

THE FUNDAMENTAL PRINCIPLES OF LEARNING AND STUDY

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PREFACE

The present volume is a rewriting of manuscript which the writer has used for some time as part of his lectures to students in educational psychology. The aim is especially to show how the results of general psychology and experimental psychology and of allied sciences can be put into use by the teacher and the student in the problems of learning and of study. In the chapters on Making the Appeal to the Student, and Attention and Sustained Effort, examples have been given from the writer's own studies and observations for the purpose of illustrating psychological principles involved and to suggest to teachers ways that have proved successful in the actual everyday work of the teacher.

The writer thinks that The Habit Theory has not received its due in educational practice and perhaps not in educational thought. It is a principle which runs through the whole work of education and the adoption of it as the fundamental working principle of the teacher's work should help to bring the definiteness that is needed. If habits, including habitudes, dispositions and attitudes, are not all the results that education can show, we can see what is left out after we do our duty to the first and fundamental things.

The general scheme of the book can be indicated by the following statement of some of the main thoughts: 1) The nature of education and of the educational process from the point of view of permanent results in the individual. 2) The necessity for permanent results of some kind and the nature of these results. 3) The process of learning, of making acquisitions which can be made more or less permanent and suggestions for the right direction of this learning process. 4) A discussion of how to make the best progress in learning. 5) The getting of not only specific but general improvement. 6) The factors that make for permanent results. 7.) Modes of appeal for the purpose of arousing and directing the desired activities. 8) The development through lower to higher stages of attention, activity, and effort. 9) The development of the emotional and moral nature for permanent results in moral character. 10) Physical and physiological conditions that are

involved in learning and study. 11) The problem of how to study, teaching to study, and of putting supervised study into the school. 12) The need for definite ends of education and the possibility of using the principles and facts presented herein to help towards greater definiteness of aim, of procedure and of obtaining recognizable and measurable end results so that the work of education shall approach in definiteness the achievement of other big business enterprises.

The directions for students appearing in chapter 16 are practically unchanged from the early writing nearly three years ago.

References at the ends of chapters indicate books and articles that seem to the author to be most useful to the teacher if he wishes to choose from a large number of possible references. Others may be equally good, but a selected bibliography seems to be most valuable.

It is my pleasure and duty to acknowledge the helpful criticisms and suggestions of Dean L. D. Coffman, Professor N. Wilde, Professor H. H. Woodrow, Professor J. Peterson, and Mr. J. R. Kantor, of The University of Minnesota and of Professor H. W. Odum, of The University of Georgia.

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CHAPTER 1.

INTRODUCTION.

FUNDAMENTAL PRINCIPLES OF EDUCATION.

Purpose and point of view of the writer. It is the purpose of the writer to deal with the problem of education from the point of view of economy in learning and study. The student should be interested because his problem is to know how to learn and to study most effectively. The teacher should be interested because all teaching must be true to the laws of learning and of study and should not conflict with them. If teaching does conflict with the laws of learning it is relatively ineffective. Fundamental to knowing how to teach is knowing how to help the student to learn.

Education comes about through the learning process. The results of education are more or less permanent dispositions or tendencies of some kind. We may, then, define education tentatively as the making, modifying, and remaking of more or less permanent dispositions or tendencies. It will be shown later how these permanent tendencies make for fixity and stability on the one hand, and, on the other, for flexibility, originality, initiative, and may require conscious choice and moral reflection.

Habit a convenient term. In order to conveniently express these *more or less permanent dispositions or tendencies, memories, habitudes, habits, interests and the like* which are the result of education we shall use the word "habit." This word is used commonly in a *narrower* and in a *broader* way. In the narrower sense it refers to the more or less mechanical tendency to act as we have acted before. But it is used commonly in a broader sense. Thus habit is defined as being "the tendency to think, feel and do as we have thought, felt or done before." In the broadest sense we find writers speaking of "habits of thought," "habits of liberality," "habits of devotion," "habits of attention," "moral habits," and we hear of people habitually liking or disliking this or that. *Habit thus includes attitudes* and may be used as a *general term for all more or less permanent tendencies of mind and body.*

Habit but not automatism. *Habit is thus used in this book,* according to common usage, to refer in the broadest kind of way to the permanent acquisition of the individual. It is not to be interpreted as meaning a bringing about of automatism. It includes this, as in the best formed acts of skill, but it includes much more. Making an individual a narrow mechanical kind of person could never be a satisfactory or adequate work of education. Man is not made to be an automaton. In fact, with normal people and any right kind of education there is no danger of making one an automaton. The fact is that fixity and plasticity exist together in the organism. The increase of fixity does not do away with the plasticity, though it modifies it, and brings not rigidity but elasticity. (62).

Habit fixes but it also releases. The higher centers of the brain are released by habit to deal with the new and problematic, to make further modifications which may result in habit, and to permit greater and greater freedom in higher and still higher mental problems. The absurdity of the idea that habits rob the individual of further modifiability is shown by countless facts in our everyday observation. Men are all the time shifting from one thing to another, from one view to another, from one attitude to another. They are different individuals in different years and even, sometimes, in different months of the same year. Deep set habits of a life time may be changed by disappointment in love, in business, by great good fortune, by deep emotional experiences. The facts suggest that more and not less permanence would be better and render the individual and society more stable and efficient.

No justification for education which does not make permanent results. Furthermore, there would be no excuse for education if the results of education were not in some way permanent. If tendencies to think, feel, and do, could not be more or less well fixed in the organism, the efforts of teachers might as well stop. Just what these permanent tendencies shall be must be determined by society in terms of its needs, right desires and ideals. And the aims may be expressed in broad generalizations, such as, adaptation, social efficiency, or character. But we attain these things by acquiring the habits and by later modifying these habits and forming new ones to bring better adaptation, greater efficiency, the higher development of character. Social organization depends on custom and custom depends on habit. Evolution appears to

provide for just this bringing about of fixity and for the subsequent breaking up of the fixity for the purpose of further progress. Witness the change from plasticity to fixity from infancy to old age, and the production of plasticity again by means of the new generation. Witness in the course of history the development of forms in social usage and the breaking up of these forms or their modification for further progress.

The forming, modifying and remaking of habits, habitudes, dispositions, tendencies, etc., under the guidance of ideals set up by society, seems to be the fundamental work of education. The theory is not new. Witness the work of Radestock on "Habit and Education." (83). Many will accept this theory; others will be disturbed and object. It is worth noting that of the many people the writer has asked, *none has been able to suggest an exception to the statement that all the results of education are habits of some kind.* But remember that habit as defined by the author means more than is commonly meant by that term in its narrow mechanical signification.

Only results in the individual dealt with in this book. Let it be fully understood at this point that the writer is not dealing with the results of education in society; nor with the ultimate results of education in the institutions of society. Here indeed, we may find other things than habits as the outcome of education. *The only results of education considered under this theory of habit and, for the most part throughout this volume, are the results in the individual.* This point is of the greatest importance and must not be lost sight of.

Second, and of equal importance, it must be understood and remembered that the writer has in mind the *educational process* in the individual. The futility and uselessness of attempting to give a simple definition of such complex things as education in its many phases, is fully apparent to the writer. There is no attempt to deal with education in all of its varied aspects. The attempt,—and it cannot, perhaps, be too much emphasized, or held too clearly in the mind of the reader,—is to deal in the most fundamental and definite way possible with the educational processes, the means and methods of directing them, and the results of these educational processes in the individual.

The importance of this educational process cannot be overestimated. All that an individual is or can be, is the outcome of two things, physical heredity on the one hand, and educa-

tion, or social heredity, on the other. Educational influences form, modify, change, bring about the most desirable development of that which is given in heredity. This process of education in the individual, not to speak of the education in the larger sense of its various aspects, ranks with the few great things in life, *i. e.*, the process of getting food and drink, that of getting shelter and clothing, and of obtaining social intercourse with other human beings. If life is to go on normally, we need all of these things. But, also, if living is to improve from generation to generation we are absolutely dependent upon education.

Education compares in importance to heredity. A certain age old discussion, and the fact that it appears to be as far from settlement as ever, gives evidence of the value of education. I refer to the argument as to which is more important, heredity or environment, nature or nurture. Than being *necessarily thus ranked with heredity* in importance in the minds of men, there could hardly be greater evidence of the value of education, nay, more, of its necessity. To recall the debt of civilization to those who kept learning alive during the dark ages, or to refer to the efforts of civilized countries to keep open their schools even during the ravages of desolating war, can add but little weight to the overwhelming evidence for the importance of and need for education already cited. Just as surely as the doing away with the results of physical heredity, if it were possible, would be the doing away with the race, so the doing away with the results of education would be the doing away with the achievements of the race,—civilization, efficiency, culture, and what not.

But we hear objections to and adverse criticisms of education. Yes, and again, just as the objections to and adverse criticisms of heredity are in reality only against bad heredity; so are the adverse criticisms of education in reality only against bad or mis-directed education. If we need good heredity, so do we need good education. Or better still, if we work for the best heredity, so should we work for the best education.

Still another fact may be brought forward to indicate the importance of education. Turn to the anthropologist, if you please and realize, that in looking back through the history of the race, he finds it impossible to discover evidence that the physical endowment of the modern man is any better than the physical endowment of the most primitive man of whom

we have knowledge. To what, then, is his advancement due? To the results of the educational process, *i. e.*, to the results, in other words, of social heredity. Or grant, if you will, the very doubtful proposition that acquired characteristics can be inherited, that the modifications of the body cells can also modify the germ cells of the present and therefore of succeeding generations, how are we told that the modifications of the germ cells can be brought about? Only by thorough modification of the body cells through many generations. Here again the necessary resort to education.

Importance of the Habit Theory. Habit formation, modification and remaking as the basis of education have not been sufficiently stressed as principles in the actual work of education. And if the Habit Theory is inadequate, it still seems that inestimable advantage could be gained by beginning with it, and carrying it as far as possible. Before the work on reflexes was done, no one probably dreamed of the immense light it would throw upon more complex processes. And if educators would not only accept in theory the principle of habit, but also shape their work in accordance with it, it is not unlikely that we would find a solution for many, if not for most of our so-called higher and more complex problems of education.

Habit a universal principle. It is not inappropriate to indicate that this principle of habit, or the tendency for repetition, is fundamental for phenomena other than those found in the human and animal organism.

The logician tells us that "Induction is only possible on the assumption that things not only *are* together but *belong* together. . . . the universal nature of a thing cannot be discovered in the form of some essence or substance that remains permanent and unchanging. . . . it must be defined through the *constancy of behavior* shown in its changing relations to its environment." (19).

But even more, the finding of things happening again as they have happened before under the same conditions is at the very bottom of our thinking and a necessary basis of all reasoning. According to Pearson, "Anything, be it noted, that tends to weaken our confidence in the uniform order of phenomena, in what we have termed the routine of perceptions, tends also to stultify our reasoning faculty by destroying *the sole basis of our knowledge.*" (76).

Jevons writes that "It must be the ground of all reasoning