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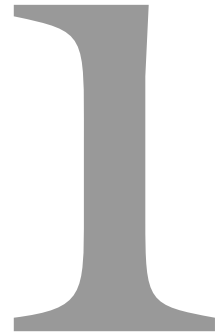
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Part I

Principles

Introduction



CHAPTER OVERVIEW

This chapter introduces some of the key themes of the book including the idea of ‘science’, the importance of diversity in psychology, and constructivism, a model of how ideas are learnt. The chapter also considers the importance of thinking in everyday life.

LEARNING OBJECTIVES

By the end of this chapter you should be able to:

- Outline what is meant by ‘epistemology’
- Outline what is meant by ‘epistemological pluralism’
- Outline what is meant by ‘constructivism’

Thinking scientifically?

At some point in your studies you will probably find yourself looking at an essay list or exam paper with the question ‘Is psychology a science?’ staring back at you. The question is a hardy perennial and you should think about what kind of answer you would want to give when you do finally have to confront it. The issue of the scientific status of psychology is an important one, and one which has generated much debate in psychology since the discipline began. The person in the street might well imagine that the precision of science cannot be applied to the complexity of human beings. However, most academic research psychologists in the US and the UK would happily answer the question in the affirmative. But many students of psychology feel rather uneasy about this. Is psychology *really* a science in the same way that, say, physics, chemistry or biology are? What makes psychologists think that psychology is a science?

The issue of whether or not psychology is a science might seem a strange place to start our investigation into thinking psychologically but in a sense it is the only place to start. If psychology is a science then maybe ‘thinking psychologically’

might just mean thinking *scientifically*. Maybe to be good psychologists we simply have to be good scientists? Oh no. To be good psychologists we have to be good thinkers and there is much more to good thinking than just thinking scientifically. Sometimes psychologists *do* need to think like scientists but we also on occasion need to think like philosophers, anthropologists, historians or therapists.

The perspective of this book is that thinking psychologically is *not* just thinking scientifically. Instead, we shall take the approach that although psychology is *partly* scientific it is not *just* scientific – it is many other things besides. However, we will also be developing our scientific thinking, and thinking long and hard about how science really works.

Ever since Wilhelm Wundt opened the first dedicated scientific psychological laboratory in Leipzig in Germany in 1879 psychologists have tried to maintain scientific credibility through the use of controlled observations of various kinds in an attempt to repeat the successes of the better established sciences of chemistry, biology and physics.

However, psychological experimentation as we know it today is influenced not by what scientists actually did but by what *philosophers* of science thought scientists did. Psychology in the 1920s and 30s was looking for a firmer, more systematic, more scientific, footing. At that time psychologists were very diverse in their ways of thinking about the most effective way of investigating human behaviour and experience. There were psychoanalysts who drew upon their clinical experiences and Wundt himself had drawn upon popular accounts of myth and religion in his ‘folk psychology’ alongside his better known laboratory work. However, psychology did not at that point create a new approach to human science, drawing upon this diversity of techniques and methodologies, this diversity of *thinking* about human development. Instead psychology took a ready-made package of scientific philosophy, not from physicists, chemists and biologists who were actually conducting research, but from philosophers of science who were trying to describe what scientists *should* do.

This ‘package’ was known as **logical positivism** and was developed by a group of philosophers known as the Vienna Circle (we shall be looking at them in more detail in Chapter 2). Logical positivism emphasised that science could only be based on clearly defined hypotheses (ideally expressed mathematically) which could be verified through rigorous objective observations. Logical positivism was initially adopted most enthusiastically by a group of psychologists known as ‘behaviourists’ who were researching animal learning as a model of human behaviour. Soon this logical positivist model was being adopted in other areas of psychology. **Behaviourism** came to dominate mainstream psychology in North America between 1930 and 1960 by appearing to show how a scientific model could indeed be successfully applied to psychology. Behaviourists studied animal learning, concentrating only on behaviour that could be directly observed and measured such as lever pressing or maze-running. It was not until the 1960s that cognitive psychologists shifted the focus to perception, memory and thinking, phenomena which could only be measured indirectly.

With the growth of cognitive psychology and the gradual demise of behaviourism, the emphasis on observable behaviour was greatly reduced, but much of the scientific framework of logical positivism remained. Most psycholog-

ical research journals today still publish articles that adhere very closely to the logical positivist model of science, even though the *topics* of the articles themselves are very different from the behaviourist obsession on observables. The range of research topics is much broader than it was in the 1950s but the *assumptions* about the proper way of doing research in psychology are still in many ways very narrow, constrained by the original boundaries of logical positivism.

Contemporary psychology has developed in many ways since the 1950s and 60s. There would seem to be a broad diversity of phenomena being studied, a range of specialist laboratory equipment used in research (most notably data recording technology such as video, physiological and computer equipment) and many different applications of findings in education, business and health. However, underpinning much of this apparent diversity is a particular set of assumptions about psychological knowledge: how we should develop our knowledge about the mind, what the limits of what we can know are, and how we should assess the quality and meaningfulness of what we know, or think we know. That is to say, underlying this apparent diversity of research activity there is often a more fundamental commitment to just one kind of psychological knowledge, that is, one kind of **epistemology**, the epistemology of logical positivism. This epistemological conservatism has been reduced significantly over the years but psychologists working in certain areas of the discipline still feel somewhat uneasy when asked to step outside the narrow, comfortable confines of straight, traditional scientific thinking. This is unfortunate because there is much to be gained from embracing a spectrum of ideas about psychological knowledge, in other words a form of epistemological diversity or epistemological pluralism.

Epistemological pluralism

Fortunately not all contemporary psychology reflects logical positivism. Since the 1970s psychology has to some extent been reacquainting itself with several earlier connections that were lost during the dominance of behaviourism. Anthropology, sociology, philosophy, linguistics, computer science and biology are all seen as having important contributions to make to a fuller understanding of human experience and behaviour.

In practical terms, however, the legacy of logical positivism is that psychology methods courses at most UK and US universities are still dominated by hypothesis testing, operational definitions and statistical tests. Although we will see in Chapter 5 on experiments that there can certainly be much of value in such an approach, we must remember that it is not the *only* approach. The problem with logical positivism in terms of its use in psychology is that it has been applied to a whole range of questions for which it was never designed. Worse, it has trained generations of psychologists to tackle problems from just one point of view. Psychology's way of thinking about a whole range of issues has been restricted to the way logical positivism can think about it. There is a long history of psychologists coming across complex, serious, curious, challenging problems in social, educational, psychiatric and developmental settings and then failing utterly to solve them because their only way of thinking about those problems was with the mind set of logical positivism. Psychologists, believing that no alternative to

logical positivism was sufficiently scientific to be trusted, argued that they *were* applying the right tools to the problems they were asked to tackle. The problem is, of course, that when your only tool is a hammer, every problem looks like a nail, and when your only tool for thinking is logical positivism, every problem looks like an unsolved equation.

The perspective of this book is one of **epistemological pluralism**. That is to say, I suggest that there is no *single* best way of thinking about behaviour and experience, no *single* perfect model for creating psychological knowledge, no *single* solution to the puzzles of mental life. Rather, we should take the view that psychology is multifaceted and requires many different ‘perspectives on knowledge’. Consequently, this book will try to help you to think more skilfully in relation to a whole range of epistemologies (including logical positivism). We will discuss how to evaluate theories and how to think imaginatively about them; how to run experiments and when they are likely to go wrong; we will review the process of deductive reasoning and consider what we should and should not be doing with experiments in relation to theory. However, we will be adopting a critical approach to logical positivism. Logical positivism will be seen not just as a technique for psychology but something which itself may need to be put under the microscope.

So much for how psychology has developed over the years – what about the way in which we learn about it? What kind of perspective should we take on what it means to understand psychology? We will be taking the view that learners do not simply receive information and absorb it for future reference in a passive and detached manner. Learners actively produce their own understandings of what they are taught – in short learners *construct* their own version of knowledge.

Constructivism

Ann and Brenda are two psychology students both in their mid-thirties. Ann is a mother of three children of school age (all girls aged six, eight and eleven), while Brenda has no children and was herself an only child. One of Ann’s children (the youngest) was bullied when she initially started school. Brenda’s husband is a teacher at an inner city primary school. Ann and Brenda are attending a psychology course seminar on ‘educational psychology in the primary school’. Their tutor is outlining different models of the way five-year-olds communicate with teachers.

How do you think the seminar information will be internalised by each of these hypothetical student parents? It is conceivable (but unlikely) that they switch off their own life circumstances and experiences and just ‘learn’ what the tutor describes. It is much more likely, however, that each will actively try to make sense of the observations in educational psychology in their own way.

In constructing their understanding of the seminar material, Ann and Brenda will draw upon their memories of personal direct experience of school as children, their current beliefs about teachers’ competence and motivation and, of course, previous reading and learning they will have done in child and educational psychology. These differences might well mean that one of the two students, say Ann, is motivated to ask specific further questions of the tutor regarding the

THINK IT THROUGH

How do you think Ann and Brenda might differ in the ways they incorporate their seminar into what they already know about children's social interaction? In what ways might they be similar? Which of them would be the more likely to opt to do a practical project on teachers' first impressions of reception class children at primary school?

effect of the sex of the teacher on teacher–pupil communication. The tutor's reply might be to the effect that the sex of the teacher is not as important a factor as, say, the social class of the child. This intrigues Ann as her experience is that her children communicated much more easily with their female primary school teachers than the male teachers. Ann tries to think this through during the seminar while another student comments on ethnicity as a factor. Ann raises the question again, querying the tutor's claim about teacher gender not being a factor. The tutor says he understands her surprise but that there is plenty of research to back him up and, in any case, the effect of teacher gender on teacher–pupil communication quality is caused by variables confounded with gender. Ann does not know what 'confounded' means and does not want to look foolish by asking in front of the rest of the seminar group.

The above scenario is outlined not to illustrate that Ann has a 'biased' view of a particular theory in educational psychology because she has experience of schools in her personal life as a parent. Rather it illustrates *that learners actively contribute to the process of learning*. Ann will have constructed a representation of the process of teacher–pupil communication that builds on what she already knows about such situations – and which is not flatly contradicted by the new information. She has actively sought out further information because the new information did not square with her previous understanding (in this example from the tutor but it could just as easily have been from a library book).

Also illustrated by this example is the central role of language in the construction of the model that Ann has. There were no actual school teachers or pupils in the seminar room being observed, instead language 'stood for' the activities and roles in the real world. The terms 'teacher' and 'pupil' were not used to mean a specific teacher or a specific pupil, but the general categories 'teacher' and 'pupil'. Ann and her tutor would probably accept that what these terms mean, and the categories they are meant to refer to, are shared by them because they share a common culture. But there is a part of Ann's representation which is problematic. She knows that the gender of a teacher is 'confounded' with other variables, and that this confounding is connected to the impact of the teacher on communication, but she is not sure why. Interestingly, later that week at a research methods class, Ann was asked during some group work whether she thought comparing male and female business managers would make a good project. She replied that it was an interesting idea, but that they would all, of course, have to keep a close eye on confounding...

Constructivism is the view that learners actively construct their own understandings of concepts, phenomena and ideas (Sandoval, 1995). The individual is not a passive vessel having small amounts of extra information poured into their mind as they learn. We approach all new information using knowledge structures (sometimes called **schemata**) which we have developed on the basis of past experiences with the world. Usually, we can make sense of the new information within existing schemata, as might be the case when we watch a 'romantic' film (we expect to see the whirlwind romance, the breaking up, the making up, the enforced separation, the dramatic crisis and the happy ending). This process of making sense within existing schemata is sometimes known as assimilation. Of course sometimes our existing schemata do not work and we reconstruct our schemata to accommodate the unfamiliar new information (as when for example we watch an *avant garde* film about relationships between the sexes which does not adhere to the usual romantic narrative conventions). This process is sometimes known as accommodation.

When we are learning about new concepts we are constantly reworking our knowledge structures to incorporate the new information. We are trying to make all the elements of our restructured schema connect properly with other schemata and to the information we are processing. And yet we do not want to restructure our schemata every time we come across a slightly different case. This *balancing* of assimilation (processing information on the basis of what we already know) and accommodation (restructuring or reconstructing what we know, or constructing brand new schemata) is sometimes referred to as equilibration. The child psychologist Jean Piaget initially described these processes in relation to young infants and children, where a schema could be about nothing more complex than a soother. However, the basic principles still apply to more advanced learning, and assimilation, accommodation and equilibration are useful concepts when making sense of how adults learn about quantum mechanics, just as they are when we are making sense of infants making sense of sucking.

This book takes constructivism as one of its basic models of adult learning. However, we should remember that the process of constructing knowledge about psychological theories applies not just to students of psychology *but to researchers also*. Psychologists, when trying to make sense of new data or new insights, also go through a process of equilibration, balancing the desire to interpret information within existing theories with the temptation to create a new, or reconstructed, theory. Psychologists will often go to great lengths to interpret new data within existing theories (curiously enough especially when the existing theory is something that they themselves thought up). Constructivism is essentially the idea that learners actively construct their understanding from balancing what they already know with what they discover. Constructivism emphasises that learning is a process and not an event.

We could use this version of constructivism very usefully without any further amendment. However, we can add a further dimension that will help us to make sense of the way constructions are accomplished during learning (for both students and researchers).

You will recall that Ann was reluctant to ask about 'confounding' in case she was the only student who did not understand but nevertheless she was able to use

the term in group discussions later in the week. She had been motivated to quiz the tutor about the research on gender, partly because she wanted to get the facts right for the sake of assessment, but also probably because she wanted to continue to make sense of her children's experience at school. We might also stretch this even further and suggest that Ann, in a culture still unsure about student-mothers, was trying to make her degree relevant to her role as a mother – to provide more ammunition to deal with anyone who had the temerity to challenge the legitimacy of her studies.

Focusing on these aspects highlights a key dimension to the construction of knowledge – the *social* dimension. The roles, relationships, interactions and power (or lack of it) we enjoy, in whatever context we do our learning, have a direct if often subtle influence on how and what we learn. As a consequence of this, the social arrangements for learning (often institutionalised in organisations such as universities) affect the way we think. Not only is learning a process rather than an event, it is specifically a *social* process.

The social dimension to thinking and learning is evident also in the way psychological research reports are written. When psychologists write books and articles about their theories and research, they do not just describe what they believe or what they did, they actively try to encourage the reader to agree with their arguments. As a consequence, scholarly writing in psychology can be said to be **rhetorical** (Billig, 1987), that is, it is constructed to *persuade*. 'Rhetorical' in this context does not mean that psychologists speak or write in flowery or dramatic terms but rather that scientific accounts are always more than just reporting, they are *trying to argue a case*. Part of this rhetorical approach involves the writer anticipating the kind of counterarguments the reader might make against the writer's claims (and then possibly showing how the counterarguments can be dealt with). To some extent, experiments in psychology are designed the way they are precisely to rule out possible criticisms by others. For example, in clinical research, the use of a set of subjects who do not get the trial antidepressant drug (sometimes called a 'control' group) allows psychologists to deal with the potential argument that the improvement in mood would have happened anyway. Thus psychological writings often reflect the fact that they will be mulled over by others and are themselves part of ongoing debates and discussions. In this way learning can be seen to be a social process, not just for individual students but for entire academic communities. When we are 'thinking psychologically', we are not thinking in isolation but as a part of previous, current and anticipated debates in which thousands of psychologists and the psychological community collectively are involved.

Thinking as personal development

Thinking is such a strange phenomenon. In itself it does nothing and yet without it nothing would get done. There is no aspect, good or bad, of human civilisation that is not a reflection of some form of human thinking.

Since the 1960s we have been encouraged to 'get in touch with our feelings' and this advice, stripped of its west coast pseudo-humanist pop psychology, is worth paying heed to – too many relationships freeze over because one partner or

the other has repressed or denied their own feelings. But what about getting in touch with our *thinking*? We spend all our lives thinking. Thinking what to do next and what we have done (and what we did not do). We face all kinds of practical problems as individuals and all kinds of challenges as a planet, and thinking is the first step of most solutions. To consider the parallel with feeling a little more: we can all imagine how barren life would be if we never experienced the emotions of joy, surprise, love (and disappointment and jealousy). We would all, I think, consider ourselves substantially incomplete in some significant way if we did not develop our emotional maturity or achieve our full emotional potential (however defined). But is it not also the case with thinking? Should we not also reckon our time in life by the range of forms of *thought* we experience as well as the forms of feeling? And is not cognitive as well as emotional maturity a form of human potential worth developing?

And of course, even if there were a sense in which we felt that emotional development was more important than cognitive maturity, we should remember that feeling and thinking are not necessarily best thought of as two opposing or even separate modes of experience. Our feelings are often a consequence of the conclusions from our thinking, and our feelings in turn motivate some kinds of thought rather than others. Nelson-Jones (1996) for example has advocated what he calls 'pragmatic existentialism' – an approach to personal development which puts thinking at the forefront of coping with life's emotional challenges.

Thinking is central not only to our personal development but also to our participation in society. Thinking has taken over as the new craft skill. In our post-industrial, educated, bureaucratic societies the premium skills are no longer hand skills but *mind* skills. Those who are masters of categorisation, summarising, comparison and imaginative speculation will have more options than those who 'merely' cut, carve or sew. We live in a *cognitive* society which expects thinking skills more than at any other time in the past. And we should never forget that anyone who does not do their own thinking should not be surprised when others start doing it for them.

SUMMARY

In this chapter we have discussed the aim of this book and its general orientation. The aim is to help you think more creatively, more critically and more analytically about psychology, its theories, assumptions and methods. The book takes as its point of departure the idea that individuals construct their own understanding of knowledge in a social context. It advocates diversity and eclecticism in making sense of psychology. The current dominance of logical positivism is seen as being unnecessarily restrictive and other perspectives will be reviewed where they seem to have something interesting to say. We will cover general principles in Part I and then apply them in Part II. Each chapter is structured to support learning and concludes with recommendations for future reading and websites.

KEY TERMS

Behaviourism ■ Epistemological pluralism
Epistemology ■ Logical positivism
Rhetorical ■ Schemata

FURTHER READING

Richard Nelson-Jones' 1996 book *Effective Thinking Skills* (London: Cassell) is a practical guide to taking responsibility for decision making in our lives based on ideas from psychology about thinking clearly and avoiding various rationalisations and biases. The links with existential philosophy are smoothly done and it addresses the emotional and intellectual dimensions with equal thoroughness, a trick not often or easily accomplished.

USEFUL WEBSITES

Each chapter in this book has specific references to websites relevant to that chapter. However, in this chapter some psychology sites of general relevance are introduced.

American Psychological Association (APA)

<http://www.apa.org/>

The official site of the professional organisation for American psychologists. Interesting in many ways but it has a useful section for students. Various APA policy documents are to be found here.

British Psychological Society (BPS)

<http://www.bps.org.uk>

A modest but effective site. University subscribers have access to some BPS journals from here. Extracts from the organisation's monthly magazine, *The Psychologist*, are available too.

Australian Psychological Society (APS)

<http://www.psychsociety.com.au/>

Any organisation which has as its motto 'Good thinking!' just had to be included here.

Canadian Psychological Association

<http://www.cpa.ca/>

Available in French and English.

American Psychiatric Association

<http://www.psych.org>

A classy, professional and frequently updated site covering issues affecting American psychiatry.

Colegio Oficial de Psicólogos / Spanish Psychological Association

<http://www.cop.es/english/English.htm>

The official site of the Spanish Psychological Association. Many of the documents and news items are in English.

Today in Psychology

<http://www.cwu.edu/~warren/today.html>

A fun, interactive site which enables you to submit any date in the calendar and be told almost instantly which event relevant to psychology happened on that date over the past 100 years or so. Find out which famous psychologist you share your birthday with from their database.

Constructivism Index of Papers

http://carbon.cudenver.edu/~mryder/itc_data/constructivism.html

A useful starting point for anyone wanting to pursue the ideas of constructivism further.

Plomsky's Guide to Writing Research Reports

<http://www.uwsp.edu/acad/psych/apa4b.htm>

A definitive guide to writing research reports following approved American Psychological Association rules on referencing and format. The good thing about guides like this on the web is that you can use keywords to search for the paragraph you need. There are also 'hyperlinks' which help you jump through the document to find what you want.

Electronic Reference Formats Recommended by the American Psychological Association

<http://www.apa.org/journals/webref.html>

This web page explains in detail how you should cite web pages if you refer to them. You should find this useful if you want to refer to information you find from the web pages mentioned in this book.

The Thinking Psychologically Website

<http://www.patrickmcghee.co.uk>

A website devoted to supporting and enhancing your understanding of this book. You will find links to all the websites mentioned, worksheets, quizzes and much more.

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