as can where the interviews are carried out (for example on whose territory), the projected length, whether a single interview is to be employed or repeated interviews, the sorts of question to be asked (not just whether these are strongly or weakly structured but also what form they take – such as invitations to reflect, requests for detailed description, challenges to claims that have been made, etc), whether prompts of various kinds are to be used (photographs, video-extracts, magazines, etc), and so on. Given that there is a range of methods that social researchers can employ, and internal diversity within the use of particular methods, careful (and continual) attention must be given to the particular manner in which data are to be collected.[9]

Another consideration often involved in the selection of methods concerns the assumptions built into the use of particular methods. For instance, there are researchers who believe that the goal of science is causal explanation of phenomena, and that experimental method is the gold standard in pursuing this goal. At the other end of the spectrum are those who believe that human experience and social life are too complex to be grasped in causal terms, and that the first priority is detailed description of personal experience and/or of behaviour. There are clearly fundamental – and, in some respects at least, reasonable – disagreements here about what is a possible and desirable research product, and about how it can best be achieved. Given this, neither of these views can be legislated as part of research integrity. However, at the same time, I believe that integrity extends beyond 'being true to one's paradigm'. There is an obligation to reflect carefully on the assumptions built into whatever approach one is using, and its competitors; and to modify one's position, as appropriate, on the basis of these reflections (not least because paradigms typically come in changing varieties, and the differences among them are often less than claimed).

A further point is that in using particular methods there is an obligation to employ these in ways that reflect an understanding of what has been learned about them in the past by other researchers. This means that some familiarity with the methodological literature is required, but also reflection upon the method and how it would be best to use it in one's own project. Often this is a matter of balancing different potential features of a method. For example, an essential element of interviewing is to listen very carefully to what informants say. This is particularly important in relatively unstructured interviews, where the next question one asks should usually be based upon what the informant has just said (rather than following a prearranged sequence of pre-formulated questions); though, of course, listening is important to some degree in all kinds of interviewing. Any tendency to force what people say into one's own framework must be resisted. At the same time, people do not always tell, or know, the truth, nor do they always produce

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[9] Of course, deciding what data are required and how to obtain them is not simply based on what is most appropriate for the initial research questions. Indeed, as I have noted, these questions may change, not least as a result of the data collected – an interactive process is involved here. Also relevant is the existing competence of the researcher in relation to particular methods. Few, if any, researchers can be competent in the use of all methods. However, what

responses that are authentic in other respects (they may say what they assume the researcher wishes to hear, or what would show them in the best light). Nor is what they say always relevant to the research, though care must be exercised in treating it as irrelevant. Therefore, it is sometimes necessary to challenge what people say, or to stimulate them to reflect on what they have said, or to test out the implications of what they seem to be saying, or to steer them back to what is relevant to the research. This is not incompatible with listening to people carefully, with a view to understanding the logic and validity of what they are saying. However, in the context of the interview, and in that of analysis, there may well be a tension between these two concerns. Integrity requires that an appropriate balance is struck, as far as possible. Of course, once again, what this means in any particular case may be a contestable matter.

A rather different aspect of research integrity relating to data collection is that the researcher may need to resist attempts, for example by gatekeepers who control access to informants or to particular settings, to shape what data are to be collected, and perhaps also how they are analysed. This is a source of potential bias, and it is the responsibility of the researcher to try to minimise it, along with other possible biases. Of course, this may well be implicated in complex negotiations, in which ethical and prudential will need to be taken into account. Nevertheless, judgments about what restrictions to accept, and which to challenge, must treat methodological considerations as a priority.[10]

Even aside from attempts by gatekeepers, and perhaps also by participants, to shape the data and analysis in particular directions, demands may be made on researchers, for example for services of various kinds, that may affect what data can be collected, and/or reduce the time available for collecting, processing, and analysing the data. For instance, in the case of research in schools it has been quite common for researchers who are trained teachers (and sometimes for those who are not) to be asked to 'look after' a school class for some period of time, or even to do supply teaching. The response made to such requests (or demands) must take account of the consequences for the research, as well as of ethical considerations regarding the students. At the same time, of course, other considerations, including ethical ones regarding reciprocity, may lead to such services being provided, despite the fact that they reduce the time available for data collection, or affect the type of data produced.[11]

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this ought to mean is that research questions are selected partly in terms of whether they are amenable to the methods which the researcher is able to deploy.

[10] In selecting sources of data there must also be attention to prudential considerations. These relate to such matters as whether a particular method would carry a serious risk of some sort for the researcher. For example, while the best data for a study may come from direct observation by the researcher in some setting, careful consideration should be given to what this would involve and the dangers that may be associated with it. For a discussion of this issue in the case of qualitative research, see Bloor et al 2010. Ethical considerations are also relevant here as well, but I leave these aside here because they have been well-covered in the literature on research ethics, and belong under the heading of 'ethical integrity'.

[11] While it may be possible to collect important data through being a participant, it must be remembered that the demands of a role such as that of teacher are such as to obviate collection of much of the data that an *observer* in the classroom could obtain, even if there is experiential data made available thereby that an observer would have less easy access to. Furthermore, playing an established role in the field will shape one's relationships with others,

Deciding what sorts of data are required and how to obtain them is often conceived as a matter of research design, and this is reasonable so long as we do not assume that it takes place entirely at the beginning of research – it goes on throughout inquiry, even if it is more of a priority in the early stages. Also important to recognise is that decisions will have to be made in conditions of considerable uncertainty – particularly about what the consequences of any decision will be for the data collected and for the analysis. The aim can only be to make the most reasonable judgment at each point in time. Once an initial decision about the types of data to be used has been made, and the process of data production has begun, there must be continual monitoring of what data have been obtained, along with reflection on how well these data can serve to answer the research questions, what further data may be required, how the data collection process may need to be modified to provide what is required, and so on. In flexible forms of qualitative research, especially, this will be an extremely demanding task, and one that can only be achieved in a rough and ready way at best. However, such ongoing attention to research design is essential, and this is true of quantitative research too.

Even when this requirement is met, it is likely that at the end of the project, looking back, one may well see gaps in the data that it might have been possible to have avoided, so that a revised evaluation is reached about some of the decisions made during data production. But this is almost unavoidable. What is important, from the point of view of research integrity, is that there is honesty about any weaknesses in the data collection process, and about their implications for the likely validity of the findings. It may be that they undercut the possibility of reaching any sound conclusion at all about the main research questions; and, if this is the case, it must be acknowledged. However, usually, weaknesses in the data production process simply indicate that qualifications are required regarding the likely validity of particular findings. And these could perhaps be remedied through further research.

Data analysis

What is required here can be described fairly simply: development of the most appropriate mode of analysis for answering the research questions, as currently constituted, while also taking account of the nature of the data. However, even more than data production, analysis is by no means simply a matter of choice from a range of well-defined options. The most obvious axis of variation is quantitative versus qualitative analysis: between an approach in which data are structured so as to provide counts, rankings, and/or measurements, and one that assigns data to various categories or themes that are not mutually exclusive or exhaustive, and may be significantly reformulated in the analytic process.[12] In the first approach, a clearly defined set of

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beneficially in some ways perhaps (for example, to continue with the example, improving relations with other teachers in the school) but also perhaps in undesirable ways (for example, in shaping relations with the students).

[12] It is important to recognise that what is involved here is not a simple dichotomy but a multi-dimensional space, so that there is much scope for variation. We should note, for example, that Qualitative Comparative Analysis and perhaps also Analytic Induction, methods that may be qualitative rather than quantitative in other respects, require a categorisation process that allocates items to one and only one of some set of categories, by contrast with grounded theorising and many other kinds of qualitative analysis. Furthermore, there is no reason, in principle, why thematic

categories, or scale, is developed within which each relevant data item can be assigned to a unique place, with the category system or scale being exhaustive of the relevant data. In the second approach, the data are assigned to categories in a way that is flexible and multiple, these categories serving as sensitising concepts that are refined or modified so as better to serve the development of explanatory ideas. However, there is a range of strategies under these two broad headings. If the data have been structured in a way that allows counts, rankings, or measurements, there is still considerable scope for variation in analytic strategy, from the use of relatively simple descriptive statistics (percentage differences, rates, indexes, averages and measures of variation, and so on) to much more sophisticated techniques that can be very demanding in the requirements they place upon the data. These techniques can vary, too, according to whether they are aggregate-based or case-focused (see Byrne and Ragin 2009).[13] Similarly, if the data have been structured in a looser way to facilitate the development of 'thick descriptions' or explanatory theories, there are various possibilities regarding how this is to be done, from grounded theorising to narrative or discourse analysis.[14] Choice amongst ways of analysing the data, as well as the particular substantive categories or scales developed, must show due care and diligence, avoiding overly superficial analysis, but also avoiding the use of complex techniques that make excessive demands on the data available.

Up to now I have been concerned with outlining the sorts of reflection required in the selection of analytic strategies. Also relevant under this heading, as under others, is an obligation to minimise the risk of bias – in other words, systematic rather than haphazard error. Bias in analysis can arise from a number of sources. One is the background preferences of the researcher: most of us will find some lines of analysis and some conclusions much more appealing than others, and may even find some unpalatable. But we should be prepared to pursue whatever conclusions appear to be true: we must follow the analysis wherever it leads. A second potential source of bias is a concern to produce 'big news', or to produce positive rather than negative findings. These types of conclusion may well be desirable, but they must not be forced out of the data. As I noted earlier, there are often external pressures as well as internal temptations to do this.

A further kind of bias, particularly relevant in qualitative research, is a concern with producing a *coherent* story: the danger here is overlooking inconsistencies in the dataset and/or bending data to fit what is taken to be the emerging picture or theme. It is a fact of life that the world is complex, so that there may be apparent contradictions. For instance, people's perspectives are by no means always internally consistent – there may also be situational variation in what they say and do – and this must not be 'tidied up', at least not without a clear indication of what has been done. Similarly, the narrative process of events is often complicated

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categories cannot be refined and developed into the sort of category system required for counting and recording frequencies.

[13] There are also more specific issues, for example about how far to go in data reduction, where there may be a trade-off between delicacy in representing variation and ensuring that categories have a sufficient number of cases in them for statistical or some other form of analysis.

[14] Significantly there are several versions of each of these approaches.

and uncertain, sometimes meandering back upon itself, and there is a temptation to reduce it to a simpler, more direct, pattern. But this temptation must be resisted, at least up to the point when an explicit process of modelling may begin, which necessarily involves simplification.

Reporting the research

A first requirement here is that the research questions eventually addressed (which as noted earlier will almost always be somewhat different from those identified at the start) are presented clearly, *and distinguished from the assumptions that have underpinned the research*. This may seem obvious, but it is not uncommon to find research reports that do not clearly present the specific research questions being addressed, or give the impression that rather grander ones have been tackled, and/or that conflate findings with what appear to have been guiding assumptions.

Also required is that sufficient information is provided about how the research was carried out. In some fields, notably psychology, what may be demanded is sufficient information for the research process to be *replicated*. But the more basic requirement is sufficient information for readers to understand what was done and why, and for them to be able to assess the likely validity of the findings by taking account of potential threats to validity. It may be added that too much information about how the research was carried out, and/or about the researcher, can be almost as bad as giving insufficient information. This is because it clutters up and obscures the necessary information provided, or it may deprive other parts of the report of sufficient space. However, just what level and kinds of information are necessary, and how this should be presented, is not determinable *precisely* in general terms – reasonable judgments are required. And it may turn out that further information needs to be supplied in response to requests and criticisms from audiences.[15]

It is also important that sufficient *evidence* is provided in research reports. Here, again, it may be difficult to determine what is required. It is necessary to think about what functions the provision of evidence is intended to serve. It has been argued that this ought to allow readers to replicate *the analysis* carried out by the researcher – this is sometimes suggested by conversation analysts, for instance, and such replication is also possible to a degree with some quantitative research and with Qualitative Comparative Analysis. However, this requires that *all* of the evidence is supplied to readers.[16] Once again, though, the *basic* requirement is that sufficient

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[15] It perhaps needs to be underlined here that what information is necessary may vary according to the audience being addressed. There is an interesting and difficult question about how much information ought to be provided about methodology to lay audiences: they often have little interest in this, and yet they ought to take it into account in evaluating the findings.

[16] This is rarely possible within the constraints of an article or even a book. It may be possible, of course, for the data to be supplied in appendices or online, though the protection of confidentiality may be a barrier to this. There is also the problem that in some kinds of qualitative research, notably ethnography, even if all of the recorded data were archived this would not give access to what are sometimes referred to as 'headnotes': memories and tacit knowledge built up by the researcher during the course of fieldwork (Sanjek 1990; Pool 2017; van der Port 2017). It is perhaps also worth emphasising that, even where all the evidence is provided, readers must still exercise trust in accepting what is presented as authentic, at least until there are signs that trust is not warranted. Research cannot be made 'fully transparent'. And there are deep questions about what level and kind of trust it is reasonable to expect

evidence is provided in research reports to allow readers to assess the likely validity of the findings. Most empirical research reports provide only summaries and/or small samples of the data, and very often this will be all that is necessary. Once again, though, researchers must be prepared (where possible and ethical) to provide more evidence should this be requested by audiences.

A further requirement is that the findings are presented consistently as neither more *nor less* likely to be true than is reasonable. Knowing what likely validity to assign to conclusions is not easy, and is never a precise matter, but here too sound judgments can be made – and unreasonable ones are usually easily identifiable by the researcher, if not always by audiences. It might be thought that researchers would never put forward their findings as *less* likely to be true than they actually are, but this sometimes occurs in parts of a research report where they are anticipating criticism; for example, the research may be presented as only exploratory, whereas elsewhere the findings are presented as conclusive. Qualitative researchers, in particular, sometimes oscillate between emphasising the tentative character of their research findings and putting these forward much more confidently as true, even if they are hesitant to use that word.

Another issue concerns the audience for research reports. There is a great deal of pressure on researchers today to address lay audiences and to maximise the 'impact' of their work thereby. However, in my view communication with lay audiences ought usually to take the form of a review of all the relevant literature, rather than the presentation of findings from a particular study. Indeed, I suggest that promoting the findings of a single study in the public sphere could be judged an offence against research integrity. This is because those findings will not yet have been subjected to critical appraisal by fellow researchers, and judgments about their validity must take account of the findings of other relevant studies.

In line with a point made earlier about research questions, epistemic integrity also demands that the 'findings' presented must not be of a type that empirical research cannot validate on its own. In particular, they should not be practical evaluations and prescriptions. Such value conclusions can be legitimate *if put forward in conditional terms*, in other words as dependent upon the adoption of a particular set of value judgments. However, it is not uncommon for them to be presented as if they derived directly from the research evidence; and, often, the value assumptions involved are not made explicit, even less provided with any justification.

Also ruled out by the requirements of integrity, in my view, are admittedly fictional accounts based on research data. Fictions have long been of value in scientific research in the form of idealisations and composite types, where their function is either to facilitate the production of knowledge or to summarise it. However, some qualitative researchers have presented their findings in the form of poems, stories, or plays (examples can be found, for instance, in the journal *Qualitative Inquiry*). This falls foul of scientific integrity, in my

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readers to have in researchers – here we go back to the problem of a post-truth world and the question of whether social science research has itself become corrupted.

judgment, and indeed many of the researchers engaged in this would deny any commitment to science, advocating 'arts-based research' instead. Presumably a different notion of integrity applies to this.

Finally, there is the extreme case of research fraud, where findings and perhaps also research procedures are simply invented. This can take a variety of forms, from the supplementation of data with additional cases that are imaginary, to research reports that rely entirely on fabricated data presented as genuine. There have been a number of scandals relating to fraud of these kinds, from that surrounding the work of the British psychologist Cyril Burt (see Tucker 1997) and the American anthropologist Carlos Castaneda (see de Mille 1978, 1990) in the 1970s, to more recent ones concerning the Dutch social psychologist Diederik Stapel (see Levelt et al 2012) and the anthropologist Mart Bax (see Baud et al 2013). Similar scandals have occurred in the natural sciences, and the publication of fraudulent findings and data is perhaps the most serious threat to epistemic integrity of all.

Overall, it should be clear from my discussion that in order to maintain integrity researchers must continually assess the decisions they have made and reflect on their character and consequences, as well as on their implications for future decisions. At the core of this assessment are judgments about the validity and worth of what they are producing, as well as the effectiveness (alongside ethicality and prudence) of what they have done. And some of these reflections may need to be included in the research report.

Engaging with critics

In my view, the research production process does not end with the publication of a research report: the dialectic of communal assessment is an essential element of it (Hammersley 2011:ch7).[17] Any knowledge claims produced by a single study must be assessed by the relevant research community. And, for this to be done effectively, the researcher must engage with colleagues, not least with those who may be sharply critical of the study. Of course, the researcher will have already engaged in this dialectic in producing a literature review, but this engagement must continue after the research report has been published. In the course of discussions in the research community, issues and arguments may surface that did not emerge for the researcher in the course of carrying out the investigation, as well as ones that did. What is required in such engagement is that the researcher seek to understand any criticisms on their own terms, at least initially, and must try to respond to them in a way that contributes to the collective task of building knowledge. In particular, criticisms must not be immediately dismissed as the product of ignorance, incompetence, malice, or political commitment. Of course, not all criticism

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[17] There are further aspects of integrity associated with playing the role of a reviewer for journals and publishers, and funding bodies, editing journals, evaluating colleagues in appointment and promotion committees, and so on. In relation to editing journals and refereeing articles, there are questions not just about detecting fraud, or about what is and is not worth publishing, but also about the danger of publication bias arising from the failure to publish statistically non-significant or negative findings. There are also, of course, issues of integrity relating to academic teaching.

of research will be accurate, judicious or well-intentioned, but the researcher's starting assumption must be that it is – even if this judgment comes to be revised later.

I do not pretend, of course, that this dialectic currently operates well in all research communities. There are several respects in which the process frequently falls short (sometimes a long way) of what ought to happen. For one thing, because of the sheer volume of articles and books now produced, the findings of many studies are never assessed in a sustained way, or perhaps even at all. This perhaps reflects the treatment of publications by prevailing regimes of research governance as 'outputs' to be ranked, and the pressure to produce them: reviews do not count for anything in this process of assessment. But, even where publications *are* reviewed, what is done often does not meet the requirements I outlined earlier. For example, it is common to find book reviews that do not provide a clear and accurate account of the arguments and evidence presented in the book, and/or that make little critical assessment of these. At the other extreme, reviews sometimes engage in dogmatic criticism – methodological, theoretical, ethical, or political. Furthermore, where there have been disputes about particular studies, it has been quite common for there to be failure, on one or both sides, to engage with the arguments of the other.[18]

Conclusion

In this paper I began by noting that the concept of research integrity, or researcher integrity, has become prominent in recent years, especially in official documents relating to research governance, but that there is some uncertainty about the meaning of the term. I argued that it should be treated as an overarching concept that incorporates both those issues that have been central to most discussions of research ethics – such as minimising harm, preserving privacy, and respecting the autonomy of research participants – and those *epistemic* values and virtues that relate to the goal of research: the production of knowledge. In this paper my focus has been entirely on this second set of considerations, because I believe that their scope and character has not been sufficiently recognised. Furthermore, I believe that too much weight has been given, relatively speaking, to ethical issues (see Hammersley and Traianou 2012).

I also underlined the importance of epistemic integrity at the present time when, more than ever, there is scepticism on the part of wide sections of the public about expert knowledge claims, as well as a considerable disregard for the truth of arguments and evidence – the overwhelming preoccupation often being whose interests they support or damage. In such a climate it is essential that we have a clear sense of what epistemic research integrity is, and that we try to live up to its requirements.

However, this cannot be achieved, as some official pronouncements seem to suggest, simply by following some set of methodological and ethical injunctions. Instead, I argued that integrity necessarily relies upon the exercise of judgment by researchers. Of course, in the

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[18] All of this raises the interesting question of what are the necessary preconditions for the healthy operation of research communities (see Hammersley 2002:ch5). A good case could be made that current conditions are increasingly inhospitable to the cultivation of epistemic research integrity.

climate of scepticism that has fed the rejection of expertise, any such appeal to judgment is immediately suspect. But this derives from a false dichotomy between the supposed 'transparency' of applying rules, on the one hand, and the obscurity, and assumed inconsistency and nefariousness, held to be characteristic of 'subjective judgment', on the other. While challenging this myth may be difficult, the fact remains that the production and assessment of knowledge *necessarily* relies upon judgment, and that the quality of this can vary according to the degree of relevant knowledge and experience deployed. So, the quality of research, and the likely validity of research findings, depends upon the quality of the judgments made by researchers.[19]

The main sections of the paper have outlined a range of specific areas where issues of epistemic integrity arise: formulating and selecting amongst research questions; securing funding; selecting cases; collecting and producing data; analysing evidence; reporting the findings; and engaging with critics. My discussion has been controversial in places, and it implies criticism of how research currently operates. But, whatever disagreements arise, it should be clear that an essential requirement for research integrity is that we have a clear sense of the task of research, including its limits, the requirements this task lays down, and how these are to be met.

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[19] One way of conceptualising the nature of the judgment required is as aimed at the achievement of reflective equilibrium. This requires us to start from our sense of what is the right thing to do, about which we may experience conflicting feelings; then to try to identify what general principles underpin these; and, finally, to think about how they can be reconciled among themselves and with the facts of the case concerned: see Elgin 1996.

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