

EDUCATIONAL PSYCHOLOGY



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P R E F A C E

IN this book I have endeavored to present in elementary form a statement of a psychological position which is becoming more and more influential in American educational thought and practice. Its central thesis is that mental life must be understood as a dynamic process of interaction between the individual and his environment. The concept of mental growth is strongly emphasized throughout. Educational psychology is conceived, not so much as a special and definitely delimited field, but rather as an application of these ideas and their far-reaching consequences to the working problems of education. Specifically, the practical bearings of educational psychology are regarded as extending far beyond the boundaries of classroom method, and as affecting every aspect of the educational enterprise.

The positions taken are not developed in controversial fashion. For this the chief reason is that in my judgment many current psychological disputes have received an amount of attention out of all proportion to their significance. Certainly what the practical educational worker would seem to need is a constructive analysis of his problems in the light of psychological insight and knowledge rather than an indoctrination into some special theory.

In its preparation I have sought to keep constantly in mind the concerns and interests of persons preparing for the teaching profession and of teachers in service. Various abstruse topics, such as factor theories and the like, are not considered for the reason that their practical bearings are either not yet apparent or are too remote from the work of the average teacher and administrator. Also the results of great masses of research on

such subjects as racial differences, biological heredity, test construction and evaluation, etc., etc., are often very meagerly reported. Always it should be remembered that the purpose is to serve working needs rather than to provide a complete compendium of all aspects of the subject. The topics actually treated are those which surveys reveal as most commonly considered in first courses in educational psychology. And always the attempt has been to deal with them in such a way as to make clear their bearing upon educational thinking and planning.

The same bias in the direction of practice has been determining also in the treatment of bibliographical references, study suggestions, and so forth. Footnotes are introduced to guide those who may wish to follow up the literature of some specific topic rather than to document every statement made. The references for further reading at the ends of the chapters have been selected partly for their importance and value and partly with an eye to their probable availability. A few statistical terms have been employed, but without explanation in the text, the thought being that their exposition in class would not be a difficult matter. Informal suggestions for experimental projects have been made at the close of all but one of the chapters, and these can readily be organized by instructor and students according to the needs of the immediate situation.

J. L. M.

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* ONE *

THE FIELD OF EDUCATIONAL PSYCHOLOGY

EDUCATIONAL PSYCHOLOGY: ITS TOPIC AND AFFILIATIONS

PSYCHOLOGY is the science which deals with mental life. This appears to be a simple definition, yet by implication it involves the taking of a distinctive position and the adoption of a distinctive mode of approach. For at one time psychology was regarded as that part of philosophy which had to do with the *psyche* or soul; and this, by inference, is excluded. Today it is considered a member of that constellation of sciences which deal with various aspects of the phenomenon of life, and it stands midway between those dealing with organic life and those dealing with social life. Among the former are physiology, which has to do with the functioning of living organisms, and genetics, which has to do with the way in which species of living beings reproduce their traits and become changed, and the manner in which new forms of organic life arise. Among the latter are anthropology, whose material is the races, languages, and cultures found in different localities at different times, and sociology, which is devoted to a more general study of the patterns, mechanisms, and institutions of human society.

All these sciences are interwoven with and interpenetrate one another, so that it is impossible to draw clear-cut distinc-

tions and boundary lines between them. Certainly this is the case with psychology. The physiologist deals with the functioning of the human eye or the human digestive system; and the psychologist, looking at the same data from another point of view, studies the phenomena of vision and of hunger and appetite. The geneticist investigates the physical mechanisms of inheritance; the psychologist asks what is the place of hereditary factors in human mentality. The anthropologist considers the external phenomena of a given culture—its art, its religion, its mores and traditions; the psychologist inquires as to what ways of understanding and feeling underlie the structure. The sociologist deals with the family, the economic system, the state, and with language as a social instrument; the psychologist has to do with the modes of thinking, the habits, and the emotional drives of men who mold and are molded by these institutions and mechanisms. Every one of these sciences supports and is supported by all the rest, and none can be complete without the others. Together they are building up for us a comprehensive and detailed picture of the great and unique phenomenon of life, whose mental aspects are the distinctive concern of psychology.

Educational psychology is not so much a clearly defined and well-bounded section of the general field of the science as a concentration and application of the whole of it upon a special, practical problem—the problem of education, and particularly of school education. There is a great deal of psychological material and many psychological techniques with which the educational psychologist has no immediate concern. He does not exclude them, however, because they are outside his field, but because he is unable to see how they bear upon his particular problem. In other words, his interest is practical, and he takes whatever seems useful and omits the rest.

The following are the most important psychological areas from which he draws material, interpretations, and techniques relevant to his purpose, and which help him better to understand and deal with the situation with which he is concerned.

A. The first is *comparative psychology*, which has to do with the mental characteristics of different species of animals. Work in this area has had a very great influence upon our thinking about the psychological problems of human education. About forty years ago Professor E. L. Thorndike instituted a series of experiments in which animals were confined in boxes whose doors could only be opened by operating special mechanisms, and were incited to escape by presenting a bait outside. It was observed that they learned to open the doors by a chaotic, hit-or-miss activity, to which the name "trial and error" was applied. It was inferred that human beings also learn in much the same way, and attempts were made to show how the idea might apply in the management of learning in school. More recently Wolfgang Köhler, using apes as subjects, placed his animals in more congenial situations, where it was possible for them to use whatever intelligence they might have to find a solution. For example, a banana was put down just out of reach of a caged ape, but a stick was supplied, and the animal was watched to see whether he would use it as a tool to scrape the fruit toward him. It was found that animals so situated did indeed employ intelligence or insight instead of mere trial and error. Again the inference was drawn that human beings also learn by dint of intelligence, and again attempts were made to apply the idea to school work. These are but two of many instances in which the educational psychologist has utilized data from comparative psychology to throw light upon his own special problem.

B. Yet another group of workers to whom educational psychology owes much are the students of *genetic psychology*, who deal with the phenomena of mental growth in the human individual from childhood to maturity and old age. The distinctive mental characteristics of the infant, the child, the adolescent, and the young adult are clearly of the utmost importance in connection with school work; and with the rise of the adult education movement those of older persons also have become highly relevant. It used to be thought that in the course

of growing up the human individual went through very clearly marked stages, which called for entirely different modes of treatment. But today genetic psychologists are much more inclined to emphasize the continuity of growth; and to the educational psychologist this seems to indicate the desirability of a planned and unfolding sequence of experience rather than a series of rather abrupt transitions. Another point at which educational psychology draws upon genetic psychology is for an account of the causation of mental development. To what extent is it due to hereditary factors and the inner process of maturation or ripening; and to what extent does it depend on environmental influences? We may remark that the full significance of the data on human mental development seems only to have caught the attention of educational psychologists rather recently, because they have been more concerned with specific learnings and problems of measurement, which seemed to have a more practical bearing than did an understanding of the long sweep of human mental growth. This shift of interest has been reflected in the schools, where the importance of emphasizing the protracted and continuous sequence of development rather than concentrating entirely on the learning of separate lessons or separate subjects is becoming appreciated.

C. As would naturally be expected, educational psychology draws heavily upon investigations in the *psychology of learning*. The research work of Pavlov and Bekhterew on the conditioning of reflexes has had a far-reaching influence upon educational thought, even though these two men were not themselves concerned with any of the problems of school work. A reflex—let us say the knee jerk which is touched off when the patella tendon is tapped—can be tied up to the sound of a bell, so that finally the kick occurs when this new stimulus is presented, if the reflex normally produced is accompanied again and again by the sound of the bell. It has been inferred that all learning comes about through the constant association of new stimuli with old responses, and that here is an idea which the schools should heed. This is but one of numerous instances.

Many attempts have been made to indicate the proper application of findings concerning the best length of material to be learned at one sitting, the effect of what happens immediately afterwards upon content just learned, the rate of forgetting, the effect of very large numbers of repetitions upon retention, and so on.

D. *Individual psychology* has made extensive contributions to educational psychology. Individual psychology deals with the mental traits and characteristics of the individual human being, and more particularly with the extent and kind of differences between different human beings. Its rise coincides with that of the testing movement, which originated about 1905. Previous to that time there were, indeed, many tests of a kind available, but mostly they had to do with sensory abilities, such as color discrimination, auditory acuity, and the like; with muscular abilities, such as strength of grip; and with rote memory. In the year mentioned, however, the French psychologist, Binet, published the first form of his famous Scale for the Measurement of Intelligence and inaugurated what may properly be called a new era in psychology. Since then tests purporting to measure almost every conceivable human power—intelligence, reasoning ability, emotional control, imagination, mechanical ability, musical and artistic aptitudes, and so on, endlessly—have appeared in thousands. Also the principles and techniques developed in constructing tests such as these have been applied to the making of instruments for the measurement of educational achievement—mathematical attainment, ability to write good English, command of foreign languages, knowledge of history, and so forth. These are called achievement tests, in contrast to the mental tests briefly described above. Some tests of both types are good and exceedingly useful instruments, but far too many are not worth the paper on which they are printed; and the use of such gives profoundly and dangerously misleading results. This immense proliferation of tests, which is a peculiar feature of American psychology, and their widespread application in all sorts of situations, has

produced an avalanche of findings in regard to the mental traits and educational attainments of individuals. Many of these findings, indeed, are unreliable and trivial, while some have most valuably illuminated the problems dealt with by the educational psychologist.

E. *Abnormal psychology* and *psychiatry*, which deal with the characteristics and treatment of the very dull, the very bright, and the mentally diseased, also have much that is of value for the educational psychologist. It used to be thought that an insane person was entirely different from a normal human being, and was perhaps even possessed by an evil spirit. But today we recognize that the distinction is of degree rather than kind. The insane or psychotic individual is one whose adjustment has gone completely and probably irrevocably wrong. The neurotic person, of whom the hysterical is one type, suffers from a less intense and far-reaching disturbance. And even those who are regarded as normal, and who are fully capable of being useful members of society, manifest in incipient form those very complexes and conflicts which, when exaggerated and intensified, spell insanity. The study of the abnormal has thus thrown much light upon the phenomena of normal mental living. Just as general hygiene has developed from the investigation of disease, so the concepts of mental hygiene have come from the investigation of psychopathic phenomena. Educational psychologists are becoming more and more aware of the significance of this work and of its bearing upon their own field of interest, and are seeking to discover what must be done to make the school a mentally healthy environment.

One further question remains. What is the relationship of educational psychology to the differences in viewpoint and opinion manifested in the general field of psychology which often seem so violent? We hear much of conflicting schools of psychological thought. There are the structuralists who maintain that mental life is a pattern built out of separate data derived from sensation. There are the behaviorists who say that mental life means nothing more than response to stimulation, so

that psychology almost becomes a branch of physiology. There are the associationists who contend that the ultimate psychological principle is the connecting up of originally separate images and ideas to form related patterns. There are the functionalists who claim that mental life depends essentially on purpose. And there are the configurationists, or Gestalt psychologists (of more than one kind), who insist that we never have separate sensations, images, or ideas at all, but that everything is apprehended and responded to in relationships or patterns from the start. At first sight it all looks very confusing, and no doubt so much active debate is not without significance. But the educational psychologist can afford to ignore most of it and need not even feel under compulsion to take sides very energetically. It is true that various important workers in his field have been and are considered representatives of certain schools of psychology. Professor E. L. Thorndike was once not unfairly classified as an exponent of the associationist view, since he maintained that learning is a process in which disparate data, or stimuli and responses, become connected through the agency of repetition. But he has steadily become less interested in sectarian disputes and more concerned with the discovery and explanation of facts. Professor Raymond Wheeler, on the other hand, is at present regarded as an important champion of a certain type of configurationist psychology, which he vigorously upholds. But many who would object to being so classified are quite able to agree with most of what he says, though they might not always use his terminology. The fact is that many of the seemingly acute differences between leading psychologists are apparent rather than real. They turn upon broad and almost philosophical interpretations, which no doubt have their significance, but which often give us little real help in understanding the data before us. And when it comes to giving the kind of practical advice which is the peculiar province of the educational psychologist, there are a great many able workers who, with all available facts before them, would not be seriously at odds. It is rather a re-

lief to feel that one can honestly avoid a great deal in these current controversies and simply ask what we really know about the processes of mental life, and what our knowledge suggests about the proper conduct of education. This will be the mode of approach maintained in the present book.

EDUCATIONAL PSYCHOLOGY: ITS BEARING UPON EDUCATION

The three great problems involved in the management of any school are its administration, the content and arrangement of its curriculum, and the psychological direction and treatment of the individuals in it. Often, but most erroneously, it has been supposed that they have little bearing upon one another and can be handled each in isolation from the rest. This mistaken notion is quite deeply embedded in much of our thinking, and affects many practical decisions and policies. It seems to be tacitly accepted, if not consciously assumed, in many of the arrangements made for the training of educational workers. Courses are set up in the three fields of administration, curriculum, and psychology, which offer quite unrelated modes of treatment, and in which the bearing of each area upon the rest is given almost no emphasis or consideration. Often the result is that those engaged in administration, the planning and building of curricula, and the application of psychology to school situations do not appear aware of the common ground between them, and carry on their work without giving much thought to matters which concern the others. Naturally this leads to unfortunate results and unwise and even unworkable decisions. In particular it leaves us with a very limited and imperfect idea of what is involved in the application of psychology to education. The assumptions commonly made are as follows:

The administrator is interested in the orderly and efficient running of the school as a social mechanism. He studies the problem of its financial support through taxation, and the making and management of its budget. Also he considers the proper