
WHAT IS PSYCHOLOGY?

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The authoritative *Oxford English Dictionary* defines psychology as “the science of the nature, functions, and phenomena of the human soul or mind”. Nowadays, most psychologists would object to the last part of that definition, because the human soul is no longer regarded as the concern of psychology, and also because human and animal behaviour (which are ignored by the above definition) have come to be regarded as essential components of the discipline. Although any definition of psychology is bound to be controversial, even among psychologists, the following renovated version of the *OED* definition comes as close to encapsulating the essence of psychology as is possible in a few words: psychology is the science of the nature, functions, and phenomena of behaviour and mental experience. Underlying this definition is the fundamental assumption, which is supported by evidence

throughout this encyclopedia, that behaviour and mental experience are governed by rational laws that we can discover and understand.

Associated with the scientific discipline of psychology are a number of professions of applied psychology, including clinical, counselling, educational (school), industrial (occupational), organizational, and forensic (criminological) psychology – see chapters 13.1 (Graham E. Powell), 13.2 (David Fontana), 13.3 (Wendy Hollway), and 13.4 (Clive R. Hollin). Whereas academic psychologists work mainly in universities, colleges, and other teaching and research establishments, professional psychologists work in a wider variety of settings, including hospitals and clinics, counselling agencies, commercial and industrial companies, prisons and correctional institutions, government departments, and in private practice.

In both its academic and professional forms, psychology has been increasing in popularity since the Second World War. The number of students choosing to study psychology has been rising steadily for several decades in industrialized and developing countries, and whenever surveys are conducted to try to find out why students choose psychology, the most common reason by far turns out to be interest in its subject matter, rather than career prospects or any other considerations (Radford, 1991). In just one decade between 1980 and the early 1990s the total number of practising psychologists in the world rose from about a quarter of a million to well over half a million (Rosenzweig, 1992). Although these figures are impressive, it is worth pointing out that there are still about twelve times as many medical practitioners in the world as there are psychologists.

ORIGIN OF THE WORD “PSYCHOLOGY”

The word “psychology” was formed from two Greek words. The first, *psyche*, originally meant “breath” but later acquired the additional meaning “soul”, because breathing was thought to indicate that the soul had not yet left the body, and later still (during the seventeenth century) broadened further in meaning to include “mind”. The equivalent Latin word *anima*, from which the English words “animal” and “animate” are derived, also started life meaning “breath” and later evolved the additional meaning “mind”. The second Greek word, *logos*, originally meant “word” and later expanded in meaning to include “discourse” and eventually “science”. According to its Greek roots, therefore, psychology is literally the science of the mind.

In later Greek mythology, the soul is personified by Psyche (with a capital P), a young woman loved by Eros, the god of love. Eros marries her on condition that they spend time together only at night and that she never sees his face. Goaded by her jealous sisters to steal a glance, Psyche lights an oil lamp one night while Eros is asleep and falls in love with him at first sight, but she is so startled by his beauty that she accidentally spills a drop of oil on his shoulder and awakens him, whereupon he immediately abandons her. To win

him back, Psyche is forced to endure many trials and dangers, but eventually she is transformed into a goddess and joins Eros in heavenly bliss. In this myth, Psyche symbolizes the human soul, suffering hardship and struggle in life but re-awakening after death in a new, better existence, like a caterpillar transformed into a butterfly. This explains why Psyche is generally depicted in works of art with butterfly wings or sometimes simply as a butterfly (see Figure 1).

The Latin word *psychologia* emerged from obscure origins in Germany in the sixteenth century; it was used by Philip Melanchthon, Otto Casmann, and Rudolf Goeckel, but no one is certain who coined it or exactly when it was first used. The English word “psychology” made its first appearance near the end of the seventeenth century in *The Physical Dictionary: Wherein the terms of Anatomy, the names and causes of Diseases, chyurgical Instruments and their Use; are accurately Describ'd* (Blankaart, 1693), which was the second edition of the English translation of Steven Blankaart’s *Lexicon Medicum, Graeco-Latinum*, originally published in 1679. Blankaart refers to “*Anthropologia*, the Description of Man, or the Doctrin concerning him [which is divided] into Two Parts; viz. *Anatomy*, which treats of the Body, and *Psychology*, which treats of the Soul” (p. 13, italics and capitals in original). The word “psychology” was used sporadically throughout the eighteenth and early nineteenth centuries – the English philosopher and physician David Hartley (1749), for example, wrote of “Psychology, or the Theory of the human Mind, with that of the intellectual Principles of Brute Animals” (p. 354, capitals in original) – but it was not until the 1830s that it began to be used frequently and came to be widely understood.



Figure 1 The Chartered Psychologists’ logo of the British Psychological Society, showing Psyche, the personification of the human soul, with butterfly wings for reasons explained in the text

HISTORICAL BACKGROUND

Although psychology has been recognized as an independent discipline for little more than a century (see chapter 1.2, Raymond E. Fancher), psychological speculations and practices can be found in the records of the most ancient civilizations. The Ebers papyrus, an ancient Egyptian document devoted to medical matters dating from before 1500 BC, for example, describes practices strikingly similar to modern hypnosis (see chapter 11.2, Graham F. Wagstaff), and a later Egyptian scroll records in detail the speech and behaviour of a young boy who was hypnotized while he fixed his gaze on a luminous object (Ellenberger, 1970).

There are even occasional records in ancient documents of scientific experiments designed to settle psychological questions. The earliest is contained in *The Histories* of Herodotus, the world's first history book, which was completed in about 429 BC (Herodotus, 1972). According to Herodotus (part 1, book 2, para. 2), the experiment was performed by the ancient Egyptian Pharaoh Psammetichus I in the seventh century BC to determine whether human beings have an inborn capacity for speech, and if so, which particular language is innate. He ordered two infants to be brought up in a remote place by a shepherd who was forbidden to speak in their presence. After two years the children began to speak, and the word that they repeated most often was *becos*, which turned out to be the Phrygian word for "bread". Psammetichus concluded that the capacity for speech is inborn and that the innate, natural language of human beings is Phrygian.

The questions that Psammetichus's experiment was intended to answer seem quaint and foolish in the present day, and his experiment was certainly poorly designed and methodologically unsound – even in his own time critics pointed out that the children may merely have been imitating the bleating of goats. But what is striking is that it was a psychological experiment none the less; in its conceptual structure and methodology it is strikingly similar to the highly regarded experiments of William H. Thorpe (1958), who reared birds in isolation from members of their own species in order to discover the innate features of their songs.

Before psychology emerged as an independent discipline in Germany in the late nineteenth century, it existed for a long time as a branch of philosophy that was called "mental philosophy" to distinguish it from "natural philosophy" (which is now called physics). During the eighteenth and nineteenth centuries, developments in the biological sciences began to suggest empirical approaches (approaches involving observation and experiment) to some of the problems of mental philosophy, and towards the end of that period psychology finally reached maturity and gained its independence as a separate discipline in its own right. Although psychology is barely a century old as a discipline, psychological speculation, practice, and even research clearly have much older pedigrees. That is what the German psychologist Hermann

Ebbinghaus (1908) meant by his frequently quoted remark that “psychology has a long past but a short history” (p. 1).

The first systematic investigations of psychological problems were carried out in ancient Greece by the pre-Socratic philosophers of the sixth and fifth centuries BC. They did not have any concept of an individual soul or mind – that arose in later Greek philosophy, especially under the influence of Aristotle – but they were the first to understand that the brain plays an important role in mental experience. In particular, they understood that our eyes cannot see and our ears cannot hear without the help of our brains, and by contributing this crucial insight the pre-Socratics paved the way for the scientific study of sensation and perception (see section 3).

The pre-Socratics were also the first to develop a theory to explain the fact that people differ from one another not only physically but also psychologically, that is, not only in appearance but also in temperament, or what psychologists now call personality (see section 7). According to their doctrine of the four temperaments, people were thought to be more or less sanguine (optimistic), melancholic (depressive), choleric (short-tempered), or phlegmatic (apathetic) according to the mixture in their bodies of four humours or fluids, called blood (*sanguis*), black bile (*melaina chole*), yellow bile (*chole*), and phlegm (*phlegma*). The doctrine of the four temperaments held sway for centuries, but the biochemical basis of the theory finally collapsed during the Renaissance when researchers began to discover the rudimentary facts of human physiology. The underlying typology, though not the theory of humours that sought to explain it, survives in some modern theories of personality (see chapters 7.2, Sarah E. Hampson, and 7.3, H. J. Eysenck). The contribution of the pre-Socratics, which can hardly be overestimated, was historically important not so much because of the answers that they gave, but because they thought to ask the questions at all.

Physiology became established as a field of research during the second half of the eighteenth century, after the introduction of the microscope and post-mortem examinations, which had formerly been banned by the Church. During the following decades, enormous advances were made in understanding the brain and nervous system (see chapter 2.3, Daniel Kimble) and evolutionary aspects of behaviour (see chapter 2.2, John Lazarus). The prevailing currents of philosophical and biological research gradually converged towards the emergence of psychology as an independent discipline, and that event finally occurred in Germany in the 1880s. The year in which the independent discipline of psychology is usually said to have been born is 1879, when Wilhelm Wundt opened the first psychological laboratory in Leipzig. The history of psychology is discussed in greater detail in chapter 1.2 (Raymond E. Fancher).

RELATED DISCIPLINES AND PRACTICES

In order to present a clear picture of the nature and scope of psychology, it is useful to distinguish it from a few related practices and professions with which it is often confused. The following brief comments should help to map out the intellectual terrain and eliminate certain common fallacies. (For more detail and further distinctions, see Colman, 1988, chap. 1.)

Psychiatry

As its name suggests, psychiatry (from the Greek *psyche*, meaning mind, and *iatros*, meaning doctor) is a branch of medicine concerned with mental disorders – their classification, aetiology (causes), diagnosis, treatment, and prevention. Anyone intending to qualify as a psychiatrist must first undergo a full medical training and then specialize in psychiatry, which is simply a medical specialism among many others, including cardiology, dermatology, and gynaecology.

Psychology, in contrast, is not a medical specialism, and psychologists are not medically trained. Furthermore, most of psychology is concerned with normal behaviour and mental life rather than with mental disorders. A small part of academic psychology is, however, concerned with mental disorders (section 10), and one of the professions of psychology, clinical psychology (chapter 13.1, Graham E. Powell) involves the treatment of mentally disordered patients. In Britain, the United States, and elsewhere, the work of clinical psychologists has tended over the years to resemble that of psychiatrists more and more closely. Because of their different backgrounds and training, however, psychiatrists tend to favour more medically oriented interpretations of mental disorders and more physical forms of treatment than do most clinical psychologists.

Psychoanalysis

Psychoanalysis is a theory of mental structure and function and a method of psychotherapy based on the writings of Sigmund Freud and his followers (see chapters 7.4, Richard Stevens, and 13.5, Peter Fonagy). As a theory, psychoanalysis focuses primarily on unconscious mental processes and the various defence mechanisms that people use to repress them. As a therapeutic method, psychoanalysis involves the client in three or more 50-minute sessions per week for several years. During the analytic sessions a number of specialized techniques are used to help the client uncover repressed thoughts and feelings, understand why they were repressed, and accept them consciously.

Psychoanalysts are not necessarily trained in psychology or psychiatry; their training involves undergoing psychoanalysis themselves. Conversely, it

is also true to say that most psychologists and psychiatrists have no formal qualifications in psychoanalysis; but many of them, especially in parts of continental Europe and the Third World, are influenced to varying degrees by psychoanalytic ideas and approaches. Most – though by no means all – British and American psychologists, on the other hand, hold attitudes towards psychoanalysis ranging from indifference to open hostility.

Philosophy

Many of the problems that non-psychologists assume to fall within the scope of psychology are really philosophical problems. These are questions that must be tackled by rational argument rather than by experiments or observations of behaviour. Although psychology was once a branch of philosophy called “mental philosophy”, the psychological offspring has grown up to be quite distinct in its subject matter from its distinguished philosophical parent. Psychology, in contrast to philosophy, is devoted to empirical questions, that is, questions that can, in principle at least, be decided by observations of real-world facts and events.

Some of the traditional problems of philosophy are confusingly tied up with what might at first appear to be psychological issues. The most obvious example is the mind–body problem, which has exercised philosophers throughout the modern period and is still unresolved. This problem relates to the puzzling relationship and apparent interaction between mental experiences and the physical world. How can mental experiences such as desires, which are entirely immaterial, produce physical effects like bodily movements – in other words, how can a thought move a muscle? And how can physical injuries to our bodies produce the non-physical mental experiences we call pains? These are irreducibly philosophical questions, in spite of their superficial resemblance to psychological problems, because they could not be solved, even in principle, by empirical investigations of any kind, or at least that is what most philosophers and psychologists believe.

A second obvious group of questions, which are even more unambiguously philosophical rather than psychological, are moral or ethical problems. A branch of philosophy called *ethics* is devoted to questions of morality and general issues of right and wrong. Is it always wrong to tell lies? Is euthanasia immoral? Questions of this type, once again, are impossible in principle to answer through empirical observations of behaviour, and they therefore fall beyond the scope of psychology. Factual questions about moral attitudes and behaviour, and how they develop in children, are legitimate topics for psychological research, but questions about how people *ought* to behave belong to the field of ethics within the discipline of philosophy. It goes almost without saying that psychologists ought to be, and generally are, concerned about moral issues that arise in psychological research and practice (see chapter 12.6, Anthony Gale).

One trivial source of confusion is worth commenting on at this point. In Britain, the United States, and many other countries, universities traditionally confer the degree of Doctor of Philosophy (PhD or DPhil) rather than “Doctor of Psychology” for advanced studies in psychology. The degree of Doctor of Philosophy is the standard doctoral degree, not only in psychology and philosophy, but also in physics, chemistry, biology, history, archaeology, and most other arts, science, and social science subjects. A person with a doctorate in any subject can legitimately use the title of doctor, but for obscure historical reasons medical practitioners in the United Kingdom and many other countries are allowed to call themselves doctors even if they do not hold doctoral degrees in any subject.

CLASSIFICATION OF RESEARCH AND FIELDS OF APPLIED PSYCHOLOGY

The fundamental aim of research in psychology can be stated quite simply: it is to discover and understand the nature, functions, and phenomena of behaviour and mental experience. It is like any other branch of scientific research inasmuch as it aims to enlarge our knowledge and understanding of the world; what distinguishes it from other areas of scientific research is the subject matter with which it deals, namely behaviour and mental experience. Psychologists who are engaged in basic research, like basic researchers in other disciplines, pursue knowledge and understanding as ends in themselves. The value of a basic research contribution is judged (or ought to be judged) according to the amount of light that it casts on an aspect of behaviour or mental experience that was previously unknown or imperfectly understood, rather than according to its assumed practical usefulness.

In contrast to this, the various fields of applied psychology and their associated professions (see section 13) are driven by quite different and much more practical aims. They are concerned with applications of psychology to practical problems of everyday life rather than theoretical problems of understanding and explanation. Applied psychology relies partly on basic research findings, which sometimes turn out to be useful in practice, and partly on the results of applied research specifically designed to answer practical questions.

In clinical psychology (see chapter 13.1, Graham E. Powell), the findings of basic and applied research into the classification, aetiology, diagnosis, treatment, and prevention of mental disorders are put to use in an effort to deal with these problems more effectively. In educational (school) psychology (see chapter 13.2, David Fontana), research into problems of learning, adjustment, and behaviour among schoolchildren is applied in an effort to provide practical help to teachers, parents, and children with learning or behaviour problems. In industrial (occupational) and organizational psychology (see chapter 13.3, Wendy Hollway), research into the well-being and efficiency of people at work and into organizational behaviour is applied to

problems arising in those settings. In forensic (criminological) psychology (see chapter 13.4, Clive R. Hollin), research into all aspects of criminal behaviour is applied in an effort to solve practical problems of crime and punishment.

Psychological research can be classified in many different ways, but all classifications are arbitrary and conjectural. The system of classification that has been adopted in this encyclopedia is not necessarily more rational than any other, but it corresponds as closely as possible, according to a preliminary survey that was carried out, to the way the discipline is divided up for teaching purposes in degree courses in the United States and Britain (Boneau, 1990; Watts, 1990). The section headings reflect a hybrid classification, based partly on the types of psychological processes under investigation (sensation and perception, cognition, learning and skills, emotion and motivation, individual differences and personality, social psychology), partly on levels of analysis (biological aspects of behaviour, developmental psychology), and partly on characteristics of the individuals under investigation (abnormal psychology).

Psychology repudiates all attempts to divide its subject matter into watertight compartments, so some seepage between chapters and even between sections has been condoned in this encyclopedia, and unsurprisingly a section devoted to “special topics” turned out to be necessary because certain obviously important topics refused to fit into any of the other sections. Furthermore, research methods and statistics transcend the classification outlined in the previous paragraph, and it would be inappropriate to classify them as “special topics” because they could hardly be more general, but they are integral to the discipline and are taught in all reputable degree courses, so a further section in this encyclopedia is devoted to them. And for the sake of completeness, a final section deals with the professions of psychology.

RESEARCH METHODS

Research in psychology, as in any other science, always begins with a question that needs answering. The question may arise from the natural curiosity of the researcher, from a formal theory that generates a testable prediction, or from something puzzling thrown up by the findings of previous research. Provided that it relates to behaviour or mental experience and is an empirical question that can be tackled by collecting objective evidence, it is a legitimate problem for psychological research. What follows is a brief outline of the main research methods used in psychology (for a more extended discussion along the same lines, see Colman, 1988, chap. 4).

Case studies

A case study is a relatively primitive research method. In psychology, it

involves a detailed investigation of a single individual, or occasionally a single social organization. Research of this kind is common in abnormal psychology (see section 10) and comparatively rare in other branches of the discipline. The data reported in case studies may be derived from interviews, diaries, case histories, medical records, questionnaires and other psychometric tests, or direct observations of behaviour. The findings of case studies can be interesting and valuable, but they often suffer from problems of generalizability, because one individual's response to a particular treatment (for example) is not necessarily the same as another's. The accumulation of evidence from a number of case studies, especially if they are reported by independent investigators, can sometimes mitigate this problem. (For more detail on case studies, see chapter 12.5, Francis C. Dane.)

Naturalistic observations

Naturalistic observations, which are discussed in more detail in chapter 12.5, are widely used in ethological research (see chapter 2.2, John Lazarus) and, less commonly, in certain areas of developmental and social psychology (sections 8 and 9). They involve careful observations and recordings of the behaviour of animals or people in their natural habitats. Unlike case studies, which typically include data from interviews and psychometric tests, naturalistic observations are generally non-interactive inasmuch as the investigator tries to avoid influencing the behaviour that is being observed.

Naturalistic observations are often open-ended and exploratory in spirit, but they are sometimes useful for answering specifically focused questions. The range of psychological phenomena for which this method of research is suitable is rather limited, although where it is applicable it often yields important findings about everyday behaviour in natural environments, and it can sometimes serve as a useful corrective to the findings of artificial laboratory studies. The methods of recording observations are, however, often relatively crude and subjective, and this sometimes calls into question the validity of the findings.

Survey research

Survey research (see chapter 12.5, Francis C. Dane) is useful for investigating psychological phenomena in specific sections of a population or in different populations. When it is confined to single populations it usually involves comparisons between groups defined by demographic variables such as age, sex, social class, education, marital status, ethnic identity, and geographical location. It is used, in particular, to answer questions about the incidence, prevalence, and distribution of mental disorders, behaviour patterns, attitudes, opinions, beliefs, and personality characteristics. The most common sources of data in survey research are interviews and questionnaires.

To ensure that the individuals studied are truly representative of the population groups to which they belong, survey researchers use sophisticated methods of sampling. The ideal method of sampling, from a theoretical point of view, is simple random sampling, in which every member of the population has an equal chance of inclusion. In practice, simple random sampling is seldom used because of the difficulty of compiling a sampling frame (a list of all members of the population from which to make the random selection) and the further problem of persuading all of the selected subjects to participate in the survey. As a consequence, the most common sampling technique in psychological survey research, and also in market research and opinion polling, is quota sampling. This involves selecting individuals more or less arbitrarily to fill predetermined quotas, matching the proportions in the population at large according to age, sex, social class, or whatever criteria are thought to be important for the research.

Quasi-experiments and correlational studies

Quasi-experiments resemble controlled experiments (see below) in so far as they are designed to answer questions about cause and effect, but they lack the full control of conjectured causes and extraneous variables that is characteristic of controlled experiments. Correlational research focuses on non-causal questions about the relationship between variables – intelligence and creativity, introversion and self-esteem, gender and verbal ability, and so on. Both of these research methods, which are discussed in more depth in chapter 12.4 (Michael L. Raulin and Anthony M. Graziano), focus on the relationship between two or more factors over which the investigator has imperfect or non-existent control.

Neither of these research methods can conclusively settle questions about cause and effect, but valuable information about the relationship between variables can often be obtained, and it is sometimes reasonable to draw tentative inferences about probable causal effects from quasi-experiments.

Controlled experiments

Controlled experimentation (see chapters 12.1, David D. Stretch, and 12.2, Brian S. Everitt) is the most important research method in psychology, not because experiments are necessarily more objective or precise than other methods, but because they alone allow firm conclusions to be drawn about cause and effect. The defining properties of an experiment are the manipulation of the conjectured cause, called the *independent variable* because it is varied independently by the experimenter, and control of extraneous variables that might also influence the behaviour under investigation, which is called the *dependent variable*. Most experiments take place in laboratory environments, where manipulation and control can be implemented most

efficiently, but field experiments conducted in naturalistic settings are sometimes carried out when laboratory experiments are infeasible or undesirable for special reasons.

In a well-controlled experiment, *all* extraneous variables are controlled while the independent variable is manipulated; in factorial designs, more than one independent variable is manipulated simultaneously (chapter 12.2, Brian S. Everitt). In psychology, experimental control is usually achieved through randomization: subjects are randomly assigned to treatment conditions, so that any pre-existing differences between subjects are distributed according to the laws of chance, and subjects in all treatment conditions are then treated identically apart from the deliberate manipulation of the independent variable. This allows statistical methods to be used to evaluate the significance, in relation to chance, of any resulting difference that might be observed in the dependent variable (see chapters 12.1, David D. Stretch, and 12.3, A. W. MacRae).

The purpose of inferential statistics is usually to calculate the probability of obtaining, by chance alone, a difference as large as the one observed, and thereby to provide a rational basis for deciding whether or not the difference is *statistically significant*. The logical connection between experimental control through randomization and statistical inference is explained in detail in Colman (1988, chap. 4).

SOME KEY CONCEPTS

The chapters that follow this introductory section deal with all major areas of psychological research and practice, from biological aspects of behaviour, through sensation and perception, to cognition, learning and skills, emotion and motivation, individual differences and personality, developmental, social, and abnormal psychology, special topics, research methods and statistics, and the professions of psychology. The chapters in each of these sections can be read without any background knowledge beyond a handful of key concepts that crop up again and again and are of sufficient importance to merit brief explanation in this chapter. Several have already been dealt with, but there are a few more that deserve mention.

Experimental and control groups

All experimental research, and most non-experimental research as well, involves comparisons (see chapter 12.1, David D. Stretch). To test the hypothesis that a particular drug produces improvement in patients with a certain mental disorder, for example, it is not sufficient to measure the improvement in patients who have been administered the drug, because any observed improvement might be due to something quite different, for example spontaneous remission (natural improvement due merely to the

passage of time). A well-designed experiment would involve not only an experimental group, containing patients who would receive the drug, but also a comparison group of patients, as closely comparable to the experimental group as possible, treated identically to the experimental subjects except that they would not receive the drug.

The comparison group, which is usually made comparable to the experimental group by randomly assigning subjects to the two groups by tossing a coin or using some other randomizing device, is called a control group. Most psychological experiments involve comparisons between experimental and control groups, though other designs are possible (see chapters 12.1, David D. Stretch, and 12.2, Brian S. Everitt). In the example of the previous paragraph, the ideal experiment would be double-blind, with neither the experimenter nor the patients knowing which of the pills contained the drug and which were merely placebos (inactive dummy pills) until after the results had been recorded. This would ensure that any statistically significant difference that was observed between the experimental and control groups could not be due to biased expectations of the experimenters or subjects.

Statistical significance

This concept has been touched on above. A research finding is said to be statistically significant if the probability of obtaining such an extreme finding by chance alone is sufficiently small, by convention usually less than 1 in 20 (the 5 per cent significance level, sometimes written $p < .05$). If a research finding is statistically significant, then the researcher is justified in concluding that the observed effect is “real” and not due merely to chance. If, on the other hand, it is not statistically significant, then chance cannot be ruled out as an explanation and it is impossible to draw any firm conclusion from the result. For a full explanation of this concept, see chapter 12.3 (A. W. MacRae).

Correlation

Two variables are said to be positively correlated if high scores on one of them tend to go with high scores on the other, and low scores on one with low scores on the other, like people’s heights and weights. The usual statistical index of correlation, which is symbolized by r , ranges from 1.00 for perfect positive correlation, through zero for no correlation between unrelated variables, to -1.00 for perfect negative correlation. The heights and weights of adults in Britain are positively correlated. According to a survey of a representative sample of 10,000 men and women, which yielded results very similar to findings reported in the United States, the correlations are in fact .47 for men and .35 for women (Knight, 1984), and both of these

correlations are of course statistically significant. For more on correlation, see chapter 12.3 (A. W. MacRae).

Cognition

Cognition (from the Latin *cognoscere*, to apprehend) is a rather elastic term used in psychology to refer to attention, thinking, problem-solving, remembering, and other mental processes that can be broadly described as information processing. When psychologists refer to the cognitive aspects of a psychological process, they are often implicitly stressing the mental activity involved in the phenomenon rather than its purely outward, behavioural manifestations. Cognitive psychology (see section 4) is an area of psychological research in its own right, or more precisely a loosely connected set of research areas, but almost every other area of psychological research has cognitive approaches, theories, or aspects, which are frequently referred to in every section of this encyclopedia.

Cognitive science, which should not be confused with cognition or cognitive psychology, is a relatively recent umbrella term for an interdisciplinary endeavour, involving cognitive psychology, the brain sciences, computer science, artificial intelligence, linguistics, and philosophy, to construct theoretical models of information processing (see chapter 4.5, Alan Garnham). Although the activities of cognitive psychologists and cognitive scientists overlap and intersect, their aims and methodologies, and the general flavour of their approaches, are quite distinct.

A NOTE TO READERS

Contributors to this encyclopedia were selected on the basis of their acknowledged expertise in their own fields and their proven ability to communicate their ideas in lively and readable prose. Their expertise is beyond question: they are all leading researchers or practitioners in the areas about which they have written, and never before have so many academic and applied psychologists of such eminence contributed in depth to a single reference work. The contributors were asked to deal with their topics as thoroughly as possible in the space available (about 7,500 words) and to write informatively and entertainingly, at a level accessible to attentive but not necessarily specialist readers. They were requested to assume no prior knowledge on the part of their readers and to explain all technical terminology that they found it necessary to introduce. They were asked to aim for as encyclopedic a presentation of their topics as the constraints of space and level of difficulty permitted, and above all to write with clarity and vigour. Readers will form their own opinions as to how successfully the contributors have achieved these multiple goals.

The totality of the chapters that follow provide a better answer to the question “What is Psychology?” than has been provided by this chapter. There is a limit to how much can usefully be said *about* psychology without getting down to specific examples of what psychologists do. The only way of gaining a proper insight into psychology, or any other discipline for that matter, is by examining its actual content. This encyclopedia provides an overview of the subject matter of psychology written by active researchers and practitioners in every major area of the discipline and its associated practices and professions.

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