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Psychology

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Psychology

Although the discipline of psychology, in its contemporary form, is only a century old, psychology's historical antecedents reach back to the beginnings of civilization. Whether defined as the study of the soul or the study of human faculties, as it was in earlier times, or as the study of consciousness, mind, or behavior, as it has been over the past hundred years, psychology has dealt with some of the fundamental questions and issues pertaining to the functions, processes, and mechanisms of human and animal nature.

Like all thought and action, psychology's theories and methods—as well as its professional practices—have reflected the historical and cultural contexts in which they have emerged. In turn, these theories and methods have been seminal in the development of other humanistic and social scientific disciplines, which have often looked to psychology for insights regarding the nature and potential of humans and other animals. As a result, psychology has been one of the fundamental disciplines in the modern, twentieth-century academy, especially in the United States. Consequently, an understanding of the discipline of psychology will provide access to some of the basic orientations and concerns of the cultures from which modern psychology has emerged as well as an introduction to some of the basic premises of the academic disciplines that are related to it. Despite its current centrality, however, it is possible that

psychology may be dismembered and perhaps reconstructed in the coming decades. If this occurs, it will probably be in response to changing cultural concerns, new demands from other disciplines, and the diverse trajectories of psychology's own varied internal developments.

1. *The Historical Background of Psychology*

In 1979, modern scientific psychology celebrated its centennial, as dated from the symbolic founding of Wilhelm Wundt's psychological laboratory at Leipzig University in Germany. Wundt's "new psychology" represented a blending of subject matter from the old philosophical psychology (which emphasized consciousness and mentality) with new techniques (especially experimental methods) derived largely from physics and physiology. Although Wundt's own program for psychology included the nonexperimental study of the higher mental processes, it was the experimental study of the lower (sensory and perceptual) processes that established psychology as a scientific discipline, especially in the United States, where individuals such as William James, G Stanley Hall, and James McKeen Cattell introduced their students and colleagues to the new kind of psychology in the 1880s.

Although this field of study focused at first upon the laws governing the sensory and perceptual processes of human beings (as revealed primarily in the study of adult White males), by the turn of the century psychologists were studying a broader range of topics, human beings, and species, both as a result of developments within the field itself and as a result of pressure from the public at large. For instance, widespread popular curiosity regarding the sorts of psychic phenomena studied by the new, competing field of psychical research (now known as parapsychology) had something to do with bringing women, children, and other subjects outside the category of adult White males within the purview of psychologists, and it also had something to do with extending the scope of psychology to include the experimental study of hypnosis, suggestion, emotion, motivation, the psychology of belief, and abnormal psychology.

At the same time, the practical needs of educators and social reformers (both inside and outside the field of psychology) led to the development and application of psychological knowledge in a variety of social settings. In the United States, both the extension of the public school system of education and the First World War, by increasing the demand for the valid and reliable assessment of students and soldiers, helped to spur the development and popularity of "mental testing." Counseling and other types of clinical psychology and psychotherapy, as they are known today, did not emerge until later, in the 1930s and thereafter, in response to social needs

felt during the Depression and in the aftermath of the Second World War.

By the 1950s, psychology had assumed the basic shape in which it is found today, at least in the United States, as both a well-established academic discipline and a full-fledged profession. Although most universities had instituted psychology departments by the early twentieth century, it was only in the 1950s that psychology consolidated its central position in the academy and that psychologists established a firm hold upon major roles in the public workforce.

The success of psychology and psychologists in both academic and nonacademic settings over the subsequent decades is perhaps most succinctly, if indirectly, indicated by the rapid increase in membership in the American Psychological Association (APA). Founded in 1892, with 31 original members, the APA had grown from 127 members in 1900 to 228 in 1910, 338 in 1920, 1,101 in 1930, 2,739 in 1940, and 7,272 in 1950. Its growth from 1920 to 1950 was thus quite impressive. By 1960, however, the membership of the APA had more than doubled to 18,215; by 1970, there were 30,839 members; by 1980, 50,933; and by July 1990, 70,266 (American Psychological Association 1990). These numbers are all the more remarkable when one considers that since the 1970s many United States psychologists have been leaving or refraining from joining the APA, as they have evolved independent professional organizations associated with their own specialized subfields, and as a new general organization for psychologists came into existence in the latter portion of the 1980s.

2. *The Subject Matters of Psychology*

Although the American Psychological Association is no longer the sole general professional organization for United States psychologists, much less for psychologists from other countries, its divisions give a fair indication of the rich variety of concerns and types of expertise represented by the discipline and profession of psychology. By the late 1980s, there were 45 different divisions in the APA, providing professional support for psychologists whose scientific and professional interests range from experimental psychology to clinical psychology; from evaluation, measurement, and assessment to humanistic psychology and health psychology; from military, business, and consumer psychology to educational psychology, exercise and sport psychology, and peace psychology; from children and youth services to adulthood and aging; from physiological psychology to the psychology of art; from the history and philosophy of psychology to human engineering and psychopharmacology; from mental retardation and other disabilities to lesbian and gay issues; from the media to the law; and across an ever-growing spectrum of human problems and therapies. In sum,

the number of APA divisions has more than doubled (from 19 to 46) since 1945, when the APA adopted a divisional structure in an attempt to keep “pure” and “applied” psychologists together—and yet separate—within the same organization (Hilgard 1987 pp. 756–62).

Despite the APA’s tolerance for diversity at the divisional level, the tension between its two major factions, which inspired its divisional structure in the first place, still remains. Today, however, the tables are turned. The “applied” psychologists are now in the clear majority and are perceived to be in control of the APA. Although this is not entirely the case, the tension between these two camps—roughly speaking, between psychological scientists and psychological practitioners—led in 1988 to the transformation of a relatively small independent interest group into a new psychological organization, the American Psychological Society (APS). As of January 1990, this new organization had attracted some 11,000 members, and the APS is just one of many alternative professional organizations for psychologists in the United States!

The other alternative organizations give a further sense of both the diversity and quantity of psychologists. They range in focus from the Association for Humanistic Psychology (with 5,000 members) to the intensely scientific Psychonomic Society (with 2,400 members). Even a partial listing of these organizations fills six pages in the annual *Encyclopedia of Associations* (Burek 1991). In addition, many psychologists belong to organizations that include scientists and professionals from other fields: for instance, organizations representing those interested in animal behavior, cognitive science, counseling, neuropsychology, organizational behavior, and visual science. Finally, it is important to acknowledge that there are many international organizations of psychologists (including the International Union of Psychological Science), and that in many countries other than the United States psychologists have founded their own national associations. In fact, the rate of growth in the membership of many of these associations has surpassed even the APA’s remarkable rate of growth, though the APA remains the largest single national association.

Another indication of the efflorescence of psychology is given in *Ulrich’s International Periodicals Directory* (Popilskis 1990) in which it takes 32 pages of triple-columned, small print to list all the journals of the field, exclusive of “Medical Science—Psychiatry and Neurology.”

Yet another means of estimating the richness and diversity of the field and profession of psychology is to review the chapter headings in introductory psychology textbooks. Although this will give only a very general map of the subject areas of the discipline, this map should be a useful guide for those outside the discipline.

Before reviewing this map, an important preliminary point is that the map of psychology is both central to and reflective of the larger disciplinary and interdisciplinary map of twentieth-century academia. In the United States, at least, disciplines have typically been categorized into the arts and humanities, the social sciences, and the natural sciences. Psychology is distinctive in that it is rooted, in significant ways, in each of these domains. This has caused endless debates among those who feel that psychology’s continued affiliation with all three of its roots is a sign of the discipline’s immaturity, but from another perspective this lack of narrow, pre-emptive definition is simply a reflection of the multiplicity and complexity of psychology’s legitimate subject matters.

In any case, not only did psychology’s earlier form (as philosophical psychology) come from the humanities, but its on-going central concern with mentality and subjectivity (by no means shared by all psychologists) reaffirms this historical linkage. This concern assumes different shapes as many contemporary psychologists focus upon a variety of traditional humanistic issues. For instance, such topics as personality, self-identity, the meaning of life, the role of values and religion, and the construction of one’s own “life story” illustrate the substantive, humanistic issues that many psychologists feel are susceptible to psychological modes of analysis. In turn, many of these modes of analysis can be traced to psychology’s humanistic heritage.

At the same time, other psychologists take a strongly social scientific approach to some of the same topics as well as to the genesis, maintenance, and alteration of norms, categories of understanding, emotional reactions, and other forms of social behavior. In recent decades, in fact, the social dimensions of psychological phenomena—including the discipline of psychology itself—have received an unusual amount of scrutiny. Ironically, this helped to bring about something of a crisis for social psychology in particular and for psychologists in general. This period of crisis, now considerably abated, was associated in the 1970s with the rise to prominence of Kuhn’s (1970) notion of “scientific revolutions,” with their attendant reigning “paradigms.” A small army of scholars applied Kuhn’s analysis of science to the history of psychology, trying to determine if psychology enjoyed paradigmatic status as a mature science. They generally concluded, instead, that it suffered from its “preparadigmatic” condition.

Although these episodes in the recent history of psychology helped to exorcise some of the ghosts of naive empiricism, they are now fading into memory as psychology—at least in the United States—settles into a period of renewed confidence, in which multiple metaphors and models rather than a universal paradigm provide guidance for a readily admitted and largely accepted variety of psychological theories

and practices. Many of these metaphors and models, even outside the domain of social scientific psychology, remain resolutely social in character (see Leary 1990).

Besides humanistic and social scientific approaches, psychology has also boasted a biological or natural scientific orientation. Since the very beginning of modern scientific psychology, which grew out of "psychophysics" and "physiological psychology," the physical correlates and biological nature of psychological phenomena have been studied. Even in the heyday of behaviorist psychology, from the 1920s through the 1950s, specifically biological psychology (including sensory and neurological psychology) was pursued by some of the discipline's finest scientists. It was not, however, as central as some wished it to be. In recent decades, despite the "cognitive revolution" in psychology (Gardner 1987), this relative neglect has been overcome, as physiological and biological psychologists have strongly advanced their subdiscipline. Indeed, some of them have even brought traditional humanistic and social scientific topics within the purview of biologically oriented psychology (e.g., Buss 1991) and attempted to link physiology with cognition in various "connectionist" models (e.g., Rumelhardt et al. 1986). Such efforts have captured the interest of many, though they have also drawn the skepticism of others (e.g., Pinker and Mehler 1989).

The basic point of this rapid and very general survey of the large domains represented by psychology—the humanistic, social scientific, and natural scientific domains—is that psychology is a multifaceted discipline that deals with multiple and sometimes conflicting aspects of human and animal nature. In the typical introductory psychology textbook, this multiplicity is portrayed as extending across the major subfields discussed below.

2.1 Biological Foundations

Without a doubt, three of the most important books in the history of modern psychology are Darwin's *On the Origin of Species* (1859), Fechner's *Elements of Psychophysics* (1860), and Wundt's *Principles of Physiological Psychology* (1874). Each, in a variety of ways, helped to establish the biological foundations of modern psychology.

More than is sometimes realized, Darwin's evolutionary biology set the framework within which laypersons, scientists, and practitioners have pondered psychological phenomena over the past century. In erasing the hard lines that once separated different species, Darwin generated a tradition of thinking and research that led to the theories and discoveries of such individuals as G J Romanes, C Lloyd Morgan, John B Watson, Robert M Yerkes, Niko Tinbergen, and Konrad Lorenz. In other words, he stimulated the creation of the modern fields of comparative psychology and ethology, which

study the commonalities and differences in behavior, including instinctual or "fixed action" patterns of behavior, across species (for contemporary developments in these fields, see Dewsbury 1989).

Similarly, in focusing attention upon the importance of the functions of behavior, Darwin influenced the development of a functional approach to psychology: an approach that focuses primarily upon the functional utility, or consequences, of cognitive, emotional, and behavioral processes rather than upon their "essential nature." This functional approach has been represented by William James, James Mark Baldwin, John Dewey, Edward L Thorndike, Robert S Woodworth, Edouard Claparède, Jean Piaget, Lev Vygotsky, B F Skinner, and (in one way or another) the majority of contemporary United States psychologists.

Finally, in his discussions of the fundamental roles played in evolutionary history by sexual selection and the expression of emotions (see also Darwin 1871, 1872), Darwin not only fostered comparative psychology and ethology, but also triggered the Freudian revolution, which began as a radically new way of conceiving and treating human dysfunctions and has ended up permeating cultural and professional modes of thought. As a result, whatever the failings of psychoanalysis per se, Freudian concepts (and their Darwinian presuppositions) are now part of "common sense." (On Darwin's influence upon Freud, see Ritvo 1990.)

Fechner's contributions to psychology were less monumental in scope, but for sensory and perceptual psychology, they have been no less significant. Along with E H Weber, Hermann von Helmholtz, and Ewald Hering, Fechner elaborated methods—and made discoveries—regarding the reliable, quantitative relationships between sensory stimuli on the one hand, and psychological sensations and perceptions on the other. In doing so, he helped to establish the foundation upon which twentieth century "sensory science" has grown. Without question, it was basic research like Fechner's that proved the possibility of a rigorously scientific (i.e., experimental and quantitative) psychology. The subsequent tradition of sensory and perceptual research is rich and broad. It includes the work of such individuals as Edward B Titchener, Christine Ladd-Franklin, Max Wertheimer, E G Boring, Georg von Békésy, S S Stevens, James J Gibson, Eleanor J Gibson, Leo M Hurvich, and Dorothea Jameson, who have made important contributions to our understanding of the nature and processes of sensation and perception (see Hochberg 1979 for an analytic survey).

Wundt took Fechner's "psychophysics," combined it with elements of Darwin's evolutionary theory and Helmholtz's sensory physiology, and initiated "physiological psychology." Carried up to the present day, this tradition accounts for the neuro-

physiological and biological research that is almost invariably reviewed in the first substantive chapter of psychology textbooks. This research attempts to explain the physical underpinnings of cognitive, emotional, and behavioral phenomena, including the evolutionary, genetic, sensory, and perceptual phenomena that interested Darwin and Fechner.

In this tradition, Charles Sherrington, Walter B Cannon, Karl Lashley, Donald O Hebb, A R Luria, Frank Beach, Brenda Milner, Karl Pribram, James Olds, and Neal Miller, among many others, have made important contributions (see Thompson and Robinson 1979). The conceptual products of their labor have entered public consciousness through discussions of reflexes, biofeedback, “split brain” (left-brain, right-brain) phenomena, endorphins and pleasure centers in the brain, biological rhythms, REM (rapid eye movement) sleep, PMS (premenstrual syndrome), and neurotransmitters. For an area of psychology that was relatively neglected during much of the behaviorist era in psychology (c. 1920–55), physiological psychology has had a large following and impact since that time.

2.2 Learning

From the very beginning of scientific psychology, individuals such as William James (1890) emphasized the importance of the kind of learning that leads to “habits.” This emphasis upon learning as revealed in repetitious thoughts, feelings, and behaviors has typified much of United States psychology since that time. In combination with an emphasis upon the reinforcing quality of the consequences of behavior, mentioned in the previous section, this led to a distinctively functional approach to learning (or habit formation) in the United States.

Edward L Thorndike (1911), James’s student, performed the classic experiments that led to the formulation of “the law of effect,” according to which the satisfaction or discomfort (pleasure or pain) resulting from a behavioral response is assumed to strengthen or weaken the probability of that response in similar situations in the future. Later, Skinner (1938) developed his own version of the law of effect, a version in which “reinforcers” are defined by their correlation to behavior, without reference to pleasure or pain as explanatory causes. In the 1960s, this “Skinnerian” or “operant” approach to learning—and its application in “behavior modification”—became popular as a means of bringing about change in individual behavior. To this day, especially in the United States, Skinnerian psychology has made a difference in how many people (inside and outside of psychology) think about—and go about—the process of “shaping behavior” in childrearing, classroom teaching, work management, mental hospitals, and other situations (see O’Leary and O’Leary 1972).

A different, reflex-based approach to learning came from the research of Pavlov (1927), a Russian

physiologist who explored how new (“conditioned”) reflexes are formed in association with natural (“unconditioned”) reflexes. Without fully adequate knowledge, the United States psychologist John B Watson (1916a) argued in his 1915 presidential address to the APA that this sort of “conditioning” is the primary mechanism of learning. Given Watson’s notoriety as the founder of United States “behaviorism” (the school of psychologists who insist that psychology can be scientific only to the extent that it studies observable behavior), it is not surprising that his advocacy helped to establish “Pavlovian” or “classical” conditioning as a major theory of learning in twentieth-century psychology.

Before too many years passed, however, it became clear that classical conditioning could not explain a great many learned behaviors. In addition to Skinner, “neo-behaviorists” such as E C Tolman and Clark Hull pointed out the limitations of a strictly reflex-based approach to learning. This led to various attempts to develop a “two-factor” approach to learning (e.g., Rescorla and Solomon 1967) and to a continuing debate about the exact nature of, and relations between, “classical” and “operant” forms of learning.

In recent decades, several trends have become apparent, foreshadowed (respectively) by the work of Hull (1943) and Tolman (1948). First, there has been a notable increase in the study of the biological conditions and limitations of learning (see Matthies 1989). Second, there has been a considerable increase of interest regarding the role of cognition in learning, even in animal learning (see Estes 1975–78). This interest is apparent in social learning theory, which emphasizes observational learning, or “vicarious conditioning” (Bandura 1977b). This new cognitively oriented approach—like classical conditioning and operant conditioning in earlier decades—has influenced the development and use of therapeutic techniques (see Wilson and O’Leary 1980). Its rise in popularity has been correlated with a shift in research from the earlier indirect study of human learning by means of the investigation of learning in other species, to the direct study of human learning in real-world settings.

2.3 Cognition

The recent cognitive turn in learning theory is reflective of a broader “cognitive revolution” in psychology. This revolution has brought psychology back to its prebehaviorist orientation as a cognitive (or mental) as well as a behavioral science. In the early days of scientific psychology, the focus upon human mentality was represented by Herman Ebbinghaus (1885). Ebbinghaus’s classic work on human learning and memory, first published in 1885, was distinguished by its invention and use of nonsense syllables (as well as poetry) as the material that he himself memorized in order to study the fac-

tors involved in remembering and forgetting. Ebbinghaus's work initiated a long tradition of research on the rote learning of verbal items. Unfortunately, many of the explanatory concepts generated by this tradition are no longer tenable (see Cofer 1979).

Although the Ebbinghaus tradition extended through the behaviorist era (c. 1920–55), it was only in the later 1950s that modern cognitive psychology began to emerge. Miller's (1956) famous article on the limits of the human capacity for processing information was an important stimulus. After surveying a wide range of psychological phenomena not typically treated together, he concluded that an individual's ability to distinguish stimuli, phonemes, numbers, and other items reached a significant threshold on or around "the magical number seven." Either learning or the design of our nervous system, he inferred, "keeps our channel capacities in this general range" (p. 86).

"Channel capacities" was a concept being used at that time by several British investigators, including Colin Cherry and Donald Broadbent, who were developing a new information-processing approach to psychology. This approach grew out of applied psychological research begun during the Second World War, and it was given an influential expression in Broadbent's *Perception and Communication* (1958). A huge amount of theoretical and empirical work has been done since that time on "information processing" (see Lachman et al. 1979). This line of research also draws upon cybernetic theory and communication theory. It is still very much alive, being continually refueled by on-going developments in computer science.

Also in the 1950s Bruner, Goodnow, and Austin published *A Study of Thinking* (1956), which broke new ground regarding experimental methodology as well as the formation and acquisition of concepts. Treating their subjects as active, constructive problem solvers rather than passive reactors to stimuli, they asked them how they had gone about their tasks of classifying and categorizing stimuli. Based upon their subjects' experimental responses and their retrospective reports, they concluded that the best explanation for the overall patterns of their subjects' responses was provided by the "strategies" these subjects had employed. In other words, they suggested that it was not individual stimuli that triggered individual reactions, as a strict behaviorist formulation would have led them to believe, but rather individual stimuli within the context of a particular cognitive framework.

From these and other sources, the cognitive revolution in psychology came about. The actual coming-of-age of cognitive psychology is often dated from the publication of Neisser's text on *Cognitive Psychology* (1967). Since then, the literature has grown exponentially. A sense of this growth can be

garnered from a perusal of some of the major journals founded in little over a decade: *Cognitive Psychology* (1970), *Cognition* (1971), *Memory and Cognition* (1973), *Cognitive Science* (1977), *Cognitive Therapy and Research* (1977), and *Brain and Cognition* (1982). In addition, most of the older psychology journals have been "cognititized" in one way or another. In sum, psychology has gone thoroughly cognitive, as it once went thoroughly behavioral.

2.4 Motivation

Whether psychology has been cognitive or behavioral in orientation has made little difference as regards the psychology of motivation. In either case, the "motor" dimension of psychological phenomena has been problematic for the discipline. It is small wonder, then, that Freudian psychology has had an appeal even among those who are most critical of it (e.g., see Watson 1916b). By putting motivation front and center in psychoanalysis, Freud (1916–17) made it a fundamental rather than a secondary concern of twentieth-century theories of personality and psychotherapy (e.g., Murray 1938). Relatedly, McDougall's (1923) "hormic psychology" emphasized the role of instinctual motives, thus foreshadowing later research in both animal and human ethology (see Eibl-Eibesfeldt 1989).

Other psychologists have investigated motivation, not as instinctual, but as drive, bodily need, stimulation, incentive, and neural excitation; and still others have pointed out that external, distant stimuli (such as strange objects) can motivate spontaneous fear or exploratory behavior. The latter reaction suggests that organisms may opt, under certain conditions, to seek increased sensory and cognitive stimulation rather than decreased arousal or tension reduction.

Yet another concern has been intrinsic motivation: the apparent tendency of humans to act for such "internal rewards" as the pleasure involved in the activity itself, the sense of intellectual challenge, the satisfaction of curiosity, and the achievement or mastery of a task. Following Bandura (1977a) and others, there is still a good deal of work to do in this area.

Similarly, there is much to do regarding so-called social motivation. Although many of the needs specified by Murray and his associates (1938) fall into this category, it was Harlow's (1958) research on attachment behavior among rhesus monkeys that brought this dimension of motivation to the attention of many psychologists. Subsequent work on "script theory" by Tomkins (1979) and others, though aimed primarily at an understanding of emotional expression, also has implications for social motivation.

At the other end of the spectrum, biological research has continued to reveal the biological substrates and limitations of motivation (see Grossman

1979). Of particular interest has been the work begun by J M Delgado, W W Roberts, and Neal Miller, which has attempted to determine how learning can be motivated by the electrical stimulation of the brain. This research led to the notion of "pleasure centers" in the brain that may account for the reinforcement of learning and to continuing research on "self-stimulation" as a central basis of motivation. This latter research, in turn, has drawn attention to the "natural opiates" in the brain (such as dopamine), the release of which may similarly account for motivation (see Wise and Rompre 1989).

Clearly, there has been a lively history of thought and investigation regarding human and animal motivation, yet as noted previously, motivation has been problematic for psychologists. This is no less true at the present time, when the rise of cognitive psychology seems to be correlated with a decline of interest in motivation (see Hilgard 1987 pp. 378–81). However, the need to explain the "pushes" and "pulls" of thought, emotion, and action seems certain to bring the pendulum swinging back again, especially if some useful, empirically testable, integrative approach to motivation is discovered.

2.5 Emotion

The picture regarding the study of emotion is very similar. Although virtually everyone will agree that emotions are vitally significant in human experience, they have proven somewhat elusive as objects of study. Perhaps the easiest way to convey the range of current approaches is to categorize emotions into those pertaining to the body, to the mind, and to culture.

The classic bodily approach is best represented by Cannon (1927), who tried to specify a physiological mechanism that could account for emotion defined as the perception and feeling of bodily changes. Research along this line subsequently gave way to a revival of Darwin's (1872) expression theory, which focuses upon emotions as inherited bodily expressions (smiles, frowns, stares, etc.) that have helped species survive. On-going cross-cultural research along this line has led Ekman and his associates (1987) to the conclusion that there are six basic facial expressions of emotion—anger, disgust, fear, happiness, sadness, and surprise—that are truly universal. Related to this research are studies that suggest that the facial muscles are linked to the autonomic nervous system, through which breathing, heart rate, and other vital dimensions of emotion are controlled. Finally, there is now a considerable amount of work focused on the role of hormones, particularly epinephrine and norepinephrine, which clearly influence the body's state of arousal.

The cognitive approach to emotion has received considerable attention in recent decades. Much of this attention has stemmed from the two-factor theory proposed by Schachter and Singer (1962).

According to this theory, the experience of an emotion depends upon the feeling of physiological arousal plus a cognitive interpretation of that arousal. If this is so, the same physiological response could provide the substrate for two different emotional experiences, depending upon how a person labeled that response. Although the original experimental evidence for this theory has been difficult to replicate, subsequent research has shown that cognition does play a significant role in emotional life. For instance, it now seems clear that ways of thinking can influence the intensity of emotions and that cognitive values are associated with the range of emotions that people are likely to experience. Though much research remains to be done, it seems safe to say that emotions cannot be separated from the rest of mental life (Frijda 1988).

The cultural approach to emotion has typically tried to differentiate those emotions and emotional expressions that are specific to particular cultures from those that seem to be universal (Ekman et al. 1987). While all cultures distinguish positive emotions (such as admiration, amusement, joy, and love) from negative emotions (such as fear, hatred, shame, and sorrow), there are many cultural variations as regards the objects of emotion (the things one feels emotional about), the situations in which emotions are felt, and the ways in which emotions are expressed.

All in all, it seems reasonable to assume that insofar as emotions are biologically based, psychologists are well advised to seek universal factors; and insofar as they are cognitive and social constructions, psychologists had better attend to historical and cultural factors. As noted elsewhere in this article, such tension between the universal, on the one hand, and the historical and cultural, on the other, is a typical characteristic of psychology in general. As in other areas of the discipline, it poses a central challenge for future research on emotion.

2.6 Development

Developmental psychology is an integrative area that cuts across the entire spectrum of psychology. Virtually every aspect of psychological functioning—ranging from psychoneurological functioning through cognitive, emotional, and behavioral functioning—changes systematically over time, both quantitatively and qualitatively. Developmental psychologists try to describe and explain the regularities associated with such changes, frequently relating experiences in one period of life with developmental patterns in another.

In its earliest days, developmental psychology focused upon maturational studies of animal and human-infant development, and upon the motor, cognitive, and characterological development of children. Hilgard (1987) has provided a useful overview of the history of the field, including the major longi-

tudinal studies that have contributed to the relatively recent emergence of a more complete, life-span approach to human development. Although child psychology remains the largest subfield of developmental psychology, a great deal of attention is now devoted to adolescence, adulthood, and aging (see Datan et al. 1987, Petersen 1988).

When one surveys the history of developmental psychology, many individuals—Alfred Binet, G Stanley Hall, James Mark Baldwin, Arnold Gesell, Erik Erikson, and many others—deserve mention, but if one person symbolizes the emergence of this subfield into prominence since the 1950s, it would be Jean Piaget. The work of this Swiss psychologist, extending from the 1920s through the 1970s (see Gruber and Vonèche 1977), revolutionized the study of cognitive development and provided one of the major stimuli to the study of both cognition and development as alternatives to the behavioristic focus on certain prescribed forms of objective conduct. Also, his hypothesis that there are universal stages of development has posed both promise and challenge to a generation of psychologists, so that even non-Piagetian research owes a great deal to his inspiration.

In addition to cognitive development, linguistic development has received much attention over the past century, and especially over the past several decades. Falling between the extremes of contingent “verbal behavior” (Skinner 1957) and innate “transformational generative grammar” (Chomsky 1957), the field of psycholinguistics has spawned a variety of research traditions that have tried to account for the nature and development of language. Given the critical importance of language to humans, to other animals, and (now) to machines, this will inevitably remain an area of primary concern. Not surprisingly, psychologists have tried to use computers to generate an understanding of language, but with limited success (Schank and Rieger 1974).

There has also been a good deal of research on social development, starting with “bonding” or “attachment” in infants (see Ainsworth 1979) and including such topics as “sex typing” (see Maccoby 1980). While experience plays a large role in such processes, it seems clear that certain internal factors are also involved in social development. At the beginning of the 1990s, a great deal of research on the biological foundations and constraints on social development is going on, and it promises to continue into the future. In this research, the amount of developmental variance due to “nature” and the amount due to “nurture” are likely to remain of focal interest.

2.7 Personality

To many nonpsychologists, the study of human personality is what psychology is—or should be—all about. But in fact, personality was a relative late-comer to the map of twentieth-century psychology

(beginning around the time of Allport 1937), and it has never enjoyed the unqualified support of the majority of scientific psychologists. This is at least partially due to the fact that an understanding of “personality” in all its facets demands truly interdisciplinary study. At one end of the spectrum, biology has had an increasing amount to say about personality in recent years (e.g., Buss 1991); at the other end, cultural anthropology and other humanistic disciplines have contributed significantly to the elucidation of the cultural context and historical variation of human personality (e.g., Carrithers et al. 1985). Such a wide-ranging topic, with a variety of dimensions, is indeed difficult to pin down once and for all.

It is not only the biological/cultural dimension that challenges personality psychologists. Instigated largely by Sigmund Freud and his followers, psychologists have also been deeply interested in the unconscious/conscious dimension of personality. Indeed, much of twentieth-century personality theory and research has taken its cue from psychoanalytic assumptions and concerns. The work of Murray and associates (1938) represents a blending of these assumptions and concerns with some of the methods that have come to typify United States personality psychology. Many psychologists have followed in this tradition.

A different tradition of theory and research has focused upon personality types and traits. In a very real way, this approach—whether keying upon global personality types or specific personality traits—is an updated version of age-old common sense psychology. It has flourished from the start of the scientific study of psychology right up to the present time (Funder 1991).

Throughout much of the middle part of the twentieth century, especially in the United States, a behavioristic approach to “personality” (defined as the typical behavior patterns of an individual) was also pursued—or at least it was presumed to be the proper approach—by many psychologists (e.g., Dollard and Miller 1950). Although it has failed to eclipse alternative theories, it has led to an increased sensitivity regarding the importance of “situations” and the utility of thinking of personality in terms of an “interaction” between innate tendencies and situational factors. In recent times, social learning theory and other forms of cognitive behaviorism have expanded earlier, restrictive forms of behavioral personality theory (see Pervin 1985).

Such expanded forms of behavioral psychology are at least partially a result of the criticism of behaviorist approaches on the part of so-called “humanistic psychologists.” In the United States, these psychologists (e.g., Rogers 1961) have played an important role in directing attention to the active, knowing, valuing, and intending aspects of the human self, aspects that fell outside the normal purview of the more

traditional physiological, psychoanalytic, and behaviorist approaches to personality functioning.

As United States psychology has become more inclusive in its conceptual framework over the past few decades, thus permitting cognition and consciousness to play central roles (again) in the description and explanation of personal dynamics, the field of personality psychology has become richer, more diverse, and more complex. Buss and Cantor (1989) have gathered contributions reflecting recent trends and emerging directions in the field. Some of these trends and directions—including the trying out of new units of analysis, looking for new measures of coherence, and developing new means of assessment—are especially promising insofar as they indicate that personality psychologists are moving beyond their former excessive reliance upon empirical studies of college students using self-report measures administered in single-occasion laboratory or classroom settings. Such studies are unlikely to yield nonobvious, important truths about human personality.

2.8 Other Areas—and Beyond

Psychology has spawned many other subfields, including social psychology (see *Social Psychology* [Vol. 3, Sect. V]), abnormal psychology, psychological assessment, educational psychology, industrial and organizational psychology, human factors psychology, forensic psychology, political psychology, and counseling and clinical psychology. Most of these latter subfields have an “applied” focus and draw upon the “pure” research conducted within the subfields treated in the above sections. It is worth noting, however, that these latter subfields (and others like them) account for the vast majority of activity engaged in by psychologists.

In addition to these subfields, a number of new “interfield” disciplines have grown up around the edges of the map of psychology. Together with physiologists, neurologists, and clinical pathologists, for instance, psychologists have created the booming field of neuroscience, or brain science (Kandel 1982). This new field is necessarily interdisciplinary and collaborative, given the amount of knowledge and various kinds of methodological sophistication needed to pursue it. As Thompson and Robinson (1979) have noted, at the very least one now needs a neurophysiologist, a neuroanatomist, a neurochemist, and experts in neuropharmacology and neuroendocrinology, not to mention behavioral scientists, in order to mount a contemporary program in what was once physiological psychology. In their assessment, the trend is clearly toward neuroscience and away from psychobiology per se.

Similar developments have led to the development of behavioral genetics and cognitive science, fields in which scientists outside psychology play a major role alongside psychologists. Combining modern genetics

with the study of behavior, behavioral genetics investigates the influence of genetic endowment upon an individual's behavior. This new field is rapidly becoming a leading area of inquiry (see Plomin and Rende 1991). Cognitive science is even better known and is probably even more fully populated, having developed over the past decades at the intersection of anthropology, artificial intelligence, computer science, linguistics, neuroscience, philosophy, and cognitive psychology (Gardner 1987). Interestingly, this relatively new “interdiscipline” is already being challenged by the even newer “connectionist” movement (see Hunt 1989 p. 625).

Although each of these collaborative enterprises still needs the theoretical and empirical grounding provided by more traditional psychology, it is not clear that psychology will emerge whole from its participation in these fields. As discussed below, it is possible that psychology will be dismembered in the coming decades. At the same time, however, it seems probable that recently invigorated subfields—such as crosscultural psychology, environmental psychology, evolutionary psychology, and health psychology—will more than fill any vacated spaces on psychology's map and in psychology's textbooks.

3. The Methodological Values of Psychology

Methods of many sorts have been used for millennia by scholars, scientists, and their predecessors, but since the 1880s psychologists have exhibited a stronger than usual tendency to focus their attention upon methodology, prescribing and institutionalizing the proper, legitimate techniques that are to be used by practitioners of their discipline. Indeed, the establishment and reliance upon methods of observation, experiment, measurement, analysis, and theory construction have been characteristic features of scientific and professional psychology in the United States right from the start.

Outside the United States, reliance upon these same prescribed methods, particularly upon empirical data-gathering and quantitative analysis, has tended both to lag and to emerge in a more attenuated form. Insofar as the application of these methods outside the United States constitutes a form of imitative behavior, it can be contrasted with the frequent and sometimes virulent criticisms of United States “methodism” on the part of non-American psychologists. Such criticisms, it should be noted, have implications for the ways in which the subject matters of psychology are construed (see Shotter 1975).

Although sometimes overemphasized, the methodological orientation that has typified twentieth-century psychology, primarily in the United States, is (in its less extreme manifestations) one of the discipline's glories. Even some of those who have been critical of the shortsighted, rote, and theor-

etically inconsequential manner in which psychologists have sometimes applied their methods believe that these methods have now been developed to a point where they can assist psychologists in elucidating the relationships and structures still hidden within or behind psychological phenomena (Luce 1985). Whether this is so or not, the belief that it is so—the belief in the value of prescribed methods—is clearly a defining feature of the culture or ethos of the discipline. Indeed, trust in the critical importance of articulated methods is so deeply schooled into psychologists that even psychological practitioners, who may be critical of scientific methods, tend strongly to accept the need for prescribed clinical and applied methods. In fact, professional certification in any number of fields depends upon the assimilation of such methods.

The value that is accorded to methods in United States psychology derives partially from the discipline's historical association with logical positivism. After relying previously upon a naive form of empiricism, as reflected in Watson's (1913) behavioristic manifesto, United States psychologists came under the influence of logical positivism in the 1930s. Although the assumptions fostered by this philosophy of science have been subjected to an extensive critique (see Toulmin and Leary 1985), they still represent many of the operative values in the discipline. Objectivity defined as intersubjective agreement, reliability defined as replicability, precision defined as quantitative measurement, and validity defined as anchored or tautological description: these are some of the methodological hallmarks of modern psychology. So too is knowledge defined as prediction and control, though this is part of psychology's social-reform legacy rather than its association with logical positivism. This latter hallmark, too, has been criticized—for example, in favor of a definition of knowledge as a means of understanding and change rather than as a means of prediction and control (Gergen 1982)—but many psychologists continue to espouse a rather narrow utilitarian view of psychological knowledge.

In the aftermath of the behaviorist era in psychology, which began to fade in the 1950s, most observers have reported that the backbone of psychological theory and practice has been undergoing metamorphosis. However, it is still far from certain what the methodological and epistemological posture—or postures—of psychology will be in the future. Though it has been loosening its methodological strictures, it seems unlikely that the discipline of psychology will become flexible enough to allow its theorists and practitioners to generate new, broadly encompassing visions of its subject matters comparable in scope and in historical significance to those generated by modern psychology's pioneers, who were less fettered by methodological fastidiousness. Interestingly, the theoretical visions of

the discipline's early pioneers continue to orient much of the discipline and profession, albeit with diminishing returns, down to the present day (Loevinger 1985).

The future of psychology seems to promise, and to depend upon, an increasing number of local metaphors ("models") and a decreasing number of universal metaphors ("paradigms"), more domain-specific theories and fewer overarching syntheses; but then, who would have predicted that the recent computer and information-processing metaphors would reach across so many domains of psychology (see Hoffman et al. 1990)? Perhaps the evolving cognitive science of recent years, founded upon metaphors that are coextensive with the field's technological and methodological tools, will provide a megatheory capable of connecting and holding together a variety of subfields in psychology. But probably not, for the extent of cognitive science's reach seems directly related to its ignoring many supposedly irrelevant details that contribute to the concrete reality of everyday psychological experience. However deep the methodological imperative within the culture of modern psychology, the call of concrete experience will almost certainly continue to intrude at opportune (and inopportune) moments, directing psychologists' attention to the insufficiency of any single metaphor or model and to the correlative need for fresh perspectives and novel approaches (see Leary 1990).

4. *The Social and Cultural Setting of Psychology*

Awareness of the need for fresh perspectives and novel approaches in psychology has been spurred by the relatively recent rise in sensitivity, among many psychologists, regarding the socio-cultural embeddedness of their discipline and profession. (This awareness is expressed by many of the contributors to a volume—Koch and Leary 1985—that contains numerous retrospective assessments of the first century of psychology.) As psychologists have become more conscious and less defensive about the social, cultural, and other "nonrational" factors that influence the development of psychological theory and practice, they have begun to deal more directly, again, with questions of ideology and value, frequently dropping the presumption (fostered by naive empiricism and logical positivism alike) that science can and should be culture-free (or value-free) in any complete and radical way.

Not only regarding the application and utilization of psychology, but also regarding the processes of psychological observation, measurement, and theory construction, questions about the cognitive frameworks, social purposes, and ultimate values of psychology (and psychologists) have come to the fore. It seems certain that neither the social origins nor the social consequences of psychology have ever been

more clearly recognized and so deeply probed (see Buss 1979). In the area of theory, such awareness has enfranchised a "social constructionist movement" in the discipline (see Gergen 1985), while in the area of application, it has underscored the extent to which psychology has been so influential that it tends to "make itself true—or false" by means of the effects it has upon individuals, society, and culture (MacIntyre 1985).

Among the issues that have arisen within this context, those pertaining to the nature of the relationship between the sociopolitical ideology of the discipline, on the one hand, and the problem selection, data-gathering, theoretical interpretations, and practical applications of psychologists, on the other, are surely among the more sensitive. In this regard, recent United States scholarship (e.g., Sampson 1978) has echoed earlier scholarship by non-American critics of United States psychology (e.g., Holzkamp 1972). It is reasonable to assume that psychologists will continue to give serious attention to these kinds of issues in the years ahead.

A solid foundation for such scholarly attention has been laid, over the past few decades, by a new generation of historians of psychology. Building upon the earlier work of such individuals as Edwin G Boring and Robert I Watson, Sr, these more recent scholars—frequently trained as psychologists but drawn to historical analysis by their puzzlement about the status and prospects of the discipline—have generated scholarly societies, journals, and graduate programs as well as an extensive new literature on the history of psychology (see Hilgard et al. 1991). A representative sample of this new historiography can be seen in volumes edited by Ash and Woodward (1987) and Morawski (1988).

What has emerged, in general, from recent historical scholarship on the discipline and profession of psychology is a view of psychology's embeddedness within the stream of history and culture. Rather than something destined to evolve as it has because of the nature of things and the processes of human knowing, psychology has come to be seen as the product of many individuals working within particular social contexts toward goals framed by the larger currents of cultural history. For instance, if United States psychology has assumed aspects of the role once played in higher education by intellectual and moral philosophy, if it has tended to generalize from male-centered experience to supposedly universal truths, if some of its theories have been reflective of the religious traditions within which their proponents were raised, and if the metaphors that have inspired its theoretical constructions and oriented its practical routines have been assimilated from its surrounding culture, these facts are simply indicative of psychology's distinctive history within one particular social and cultural milieu (see Leary 1987).

In other social and cultural settings, psychology

has assumed somewhat—and sometimes drastically—different forms. Not only the sociology of the discipline (its training procedures, modes of communication, professional roles, social status, reward systems, and so on), but also its subject areas, theoretical structures, and practical applications have differed substantially from one country to another (Rosenzweig 1991, Sexton and Hogan 1990). Although Canadian psychology has been very similar to United States psychology, the various national traditions of European and Soviet psychology have been markedly different in their definitions, methods, and concerns, and they have prepared their adherents for very different social roles. More distinctive still, the psychologies of the Third World have been developed into their own indigenous shapes for the sake of their own individual aims (e.g., see Ardila 1982).

The recognition of this cultural as well as historical variation is important, for it suggests the need for greater awareness—and more critical analysis—of the cultural demands and historical trends that influence the perception, thought, and behavior of psychologists. On a very practical level, it also suggests that aspiring psychologists should supplement the necessarily technical aspects of their education with broader cultural and humanistic studies. Indeed, the need for liberal education on the part of aspiring psychologists, including the need for historical and multicultural education, is something to which psychologists and educators should give serious attention.

The dawning awareness of psychology's embeddedness in time and space does not discredit all of its previous discoveries nor does it fatally jeopardize its prospects, but it warrants greater sensitivity and responsiveness to the sociocultural context of psychology, and psychological phenomena. As one non-American psychologist has put it, students and practitioners of the discipline should come to understand that psychology has been

a discipline cultivated mainly in the industrialized countries (in the "First World") and not so much in other nations. Contemporary psychology is largely an Anglo-Saxon discipline that shares the values and assumptions of English-speaking countries, particularly of the United States; some of these values and conceptions seem to be alien to [Third World] way[s] of thinking. (Ardila 1982 p. 120)

Increased recognition of the cultural dimensions of psychological theory and practice would underscore one of the major challenges for the psychologists of the future, namely, to draw the line, more accurately, between what is truly "universal" and what is in fact "historical" and "cultural." In a world that promises to be increasingly interconnected, uncovering the historical and cultural dimensions of psychological phenomena—and of psychology itself—may be just

as important as discovering what is universal in human and animal nature.

5. Conclusion: General Trends and Prospects

Until fairly recently, most psychologists expected their discipline to develop in a progressive, cumulative manner toward an ever-increasing systematic unity. Although this ideal has been promulgated in the twentieth century chiefly by the logical positivist philosophy of science, it has by no means been the goal of that intellectual movement alone. In fact, it was a clearly articulated goal of the empiricist and idealist philosophies of science that dominated the nineteenth century; it is still espoused by many scientific psychologists (e.g., Staats 1981); it has been no less the goal of some recent advocates of a human-scientific approach to psychology (e.g., Giorgi 1970); and it has even been claimed as a *fait accompli* by some contemporary psychologists (e.g., Kimble 1989).

Nonetheless, a great many psychologists have come to believe that their discipline has not developed progressively toward a coherent system of thought and practice. On the contrary, they believe that psychological knowledge has been noncumulative and that the discipline of psychology has become increasingly fragmented rather than unified. In a volume devoted to a representative survey of the first century of psychology, for instance, Gibson (1985) concluded that the knowledge gained over the last hundred years in his field of sensory and perceptual psychology has been insignificant as well as incoherent; Gleitman (1985) wondered if psychology has really progressed much beyond what Wundt knew and supposed about cognition; de Rivera (1985) pointed out that the psychology of emotion has not only become isolated from the other subfields of psychology but has even become internally fractured into a variety of sub-subfields; Loevinger (1985) suggested that in some ways there may actually have been regression in the study of human character; and Kendler (1985) admitted that although behavioristic psychology has made some progress, it has accomplished far less than anticipated just four decades ago.

In addition to its noncumulative development, psychology's fragmentation has received astute analysis in the work of Koch (1976), who believes that "psychological studies" would be a better title for the very loose federation of topics, methods, and investigators that constitute what is now called "psychology." The basic insight underlying Koch's argument for this redesignation of psychology, which was considered an extremely radical argument when first advanced, is now accepted by many mainstream psychologists. For instance, Hilgard (1987), a former president of the American Psychological Association, concludes

his magisterial historical survey of the discipline with the observation that:

the idea of a unified science of psychology may be more an esthetic ideal suggesting harmony and a common front in facing the other sciences than a practical goal for psychological science. Psychology can be conceived as a large family of many psychologies, unified by social practice and the disciplinary structure of universities. (Hilgard 1987 p. 803)

And yet another, more recent president of the American Psychological Association, William Bevan (1986), has argued not only that "psychology is a nonlinear discipline," but that it is not really "a simple coherent discipline but a collectivity of studies of varied cast." It seems to him that "the character of psychology is seen in the rapid proliferation of rather narrowly focused and increasingly insular intellectual communities" (pp. 367-68). Even though the work of these relatively isolated groups of psychologists has led to many "exciting developments" and even "brilliant individual advances" of the discipline, Bevan believes that psychology now "faces a critical period in its development as a coherent body of knowledge." This crisis, he notes, is related as much to "the sociology, the psychology, and the economics of the academic enterprise" as to the "flawed intellectual character" of the discipline itself (pp. 366-67).

While the sociology, psychology, and economics of the academic enterprise—and their influence upon the development of psychology and other disciplines—might be pondered with profit by those in higher education, the intellectual challenge of simply comprehending, much less integrating, all that is going on in the various areas of psychology is perhaps reason enough to suggest that the future may witness a deconstruction—or dismemberment—of "psychology." (Although the internal fragmentation of psychology has been going on for quite some time, its various fragments are still encompassed within the typical map of psychology.) Whether or not psychology is to be dismembered, however, it is clear that the age of grand unifying theories, methods, applications, and programs in psychology—which crested in the 1930s and 1940s—is long past.

Leaders in higher education may find it daunting to contemplate the potential metamorphoses in psychology's future. The scenarios for the discipline's reconstruction are at least as numerous as the recipes for its deconstruction. But, in fact, it is unlikely that academic psychology as we know it will change its institutional form abruptly and radically, given the economic forces impacting upon the academy. In the short run, the various fields of psychology will probably continue to move along their current trajectories, sometimes connecting with developments in other disciplines and forming new interdisciplinary enterprises that overlap the bound-

aries of psychology. Whether or not any of these new enterprises will eventually become fully independent academic disciplines, as cognitive science and neuroscience are trying to do today, it seems likely that much of the important work on traditional psychological topics and concerns is likely to be done at the interdisciplinary matrices linking psychology and other fields.

Looking toward this necessarily uncertain future, fully aware that the developments of the past century have fallen short of fulfilling all the hopes and promise that accompanied the establishment of the "new psychology," it is nonetheless palpably clear that most psychologists have retained a commitment to, and confidence in, their own particular portion of psychology. Though sometimes dissatisfied and impatient with the progress of their discipline or subdiscipline, their persistent desire for better theory and practice (as illustrated in the contributions to Koch and Leary 1985) is perhaps the discipline's greatest strength. Though often searching for new directions, they are far from ready to give up the quest begun a century ago by Wundt, James, and their contemporaries. Whether they are interested in consciousness, mind, or behavior, psychological theory or therapeutic practice, pure science or public policy, or any other domain of psychology, today's psychologists have plenty to do, as will tomorrow's, throughout the world. They may do it inside or outside the current boundaries of the discipline and inside or outside the academy, but one thing seems certain: their education within the academy is likely to spell a large measure of their success.

See also: Social Psychology (Vol. 3, Sect. V)

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