

# **Foundations for a Theory of Instruction and Educational Psychology**

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**C.H. PATTERSON**



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HARPER & ROW, PUBLISHERS  
NEW YORK, HAGERSTOWN, SAN FRANCISCO, LONDON



F8465023

Sponsoring Editor: George A. Middendorf  
Project Editor: David Nickol  
Designer: Michel Craig  
Production Supervisor: Kewal K. Sharma  
Compositor: American Book-Stratford Press, Inc.  
Printer and binder: R. R. Donnelley & Company

**FOUNDATIONS FOR  
A THEORY OF INSTRUCTION AND  
EDUCATIONAL PSYCHOLOGY**

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Library of Congress Cataloging in Publication Data  
Patterson, Cecil Holden, Date—

Foundations for a theory of instruction and educational psychology.

Includes indexes.

1. Education—Philosophy—History. 2. Educational psychology. I. Title.

LA21.P37 370.1 77-2707

ISBN 0-06-045057-6

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*How we teach is dependent, to some extent at least, on the theories we accept. Whatever the approach, the strategies employed, and the relationships generated, the choice is related to one or more theoretical constructs that may or may not be consciously identified. Nevertheless, many who teach are unaware of the role that various theories play in their work.*

*L. J. Stiles, Theories for Learning*

*Despite the books and articles that are beginning to appear on the subject, the process of education goes forward today without any clearly defined or widely accepted theory of instruction. We have had to make do and are still making do on clever maxims and moralistic resolutions about what instruction is and should be.*

*Jerome Bruner, The Relevance of Education*



# **PREFACE**

Theories of learning have been the object of attention for several decades. Theories of instruction or teaching have received consideration only in the last decade. Thus they are in an early stage of development, so early that no full-fledged, systematic theories—or even approximations of systematic theories—exist. It is premature to title a book *Theories of Instruction*. Bruner titled one of his books *Toward a Theory of Instruction*, and if he had not preempted the title, it would be appropriate for the present book.

Yet there have been a number of writers who have attempted to consider instruction and teaching in a systematic way, usually developing their ideas from another major field of activity than education. (Montessori is the only writer represented in this book who can be considered an educator.) It seems desirable to bring together for the student the major approaches to a theory of instruction.

The term *theories of instruction* was perhaps first used in its present sense by Jerome Bruner in 1963. In 1965 it was used as the title for the Ninth Curriculum Research Institute of the Association for Supervision and Curriculum Development.<sup>1</sup> In that year the association appointed a Commission on Instructional Theory, which published a report on criteria for theories of instruction in 1968.<sup>2</sup>

In 1972, Atkinson, noting the widespread usage of the term *theory of instruction* (with, however, little agreement on the requirements of such a theory) and the growing literature, suggested that a significant contribution could be made by someone who would summarize the literature in the way Hilgard did in his *Theories of Learning*, first published in 1948.<sup>3</sup> Atkinson's concept of such a book appears to differ somewhat from that suggested by Hilgard's work, however. Hilgard's *Theories of Learning* contained chapters summarizing each of a number of recognized theories.<sup>4</sup> Atkinson seems to suggest a book which would summarize the diverse writing on instruction, from speculation to computer-assisted instruction, including a chapter on decision-theoretic analysis of instruction, of which he provides an overview in his article.

Actually it does not appear to be possible at this time to produce a

book on theories of instruction similar to Hilgard's *Theories of Learning*. There are few if any candidates for inclusion in such a book; that is, there are no statements which warrant designation as a theory, even by liberal standards. There are no theoretical statements on instruction which have been developed to the level of the theories of learning summarized by Hilgard.

This lag in the development of theories of instruction is puzzling when one considers that the practice of education has been a concern of society for centuries. Counseling or psychotherapy, another applied field or practice, though more recent in origin, suffers from a surfeit of theories. Both education and counseling or psychotherapy deal with changing or influencing human behavior in ways which involve learning. Books summarizing theories of counseling or psychotherapy appeared over a decade ago.<sup>5</sup> There have, of course, been many thinkers and scholars who have been concerned with education and who have made theoretical contributions. But none could be said to have developed a theory of instruction.

A major factor, no doubt, is the extent and complexity of instruction and teaching. Although it is not necessary that there be some agreed-upon or generally accepted theories of learning, motivation, development, and personality before a theory of instruction can be developed, it is necessary that some progress have been made in these areas, since a theory of instruction must be based on knowledge in these areas.

The materials presented in this book do not, then, constitute theories. They are rather systems, and very loose systems at that. A more accurate term might be approaches. They are only the beginnings toward theories of instruction.

Three approaches selected are those which are currently the focus of attention in educational psychology. Almost everyone closely connected with education is familiar with the names Piaget, Bruner, and Skinner. Any consideration of instruction and teaching must include their writings and ideas.

The other two approaches included here may be less familiar to educators, but are currently the objects of increasing attention. Montessori was one of the first of the moderns to attempt to present a systematic approach to teaching based on more than speculation and limited personal experience. There has been a revival of interest in her work. Thus it is included here not simply for historical interest but for its current relevance. (No approach is included simply for historical interest.) Some earlier approaches might also have been included for their continuing relevance, but these are adequately treated in books dealing with the history and philosophy of education.

The second approach that may not be too familiar to educators

represents perhaps the newest development in education: humanistic education. The person most closely associated with this approach—though he does not use the term—is Carl Rogers, whose work has revolutionized the field of counseling and psychotherapy, being the greatest influence since Freud. Rogers' writing in the field of education has not been systematic, though he has influenced the work of a number of other writers (most of whom, again, have not been systematic). The present author has elsewhere attempted a systematic development of an approach derived from Rogers (*Humanistic Education*, Prentice-Hall, 1973). He has drawn from his own work for this section, identifying his own contribution.

Almost every textbook in educational psychology devotes from a paragraph to a few pages to a consideration of each of these five writers. None, however, presents an adequate summary of their extensive work. In the case of Piaget and Skinner, there are now numerous paperback summaries available. The others are not available in extended summaries. And nowhere are all five brought together in summaries extensive enough to give even a basic understanding of them. This book does so and also includes critical evaluations of their contributions.

The sections of the book consist of extensive organized summaries of the relevant writings of the authors represented. By necessity, the material is condensed and concentrated. This may make for relatively slow, if not difficult, reading. This is especially so where the original writing, such as that of Piaget, is particularly difficult. Every effort has been made to keep the writing as simple and as clear as possible, and the material on Piaget, even in its highly condensed form, is probably not as difficult as the original. It is suggested that the reader first read the summary before reading each presentation, to get an overview of the main ideas, which should then provide some background for the presentation.

The student who is interested in a particular approach should read something of the original writer, selected from the references. The instructor who wants students to become more familiar with a particular approach can assign selections, such as one of the books of Bruner or Skinner, or Rogers' *Freedom to Learn*.

This book is designed to be used at the upper undergraduate and beginning graduate levels by education students in courses in foundations of education, methods of teaching, and educational psychology. An introductory psychology course and/or a basic course in educational psychology should be adequate preparation for students using it as a text or as supplementary reading.

The plan of the five major sections is as follows: First, there is a brief biography of the scholar whose work is being considered. Although students will be familiar with the names of these scholars, they



will probably know very little about them as people or about their academic histories and achievements. These summaries should contribute to an interest in them as people.

Second, there is a presentation of the theoretical position of each theorist. An attempt is made at comprehensiveness and completeness, although by necessity in condensed form. The writer has aimed at presenting the theory in as unbiased a way as possible, following closely the writings of the theorist. In fact, in immersing himself in the writings, the present author has found himself identifying to some extent with each, and as a result has probably presented each position in a rather favorable light. Accuracy and clarity of presentation has been striven for in each case, however.

Third, the relevance of the theoretical position for the educational process has been considered. Here as in the presentation of the theoretical material, the original writings of the theorists have been drawn upon, though references to other sources are made, and the present writer has attempted to organize the material in some form. The applications are in most cases general rather than specific and do not take a how-to-do-it form.

Fourth, there is an evaluation by the writer, drawing upon other evaluations also, of the theoretical position. This is separated from the presentation to avoid the writer's involvement while summarizing the theory, thus keeping the presentation of the theory uncontaminated by criticism.

Because the material is condensed and frequently difficult and because of the length of the presentations, frequent summaries are provided within the sections, in addition to the final summary. These should be helpful to students in reviewing the materials.

While research relevant to the theories is frequently referred to, no attempt has been made to review or evaluate all the research related to the theories or their applications. This would extend each presentation to book length. The presentations are thus introductions to the theoretical positions, and the student interested in a particular approach can further explore it, beginning with the references included here.

As was the case with my book *Theories of Counseling and Psychotherapy*, now in its second edition, I am indebted to my editor at Harper & Row, George Middendorf, with whom I have worked for almost 20 years, for the suggestion that I write this book.

Jean K. Miller, Executive Director of the Montessori Development Foundation of Cleveland, read the material on Montessori and made a number of helpful suggestions, for which I wish to express my appreciation.

C. H. Patterson

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**Introduction:  
theories of  
instruction**

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**1**

# CHAPTER

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# 1

Teaching is perhaps as old as the human race. There is even some suggestion that animals intentionally teach their young. The prolonged infancy and childhood of the human species is related to the need for teaching to prepare the child to occupy a place in society.

In a simple or primitive society, education and teaching can be informal, and left to individuals or families, but in a complex society, teaching becomes organized and formalized. Since learning is inherent in the nature of a growing, developing organism, little direct teaching is necessary where the child is in direct contact with the world of adults, and can learn from real experiences and observation of and modeling upon adults. But as human society has become more complex, the child is not in direct contact with the world of adults. Obstacles are placed in the way of natural learning. It becomes necessary to prepare children for a future world that, because they are not now faced with it, has limited interest or relevance for them. Formal teaching has become necessary, and society has invented or developed extensive educational systems in which children are placed, apart from the "real" world, for instruction.

It is curious that, in spite of the fact that informal teaching of the young has gone on for thousands of years and that formal instruction has been provided for hundreds of years, there is today no generally accepted or agreed-upon method of education. There have of course been educators throughout history who have developed and promulgated methods or approaches to teaching. But their methods have not persisted or been built upon systematically by others. New methods have appeared to displace old methods. Discrete methods and techniques have proliferated, but no general system or theory of instruction has emerged. Considering the importance of education in society and the tremendous cost involved, it is indeed curious why we have not progressed farther in systematizing the process of education.



## LEARNING THEORY AND EDUCATION

One apparent reason for the lack of progress in developing a theory of instruction has been the emphasis upon learning and a theory of learning as the basis for teaching or instruction. Education involves changes in a class of people called learners or students—a class which at one time or another and for varying periods of time includes the total population. (It is of course true that most people learn continuously, whether they are being educated, or taught, or not. Learning can, and most frequently does, occur without direct or intentional teaching.) Education as formalized teaching or instruction is conducted for the purpose of deliberately inducing certain changes considered desirable in all persons in a society. (But teaching can, and often does, occur without learning taking place.) Since these changes are called learning, then it seems obvious that education should be concerned with the psychology of learning. Thus, many scholars have assumed that theories of learning would be the foundation for teaching, or would lead to principles of instruction.

In spite of the fact that learning is a natural function of the organism and occurs without the necessity of formal teaching in natural environments, it is a highly complex process. In the complicated social environments in which people live, learning becomes very involved and elaborate. As a result, the conditions under which learning will occur are not well known. Tremendous amounts of time and money have been spent in this century on research on learning. Yet there is no agreement on what learning is, how learning occurs, or whether there is only one, or more than one, kind of learning. As a result, rather than there being one learning theory, there are a number of learning theories.<sup>1</sup>

The applicability of learning theory to classroom learning is limited by other factors. Learning theories have been derived mainly from research with animals, principally rats. The research which has been done upon human beings is in the main highly controlled laboratory research with limited learning objectives, such as the memorization of lists of nonsense syllables. Experiments in classrooms are extremely difficult to conduct, because of the influence of so many variables. When some of these variables are controlled, there is the problem of generalizing results to classrooms where there is no control of these variables. The social character of classrooms introduces conditions not present in research studies on individuals.

If, as has often been assumed, teaching or instruction is an application of theories and principles of learning, then the state of teaching depends directly upon the state of our knowledge of learning and

#### 4 INTRODUCTION: THEORIES OF INSTRUCTION

learning theory. With different theories of learning in existence, there is the problem of which one to select as the basis for teaching. Teaching and instruction have been influenced by different theories, including Thorndike's connectionism, Watson's behaviorism, Gestalt psychology, and Skinner's behaviorism.

Hilgard has argued, however, that it is not necessary to wait until learning theorists are in agreement to develop a scientifically based method of instruction.<sup>2</sup> Disagreement among theorists may be more about the interpretation of the facts than about the facts themselves, and thus there may be no problem in applying factual knowledge. Hilgard also points out that even if there were an agreed-upon theory of learning, the principles of instruction would not be clearly evident, since technology does not flow directly and simply from theory. But he notes that learning theory can be useful even though it does not dictate instructional practices. There are some direct applications in the classroom of knowledge and principles from the laboratory. "A skilled teacher may understand better why some practices work and others do not because of acquaintance with basic learning principles. Such principles permit a better analysis by pointing out where to look and what to expect."<sup>3</sup> A theory of instruction, according to Hilgard, is a theory of application of theories of learning, differing in goals and content in relation to the school setting and its social contexts. It goes beyond the descriptive and explanatory to the prescription of practice.

#### NEED FOR A THEORY OF INSTRUCTION

Jackson has noted that the hopes of psychologists and teachers that a scientific theory of learning would speak to the problems of importance to classroom teachers have not been realized.<sup>4</sup> Teaching or instruction does not derive from or relate to learning theory in any simple way. Nor is it only an application of learning theory. While a theory of learning would appear to be necessary for instruction, it is not sufficient. Jerome Bruner is reported to have said (at the 1963 Conference of the Association for Supervision and Curriculum Development) that it is a mistake to look to learning theory for guidance in teaching. Teaching practice, he felt, cannot be directly derived from learning theories. Rather, they must be derived from a theory of instruction.<sup>5</sup>

Teaching or instruction needs a theory to organize and integrate what is known about teaching as a systematic foundation for teaching. A theory provides a framework for the organization of principles. It provides a rationale for specific practices. It changes teaching from simply a trade or an art into a profession.

In addition to organizing existing knowledge and methods of teaching, a theory provides a basis for evaluating and selecting proposed

innovative methods or practices. Even more basically, a theory points to areas for research and investigation which may lead to the *development* of useful innovations. Without a theory, teaching or instruction becomes a bag of tricks, a succession of new fads and techniques.

A theoretical formulation facilitates the education of teachers, providing an organization for teacher education, so that each student teacher, or each practicing teacher, does not have either to develop his or her own system or, as is probably the case most frequently now, to operate with no integrative system. The need for a theory is evident in teacher education. Most teacher education programs include courses in the philosophy of education, usually emphasizing Dewey's philosophy. But no psychological theory of instruction is provided as a bridge between philosophy and practice. Methods courses are universally rated as of little value and are disliked by students. In part, at least, this is because of the lack of a theoretical base. Similarly, educational psychology courses often are of little help to prospective teachers. They consist almost entirely of isolated facts or summaries of empirical research (that is, research not directed by a theory). Although they may include summaries of theories of development, theories of motivation, theories of personality and adjustment, as well as theories of learning, there is little if anything on a theory of instruction. The student is left to acquire this by inference. But as Gage points out, "farmers need to know more than how plants grow. Mechanics need to know more than how a machine works. Physicians need to know more than how the body functions. Teachers need to know more than how a pupil learns."<sup>6</sup>

Theory also guides research, leading to more relevant and significant research. Not all research has to be theory-oriented. As Skinner emphasizes, in the early stages of knowledge in an area, research must be empirical in nature. But it would appear that good theory would lead to more efficient use of research time and money. Most current research in education is not based on theory, and as a result there is little relationship among research projects, and thus great difficulty in integrating the results into a system of practice. Research in education—as distinguished from personal observations and experience—is quite new, and the accumulation of empirical data serves a purpose. One of the purposes is to provide a basis for a theory. Perhaps we have now reached the point where theoretical formulations could lead to a significant advance in research in education.

In addition to the hope that learning theory would be sufficient as a basis for teaching, other factors have contributed to the neglect of instructional theory. Gage refers to one of these—the concept of teaching as an art, coupled with the fear that the development of a science of teaching would leave feelings and emotions out of teaching.<sup>7</sup> Yet