1 INTRODUCTION TO RESEARCH METHODS IN CLINICAL AND HEALTH PSYCHOLOGY

Lucy Yardley and David F. Marks

AIMS OF THIS CHAPTER

(i) To consider what readers can expect to gain from this book.
(ii) To discuss the aims and purposes of research, in relation to different theories of how knowledge can be obtained.
(iii) To introduce the context of research in health and clinical psychology.
(iv) To discuss procedures for establishing the validity of research.

WHAT CAN YOU GAIN FROM THIS BOOK?

One genuine frog is worth a bucketful of toads. Anon

What's that? Frogs and toads, indeed! What have they got to do with a book on research methods? Well, read on – by the end of this chapter you will see.

This book is an introduction to methods for carrying out research in clinical and health psychology. It introduces the kinds of study designs and methods that are in common usage across the health sciences and which are of particular relevance to psychologists and social scientists. We aim to give readers sufficient understanding of the nature of psychological inquiry in these fields to be able to understand how and why a variety of different research approaches and methods can be used, and to ask sensible and searching questions about the best ways of doing things before, during and after a research project. This broad overview of the process of carrying out research will enable you to critically appraise published research, to evaluate the potential and limitations of a variety of qualitative and quantitative research methods, and to identify those that you may wish to use for particular research purposes.

Of course, it is not possible to provide exhaustive details of all the specific methods in a single textbook, and so we have provided references and

recommendations for further reading that will help you to become more expert in any particular method that you may wish to use. We encourage the reader to apply the methods described here creatively to the particular unique setting in which she or he is planning a project. Obviously it is also impossible to list a complete set of features that will apply to all settings, times and places. Policies, circumstances and contexts vary enormously across settings and across time, and readers will need to adapt the research method to each new situation.

This chapter provides the context for the following chapters on specific aspects of research, by examining some fundamental questions regarding the aims and validity of research in general, and considering the context of research in clinical and health psychology.

WHAT SHOULD BE THE AIMS AND METHODS OF RESEARCH?

Although this question might at first seem almost superfluous, it is actually the starting-point for some fundamental and long-lasting debates about **ontology** (what there is to be known, hat is, what 'reality' is) and **epistemology** (how knowledge can be obtained). A range of positions has been taken in this debate, ranging from **realism** and **positivism** at one end of the spectrum to constructivism and idealism at the other.

The realism/constructivism debate

The modern realist perspective can be traced back to the philosophy of Descartes, who proposed that we have direct knowledge of subjective, mental reality ('I think, therefore I am'), but must derive our knowledge of objective, physical reality through observation (see Yardley, 1999). Subjectivity is viewed as pure, rational thought, internal to the individual, and separate from the body. The rational mind is viewed as the vehicle with which we can seek to understand and control a mechanical, physical world (which includes our own bodies). Consequently, the task for research is to attempt to obtain accurate information about objective physical reality. This can be achieved by maximising the precision of our observations through quantification, and ensuring that error and **bias** are eliminated from our observations – for example, by isolating the variables we are studying in order to be able to identify cause–effect relationships more clearly. Subjective distortions of reality may also be introduced by us as researchers and, in psychology, by human 'subjects' or 'participants', and these potential sources of bias must be minimised also.

In the classic positivist **hypothetico-deductive method**, observations can then be used to empirically test our mental models of the generalisable causal laws that govern reality, using objective methods of analysis such as statistics to ensure that these analyses are not influenced by subjective

expectations or values. Having ascertained the causal laws that govern the physical world we can intervene to achieve desired objectives. This approach to research provided an extremely useful initial foundation for modern science and medicine, and proved so successful that it was also adopted by the emerging discipline of psychology. Consequently, for most psychologists this is the most familiar approach to obtaining knowledge through research.

Despite the practical utility of the scientific method, **post-modern** critics of the realist perspective have suggested that eliminating subjectivity from our knowledge of the world is actually impossible to achieve (Gergen, 1985; House & McDonald, 1998). The constructivist argument is that since we can only gain knowledge through the human medium of our minds and bodies, *all* our knowledge of both 'self' and 'body/world' is inevitably mediated, constrained and thus *constructed* by our thoughts and activities. Moreover, constructivists do not view the construction of meaning as a private, subjective matter, but as an essentially social process, since our habitual ways of thinking and acting are fundamentally shaped by social interaction, language and culture. From this perspective, differences in perceptions and interpretations of 'reality' are not error, since different ways of living and thinking create different experiences of the world and different systems of meaning. This does not mean that the 'objective reality' of science is incorrect – in the context of the activities of predicting and controlling physical phenomena (including physical health) it is the most valid and useful way we currently have of understanding the world. However, it is not the only valid and useful way of understanding the world. For example, religion, politics, art and personal experience all offer different but equally valid perspectives.

At this point, a common realist response is to invoke the 'death and furniture' argument – to bang the table to prove it is objectively real not socially constructed, and to object that events such as death have a physical reality that cannot be construed in any other way (Edwards, Ashmore & Potter, 1995). However, death is actually a good example of an event that psychologists *must* consider from multiple points of view if they are to acknowledge and understand the psychological experience of health and illness. Without doubt, the physical dimension of death is best explained in scientific terms – although it should be noted that as our knowledge and practice of medical science has changed, so has the definition and indeed the physical reality of death; people whose heart had stopped would have been incontrovertibly 'dead' two centuries ago, but now death can be postponed until brain activity ceases (and two centuries into the future who knows at what point death will be considered to be irreversible?). Consequently, for the practical purpose of preventing death the medical scientific definition of reality is undeniably the most relevant. However, death cannot ultimately be prevented by science – and the non-scientific views of reality and interpretations of death may be much more relevant to understanding and shaping the experience for the living, dying and bereaved. These

include all the religious, cultural, philosophical and personal beliefs that can help us to accept and find positive meaning in the inevitability of dying, and offer a way of integrating it into our lives.

Since constructivists believe that human culture and activities profoundly shape our experience and knowledge of 'reality', the aim of constructivist research is to understand the different meanings by which people in different contexts make sense of the world and of their lives, and the social processes whereby these meanings are created. Consequently, rather than isolating variables from their context and regarding human interpretations as 'bias' which obscures objective reality, constructivists deliberately seek to investigate how context and interpretation (including those of the researcher) influence our experience and understanding of the world. This can be achieved by collecting contextualised data, often in real-world settings and in the natural language of participants, and encouraging reflection on the social and subjective processes influencing the interpretations that are constructed. The aim is not to identify universally applicable laws but to develop insights, which are meaningful and useful to particular groups of people, such as patients, participants in a study, or people in similar situations, health care workers, and/or other researchers.

Despite the passion with which researchers sometimes argue for one or other pole of the realism/constructivism divide, the ontology on which each position is founded can never actually be proven correct or incorrect, but must remain a matter of faith; since we cannot extricate our knowledge from our subjective perceptions and thought processes we will never know with complete certainty whether there is an 'objective' reality out there or not (Potter, 1996). Moreover, as the next section explains, the divergence in ontology and epistemology between realists and constructivists need not become a barrier to maximising and integrating the insights and benefits that can be derived from different approaches to research.

Beyond the realism/constructivism divide

In practice, few researchers are extreme realists or extreme constructivists, and there are many intermediate positions that can be adopted (see Guba & Lincoln, 1994). For example, the **post-positivist** view is that although an objective reality exists, and we should seek to understand it, we can never gain perfect knowledge of it. While this view is entirely compatible with the scientific method, rather than seeking to establish the 'truth' through experimentation, the aim of post-positivist research is to test, falsify and thereby improve our imperfect models of reality, using a variety of methods. Similarly, many researchers are happy to concede that indeed there may be an independent external reality which constrains and shapes people's lives, but that it remains vitally important for researchers to take into account and investigate the way in which human experience (including the process

and outcome of research) is also shaped by subjective interpretation and social interaction.

Moreover, although the different aims and assumptions of realist and constructivist researchers clearly tend to steer them towards different methodologies, there is no rigid mapping between ontology/epistemology and method. A qualitative grounded theory analysis of interviews with patients might be undertaken by a realist who wanted to uncover their rationale for accepting or rejecting a particular treatment, or by a constructivist who wanted to explore how the treatment was perceived and depicted by the patients. In each case the method used and data obtained would be similar, but the focus of the analysis and the interpretation would be slightly different; the realist would be interested in patients' statements as a reflection of the underlying beliefs which caused them to behave in a particular way, whereas the constructivist might be interested in the accounts as an illustration of the range of socio-cultural meanings whereby patients made sense of the treatment in relation to their wider values and identities.

If the choice of method is based on the purpose of the research, rather than on epistemological assumptions about how to obtain valid knowledge, then it becomes possible to combine different methods in order to gain diverse forms of knowledge that can provide complementary insights (House, 1994). The insights gained using different approaches will not necessarily be congruent or converging; rather, the insights from one perspective can be used to challenge, modify or elaborate the understandings reached with a different approach. Eisner (2003) has pointed out that every perspective and every method reveals some things and conceals others; consequently the question the researcher should ask is not which method is 'best' in any absolute sense, but rather 'what can we learn from each perspective?' This attitude to research is consistent with the **pragmatist** view (Hickman & Alexander, 1998; Tashakkori & Teddie, 1998), that commonsense, scientific and moral judgements are *all* purposive, constructive activities which share the same fundamental test of validity as any other form of human inquiry: 'What happens if . . .?' From the pragmatist perspective *all* human inquiry involves the interpretation, intentions and values which constructivists regard as paramount – but must also necessarily be grounded in the empirical, embodied experience which realists regard as fundamental.

With respect to our basic understanding of the experience of health and illness, **qualitative methods** are generally most suitable for inquiring into subjective meanings and their socio-cultural context, as these are not causes or mechanisms which can be scientifically proven, but malleable, negotiable interpretations which people offer themselves and others to make sense of their feelings and actions. In this respect, qualitative data could be considered analogous to a video diary, which provides rich, personal information about what it is like for a certain person to be in a certain place. Data derived from **quantitative methods** is more like a map; it provides precise

and economic information that is essential in order to discover the location and distance of a place relative to other places. Maps do not convey the information needed to know what a place is like, and so we need video diaries to understand subjective experience (for example, the personal and socio-cultural meanings and implications of 'stress'). However, we also need maps in order to locate precisely experiences relative to other similar experiences (for example, to determine whether a person's stress is greater than at a different time-point, or than that of other people), and to link them with other dimensions of experience (for example, to determine whether stress causes or is caused by changes in physiological functioning). Similarly, different methods can serve different but complementary purposes with respect to applied research in health care. Case studies can provide a sound foundation for informing health-related practice (Fishman, 1999), but planners and policy makers may require quantitative data on prevalence and cost-effectiveness in order to be persuaded and to persuade others of the utility of planned health care provision, and to manage such provision effectively on a large scale.

Integrating the results of research which has employed such different perspectives and methods requires an appreciation that it is perfectly possible for realist analyses of quantitative data and constructivist analyses of qualitative data to yield different but equally important kinds of 'truth' (see Box 1.1). For example, if a healing relationship produces a 'placebo' effect, patients' first-hand accounts of the interactive process which enhanced subjective well-being may be as important to effective health care as the hard quantitative evidence that physiological status remained unchanged. Another example is the biological approach to the understanding of psychosis. The psychopharmacological treatments that have evolved from this approach are making a major contribution to patient wellbeing. Yet the understanding of the experiences of patients requires methods that are tuned to the **phenomenology** of altered conscious experience. Since health and clinical psychology are applied disciplines that must be able to contribute to multi-disciplinary research, it is vital to adopt a theoretical framework (such as pragmatism) that can embrace and integrate qualitative research into subjective experience and socio-cultural meanings and quantitative research into psychophysiology and evidence-based medicine.

Research methods can be viewed, not as recipes for mechanical knowledge production, but more as creative or adventurous means of inquiry (Willig, 2001). Using qualitative or quantitative methods does not make one a particular kind of psychologist, nor does a particular kind of psychologist necessarily use qualitative or quantitative methods. The critical issue is not the method used, but the theory, beliefs, values and political positioning, which underpin **praxis**, the translation of theory into action. The next section of this chapter outlines some of the different theoretical and practical contexts in which clinical and health psychologists carry out their research.

Box 1.1 *Hypothetical example of how the topic of 'adherence' to single or multiple dose medication might be approached from different perspectives*

The research question

Medication to reduce chronic high blood pressure should ideally be prescribed to be taken four times a day, as this will maintain blood levels of the medication near the required level throughout the day. However, patients may be less likely to adhere to this prescription than to a single slow-release dose of medication, which they may be less likely to forget to take and which will interfere less with their daily routine and identity as a basically healthy person. How should the prescription of this medication be managed in the best interests of the patient?

Positivist/biomedical approach

Design: Give patients instructions to take medication in one or four doses a day, quantify blood levels of medication, compare levels when prescribed in one or four doses.
Rationale: Experimentally manipulate prescription to test effect on objective physiological status.
Knowledge gained: Objective, practical information about which method of prescribing is more effective in achieving optimal blood levels of medication.

Post-positivist/biopsychosocial approach

Design: As above, but supplemented with questionnaire measures of self-reported adherence, intentions, recall of instructions, perceived costs/benefits of medication, etc.
Rationale: As above, but also relate information about objective physiological status to quantitative measures of subjective factors (reported behaviour, recall, beliefs, intentions) which may mediate relationship between prescription and physiological status.
Knowledge gained: As above, but supplemented by information which may identify intervening psychological variables potentially amenable to modification (for example, recall, beliefs, intentions).

Interpretive/humanist approach

Design: Interview participants to find out how prescription of single and multiple daily doses of medication is perceived by people in different circumstances, how lifestyle is affected, understanding of 'adherence', reasons given for non-adherence.
Rationale: Acquire insight into the various meanings ascribed to single and multiple daily prescriptions in the context of different people's identities, daily lives, beliefs about medication, etc.
Knowledge gained: Understanding of the different perspectives of different patients; the influence on these of culture, identity, practical and social context; discrepancies between the assumptions and perspectives of researchers, health professionals and patients.

Constructivist/critical approach

Design: Record dialogue in consultations, analyse how the ideal of 'adherence' is constructed as the only rational choice, the way rhetorical strategies are used to promote acceptance of prescription, how alternative discourses are suppressed or assimilated.
Rationale: Examine the socio-cultural functions of the normative discourses, possibilities for alternative discourses, ways in which power negotiated in relation to prescription.
Knowledge gained: Understanding of the socio-cultural implications of the identities and discursive strategies available to doctors and patients, and how these can be deployed to promote or resist particular forms of prescription.

THE RESEARCH CONTEXT OF HEALTH AND CLINICAL PSYCHOLOGY

Clinical psychology has its origins in the 1940s when psychological techniques were being used to assist battle-fatigued personnel in the Second World War, more recently termed 'Post Traumatic Stress Disorder' (Napier, 1995). The requirements of the military services have had an important influence on the development of clinical psychology; for example, the use of mental tests and measurement for selection of military personnel, and the use of neuropsychological techniques for screening and rehabilitation of war veterans, the victims of torture and other forms of violence. Educational and clinical psychologists share similar concerns in understanding the developmental and family influences on wellbeing. **Health psychology** emerged in the 1970s and 1980s when different discourses about health were developing, one leaning towards the idea that individuals are responsible for their own health through the choices that are made or dictated by so-called 'lifestyles', others resting on biological determinants, and yet others on relevant socio-political factors (Mattarazo, 1982; Marks et al., 2000).

While clinical psychology and health psychology have different historical roots and specialised interests, physical and mental health can be regarded as two complementary aspects of health and illness. In many countries the training pathways have common generic components, and there are strong overlaps between the interests of clinical and health psychologists in their work with patients in the health care system. It is therefore not surprising that a similar set of research methods are used by both groups and also by other specialists including nurses, doctors and paramedical staff. The aims and methods of research in clinical psychology and health psychology depend on the context and the general orientation to undertaking research.

Most clinical psychologists work in the health care system, although they may also work in private practice, carry out assessments for the criminal courts, and work in academic and research settings. Others specialise in

forensic work involving correctional services in prisons and correctional facilities of various kinds. Clinical psychologists often work in multidisciplinary teams of health care professionals consisting of doctors, nurses, social workers, occupational therapists, speech therapists and physiotherapists. The principal service users are referred by general practitioners (GPs) or family physicians. An important function of the clinical psychologist is critical thinking using an evidence-based approach to evaluation and intervention. Clinical psychologists are seen as 'scientist-practitioners' with the ability to design and carry out applied research and to carry out critical evaluation of research activity. Clinical psychologists also develop and evaluate new interventions using psychological theory. According to the (APA) website:

> Researchers study the theory and practice of Clinical Psychology, and through their publications, document the empirical base of Clinical Psychology . . . Clinical Psychologists also engage in program development, evaluate Clinical Psychology service delivery systems, and analyze, develop, and implement public policy on all areas relevant to the field of Clinical Psychology. (American Psychological Association, 2002)

From the above description it can be seen that clinical psychology as a discipline is not wedded to any one model, theory or method, but uses what works best on the basis of the evidence base collated from experience including various methods of assessment using questionnaires and interviews, randomised controlled trials and observational studies of the effectiveness of therapies, and qualitative evidence on patient experience. Clinical psychology uses a variety of models including the scientist-practitioner model, the reflective practitioner model and the evidence-based practitioner. These models have been debated within the profession for many years and each has influenced various aspects of the clinical psychologist's role (Watts & Parry, 2000; Barker, Pistrang & Elliott, 1994).

In health psychology, contrasting approaches to understanding health and illness have sprung up in a relatively short period, reflecting different priorities and values about the nature of psychology and health, and therefore the theory and practice of psychology. While these different approaches are overlapping and evolving, it is possible to distinguish at least four ways of working that offer theory, research and recommendations for practice. While tensions exist between the different value systems and assumptions of these four approaches, each complements the others, and there is a potential for a powerful coalition of psychologists for health. Each approach is discussed in turn below.

Clinical health psychology grew out of biomedicine and clinical psychology with a perspective that is broadly realist but also interpretative, seeking to relate psychological variables to biomedical conditions in order to understand, predict and control health processes, outcomes or quality of life (QoL). Clinical health psychology is the best established and most

mainstream of the four health psychology areas as represented by the majority of textbooks, journals and academic programmes. It has been very successful at making psychological inroads into the health care system and the medical curriculum and is the principal reason for the existence of health psychology today as a vibrant new field. The principal characteristics of clinical health psychology are summarised in Table 1 (column 2).

Public health psychology (see Table 1.1, column 3) is an approach allied to epidemiology and health promotion. It is broadly realist but also interpretive, seeking to identify and manipulate psychological variables predicting mental and physical health and health promoting behaviours in the general population. Like clinical health psychology, public health psychology is practised within the health care system but working towards health promotion and prevention rather than treatment of illness. Public health is a multifaceted, multidisciplinary activity and public health psychology recognises the expertise of other disciplines, especially in health promotion, communications and epidemiology. It has the potential to enhance the effectiveness of public health through the application and evaluation of theories of behaviour change. However, this does not simply mean targeting the beliefs and behaviour of individuals – promoting public health also means engaging with social processes, such as advocacy, negotiation, community building and social capital.

Community psychology (see Table 1.1, column 4) is allied to critical theory, and tends to be constructivist and pragmatic in nature. It may be defined as:

> Advancing theory, research and social action to promote positive well-being, increase empowerment, and prevent the development of problems of communities, groups and individuals. (Society for Community Research and Action, 2001)

Community psychology involves working in coalition with members of vulnerable communities and groups, mainly outside the health care system. It sees health as wellbeing in its broadest sense, including not only mental and physical health, but also positive psychosocial aspects, such as resilience. Community psychology is represented by Division 27 of the APA, the Society for Community Research and Action (SCRA). Membership of the SCRA includes not only psychologists but people from related disciplines such as psychiatry, social work, sociology, anthropology, public health and political science, including teachers, researchers and activists. Community psychology is concerned with healthy psychosocial development within an ecological perspective.

Critical psychology is allied to critical theory and other social sciences. It tends to be constructivist, seeking to analyse and critique assumptions and discourse associated with health and illness, including that of health professionals and researchers, in order to promote awareness of socio-political functions and consequences of these. Critical psychology aims to analyse

Table 1.1 *Characteristics of clinical, public, community and critical health psychology (adapted from Marks, 2002a, 2002b)*

Characteristic	Clinical health psychology	Public health psychology	Community psychology	Critical psychology
Definition	*'The aggregate of the specific educational, scientific, and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, the identification of etiologic and diagnostic correlates of health and illness and related dysfunctions, and the analysis and improvement of the health care system and health policy'.* (Matarazzo, 1982)	The application of psychological theory, research and technologies towards the improvement of the health of the population.	*'Advancing theory, research and social action to promote positive well-being, increase empowerment, and prevent the development of problems of communities, groups and individuals'.* (Society for Community Research and Action, 2001)	The analysis of how power, economics and macro-social processes influence health, health care, and social issues, and the study of the implications for the theory and praxis of health work
Theory/ philosophy	Biopsychosocial model. Health and illness are: '*the product of a combination of factors including biological characteristics (for example, genetic predisposition), behavioural factors (for example, lifestyle, stress, health beliefs), and social conditions (for example, cultural influences, family relationships, social support).*' (APA, 2001).	No single theory and philosophy. Supportive role in public health promotion which uses legal and fiscal instruments combined with preventive measures to bring about health improvements. Working towards general theories, for example, health literacy improves health	Social and economic model: *'Change strategies are needed at both the individual and systems levels for effective competence promotion and problem prevention.'* (Society for Community Research and Action, 2001). Acknowledges the interdependence of individuals and communities Shares some of the aims of public health psychology, for example, improving health literacy	Critical psychology: analysis of society and the values, assumptions and practices of psychologists, health care professionals, and of all those whom they aim to serve. Shares some of the aims of community health psychology, but with universal rather than local constituency

continues overleaf

Table 1.1 *(cont.)*

Characteristic	Clinical health psychology	Public health psychology	Community psychology	Critical psychology
Values	Increasing or maintaining the autonomy of the individual through ethical intervention	Mapping accurately the health of the public as a basis for policy and health promotion, communication and interventions	Creating or increasing autonomy of disadvantaged and oppressed people through social action	Understanding the political nature of all human existence; freedom of thought; compassion for others
Context	Patients in the health care system, i.e. hospitals, clinics, health centres	Schools, work sites, the media	Families, communities and populations within their social, cultural and historical context	Social structures, economics, government and commerce
Focus	Physical illness and dysfunction	Health promotion and disease prevention	Physical and mental health promotion	Power
Target groups	Patients with specific disorders	Population groups who are most vulnerable to health problems	Healthy but vulnerable or exploited persons and groups	Varies according to the context: from the entire global population to the health of an individual
Objective	To enhance the effectiveness of treatments	To improve the health of the entire population: reducing morbidity, disability and avoidable mortality	Empowerment and social change	Equality of opportunities and resources for health

Orientation	Health service delivery	Communication and intervention	Bottom-up, working with or alongside	Analysis, argument, critique
Skills	Assessment, therapy, consultancy and research	Statistical evaluation, knowledge of health policy, epidemiological methods	Participatory and facilitative, working with communities, community development	Theoretical analysis, critical thinking, social and political action, advocacy, leadership
Discourse and buzz words	'Evidence-based practice', 'Effectiveness', 'Outcomes', 'Randomised controlled trials'	'Responsibility', 'Behaviour change', 'Risk', 'Outcomes', 'Randomised controlled trials'	'Freedom', 'Empowering', 'Giving voice to', 'Diversity', 'Community development', 'Capacity building', 'Social capital', 'Sense of community', 'Inequalities', 'Coalitions'	'Power', 'Rights', 'Exploitation', 'Oppression', 'Neo-Liberalism', 'Justice', 'Dignity', 'Respect'
Research methodology	Efficacy and effectiveness trials, quantitative and quasi-experimental methods	Epidemiological methods, large-scale trials, multivariate statistics, evaluation	Participant action research, coalitions between researchers, practitioners and communities, multiple methodologies	Critical analysis combined with any of the method used in the other three approaches

how power, economics and macro-social processes influence or structure health, health care, health psychology and society at large (see Table 1.1, column 5).

While critical psychology cannot offer a positive programme of action for health care psychologists, it fulfils an essential reflective function, asking fundamental questions about the rationale, purpose and consequences of the conceptualisations and activities of clinical and health psychology, and championing the cause of neglected or oppressed sections of society.

From this brief overview, it will be evident that clinical and health psychologists work in a wide range of contexts, and approach physical and mental health from many different perspectives. It is for this reason that it is necessary for clinical and health psychologists to have a basic appreciation of a variety of research methods suitable for different purposes. For example, an understanding of the correct design, conduct and analysis of clinical trials and meta-analyses is needed in order to critically evaluate the evidence base for therapeutic interventions (see Chapters 2, 10 and 11). Familiarity with questionnaire development and validation is needed in order to select suitable outcome measures for such research (see Chapters 8 and 9). And there is growing recognition in the field of medicine and health that qualitative methods are a valuable tool for studying lived experiences of health care interventions from the different perspectives of patients and health professionals (see Chapters 3 to 7). Each of these equally important and related objectives requires a quite different approach to research, which asks different types of questions and generates different kinds of information. The following section considers how the validity of such different approaches to research can be assessed and enhanced.

HOW CAN THE VALIDITY OF CLINICAL AND HEALTH PSYCHOLOGY RESEARCH BE MAXIMISED?

It will be clear from the preceding sections that the approach to health and clinical psychology that we are advocating is to employ a variety of research methods that are suitable for different purposes. Employing a wide range of methods has clear advantages with respect to maximising the **validity** of research, because each method can only provide limited knowledge, whereas a combination of approaches may allow the researcher to elaborate, supplement, correct or modify the limited insights gained from each single method.

To return to the example of adherence given in Box 1.1, if the investigation of adherence to the two methods of prescribing was restricted to the objective experimental data, the researcher might learn that prescribing the single dose of medication resulted in better blood levels of medication, but would not know for certain why this was, or how the effectiveness of the theoretically superior multiple dose method might be improved. By adding questionnaire measures of behaviour, recall and beliefs the researcher

might discover that blood medication levels were linked to reported levels of adherence, and demonstrate that these were reliably predicted by reported concern about the side-effects of the medication. However, the researcher would still have only a limited understanding of why and which people reported concern about side-effects. The interview data might then enhance the researcher's understanding of the link between beliefs about side-effects and lower adherence to multiple doses. For example, the interviews might reveal that people believed that four doses must be stronger and therefore potentially more harmful than a single dose, and that having to take multiple daily doses interfered with their social identity as an essentially healthy person. Comparisons between interviewees might uncover greater concern about taking medication and risk of non-adherence in those to whom a healthy identity was particularly important, such as younger, working, male patients. Finally, the analysis of discourse in the consultation might reveal that invoking concern about side-effects could serve as a rhetorical device employed by patients to justify non-adherence and resistance to medical authority regarding management of their health.

In summary, only by using *all* of these methods could the researcher obtain the vital evidence needed to optimise health care, that is, that a) the multiple dose was not as medically effective as it theoretically should be; b) this was caused by non-adherence associated with expressed concern about side-effects; c) these concerns were greatest in younger, working, male patients (who arguably had most to lose by non-adherence to potentially life-saving medication); but d) simple education and reassurance about the strength and potential risks of multiple doses might offer only a partial solution to the problem, since the apparent concern about taking multiple doses was linked to the damaging effects of doing so on identity, and was used as a justification for resisting a 'sick' identity.

Despite the clear advantages of using multiple methods to research health problems, there are also potential pitfalls. It is essential that the methods be combined in a manner that both respects and utilises their *different* purposes and potentials. For example, the purpose of qualitative research is to carry out intensive, in-depth analysis of rich data to derive an understanding of a particular situation or context that may give rise to theoretical principles with relevance to similar situations or contexts. The purpose of quantitative research is to reliably identify factors and relationships in a sample that can be assumed to be true of the whole population from which the sample was drawn. It is therefore essential for quantitative research, but wholly inappropriate for qualitative research, to gather data from a large, statistically representative population sample; conversely, 'intensity' sampling of typical cases and 'purposive' sampling of atypical cases could increase the validity of the qualitative research but totally undermine the validity of the quantitative research. Similarly, inconsistency in responses may undermine the validity of a quantitative study by reducing the reliability of measurement, and would therefore need to be reduced (for example, by eliminating inconsistent items), whereas in qualitative

studies the meaning of such variability might be a central focus of the research. It is therefore essential when combining methods to have a sound grounding in each method, and an appreciation of the very different forms of validity and procedures for establishing validity that are relevant to each method.

The common procedures for establishing the validity of quantitative research are generally familiar to psychologists. Clarity about the hypotheses tested and constructs measured is required. It is necessary to ensure that the **power** of the study is sufficient to detect the 'effect' one is investigating, by enhancing the strength of the effect studied (for example, by comparing samples which differ greatly on the variable of interest, or employing a highly effective intervention) and minimising random error (for example, by maximising the precision and reliability of the measures used, excluding or controlling for sources of variance other than those of interest, and employing a sufficiently large sample). Steps should be taken ensure objectivity, such as minimising potential bias due to the expectations of the researcher or the participants (for example, by using objective measures or double blind clinical trial designs). The method should be specified in such detail that it could be replicated, including the statistical analysis of data. In addition, it may be desirable to demonstrate ecological validity – to show that despite these tight constraints necessitated by the experimental method, the findings correspond to outcomes and relationships in naturally occurring situations; for example, that treatment efficacy effects found in clinical trials under ideal conditions (with expert therapists and highly motivated, carefully selected patients) can also be demonstrated in pragmatic trials in the normal clinical context.

Common procedures available for establishing the validity of qualitative research are generally less familiar to psychologists. Realist qualitative research may employ procedures to check **inter-rater reliability** (see Chapter 4) in order to show that the categories assigned to segments of text can be reliably applied by more than one person, and hence have a degree of objectivity. Non-realist qualitative research does not take inter-rater agreement as a sign that objectivity has been achieved, but sometimes also employs various procedures for comparing how more than one person categorises the text, as a useful method of exploring alternative interpretations, and refining the meanings of the categories used to make sense of the data. A good paper-trail from the raw data to the final interpretation demonstrates that the interpretation is well grounded in the empirical data and documents the way in which the process of analysis influenced the findings of the research; this involves linking the definitions of the categories developed to a record of the researchers' thought processes and decisions which contributed to these definitions, and the segments of raw data corresponding to each category (see for example discussion of coding frames in Chapter 4 and memos in Chapter 5). Researchers who wish to show that their interpretations correspond to those of the participants may feed the results of their analysis back to participants for comment, although

it should be noted that participants may be unable or unwilling to comment on complex analyses, and may have individual views that are inconsistent with the overview provided by the research (Barbour, 2001). Deliberately seeking and analysing 'deviant cases', or instances which seem to contradict or depart from the interpretation presented, is an excellent way of avoiding selective attention to patterns in the data that are consistent with the researcher's preconceptions, and over-generalisation from these cases. In addition, the researcher can use **triangulation** of data or analyses as a means of approaching the topic from different perspectives in order to see whether these converge or throw up interesting differences related to the context examined or the method used. For example, the data may be gathered from different people (for example, doctors, patients, other family members), at different times and places, by different investigators, or using different methods and theoretical approaches (as advocated above).

As will be obvious from the brief review of methods of establishing validity given above, it is not possible to draw up a definitive list of procedures that will be applicable for all approaches and methods. Although useful checklists of ways of demonstrating the validity of qualitative studies have been published, it is acknowledged that they should only be regarded as providing indicative guidance and not as setting out prescriptive, comprehensive criteria (Barbour, 2001; Blaxter, 2000); moreover, these criteria are not applicable to quantitative methods. Nevertheless, there are broad principles that can be applied to *all* research (Yardley, 2000), although the ways in which these principles are satisfied will differ widely between the various quantitative and qualitative methods. These principles, and some of the ways in which they can be applied, are briefly outlined below.

Sensitivity to context

All research should obviously demonstrate sensitivity to the theoretical context of the topic studied, and previous relevant empirical literature, in order to extend our understanding beyond what has already been suggested or established. Research which is undertaken in ignorance of existing theory and findings risks 'reinventing the wheel', or simply unconsciously replicating what is already known – or worse still, may fail to take into account important factors and processes which have already been shown to be relevant. Further, all research should be clearly sensitive to the empirical data collected, that is, the analysis should examine which interpretation(s) is consistent or inconsistent with the data, or as Kvale (2002) puts it, the object of the research must be allowed to object. If data are simply used to illustrate an argument rather than to examine its empirical validity then the 'study' may be an excellent and valuable exposition of theory but does not constitute truly empirical research. In addition, research which focuses on socio-cultural processes should demonstrate a

reflexive awareness of the operation of these in the process of research: for instance, the effects on the outcome of the research of the context and aims of the research; the different assumptions, values and viewpoints of the researchers and the participants; the relationship and dialogue between them, and related ethical issues.

Commitment and rigour

The quality of all research is related to the rigour and commitment with which the researcher engages with the topic. This can be demonstrated by means of the competence and skill with which the method used is applied, and by the depth and/or breadth of the analysis. For example, just as high quality quantitative research should be carried out with a sample size adequate to provide a powerful test of the hypothesis, high quality qualitative analyses should go beyond superficial or commonsense description of what has been said or done.

Transparency and coherence

All research reports should provide sufficient detail of the methods and analyses employed to allow the reader to evaluate their merits and limitations, to be satisfied that the research has been thoughtfully, meticulously and appropriately carried out, and to form a judgement as to whether the data truly support the conclusions drawn. While this form of 'transparency' should be characteristic of the method and results sections of all studies, constructivist researchers will often add a further layer of reflexive transparency concerning the way the aims, context and process of the research may have influenced its outcome (see 'sensitivity to context' above). The quality of all research is also affected by the clarity and power with which the descriptions and arguments are communicated, as well as their internal consistency; as noted above, it is essential to maintain coherence between the aims of the research method and the means that are employed to ensure and demonstrate that the conclusions are valid.

Impact and importance

Research cannot have any value unless it matters to someone for some reason! Its value may be at an abstract level, for example, opening up new ways of looking at an issue, which may in turn suggest new understanding and further useful lines of research. Research can have socio-cultural value, providing evidence relevant to arguments about what policy is preferable or what factors are responsible for various outcomes. Finally, research may have practical value for a range of different people and purposes, from providing health care professionals with information about the mechanisms

that mediate illness, prevention or cure, to providing sections of the community with a means of voicing their viewpoint and achieving greater insight into and control over their situation.

HOW TO MAKE THE BEST USE OF THIS BOOK

In the light of the discussion above, there can be no golden or guaranteed method for producing good quality research in any area of psychological or social inquiry. We have argued for a diversity of methods to fit the diversity of possible questions, perspectives and problems that arise in the study of health and clinical issues. This book is therefore not a 'cookbook' for carrying out research. There are no menus or recipes. This book is a source of ideas about the nature of psychological inquiry, the various approaches that are available, and the pragmatic analysis of a theory, question or problem. Try to match your chosen method(s) with the research question(s) that you are asking, but first of all be clear about the question. Then be clear about the advantages and disadvantages of the methods that might yield evidence relevant to your question. Finally, use the method(s) you choose with all of the rigour that you can bring to bear.

In the end there can be no substitute for the greatest method of all, thinking about what you are doing. This book is designed with this purpose in mind. A plea to all student researchers is therefore: by all means be enthusiastic about your research, but never risk your or others' wellbeing or safety by leaping before you look. Think carefully about the implications of your research – be ethical, prudent, joyful and wise. If that sounds a bit like a recipe for life as well as for research it is probably not very surprising – there are some similarities. In both life and love, thinking things through before acting is a sensible policy, as much as it is in carrying out a research project. Doing good research is not as easy as might at first sight appear, and is never a mechanical process. For every valid study there are several 'no-hopers' – there are just so many ways that a study can be done badly compared to the ways of doing it well. There are a lot of tadpoles in the pond but relatively few become fully grown. (At last, we come back to the frogs again!) This means that an awful amount of time, energy and resources are wasted on research of poor quality.

We'd like to think that this book can help in some small way to lower the ratio. That way you may at least kiss a few more frogs and avoid the toads that look the part but can never deliver a prince, or princess – or a cool piece of research that tells you exactly what you want to know with elegance and style. This book is about the best ways of finding a frog. And remember, one genuine frog is worth a bucketful of toads![1]

[1] We have nothing against toads as such. They are wonderful creatures with a charm all of their own. In fact one of the author's childhood pets was a toad. But frogs are something special to behold, especially when you are looking for one.

REVISION QUESTIONS

1 What is meant by the terms 'ontology' and 'epistemology'?
2 Describe 'social constructionism'?
3 What objections do social constructionists have to positivism?
4 What is 'pragmatism'?
5 What is meant by the validity of research? List some of the ways in which you might demonstrate the validity of a) a quantitative study, and b) a qualitative study.