

# Psychology and Instruction

**Benjamin B. Lahey • Martha S. Johnson**



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## **A Practical Approach to Educational Psychology**

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# PREFACE

Many decisions must be made in writing a textbook. Our first decision was based on a belief that students of education want and need to be taught more than just abstract theories of learning and instruction. They need to be given information that is directly useful in the *practice* of teaching. We have provided a textbook for the basic course in educational psychology that gives the greatest possible emphasis to the application of information to the classroom, without ignoring the basic principles that underlie the discipline. We have employed practical examples throughout the text; provided three chapters illustrating how the basic concepts discussed in other parts of the book can be applied to preschool, elementary, secondary, and exceptional students; and included a special chapter on classroom discipline. For this reason, we have subtitled the text, "A Practical Approach to Educational Psychology."

A second major decision concerns the orientation of the text. Rather than blindly adhering to a particular point of view, we have been empirical, practical, and skeptical in the selection of material to include. In other words, we have attempted to write a book about ideas that are *important* to teachers and about teaching methods that *work*. In following these guidelines, we have produced a text that has a dominant "behavioral" orientation, but one that is very different from any previous behavioral treatment of education. Because we set out to include all concepts that have been empirically shown to be useful in the classroom, we have written a full treatment of educational psychology including not only the topic of learning, but also development, motivation, social factors, cognition, and measurement.

The result is a broad, practical, and eclectic text whose dominant theme is the role played by teachers in actively structuring the learning environment of students. We have emphasized the works of Glaser, Gagné, Bloom, Ausubel, Skinner, and Bijou, but we have also drawn on the theories of Bruner, Piaget, and others.

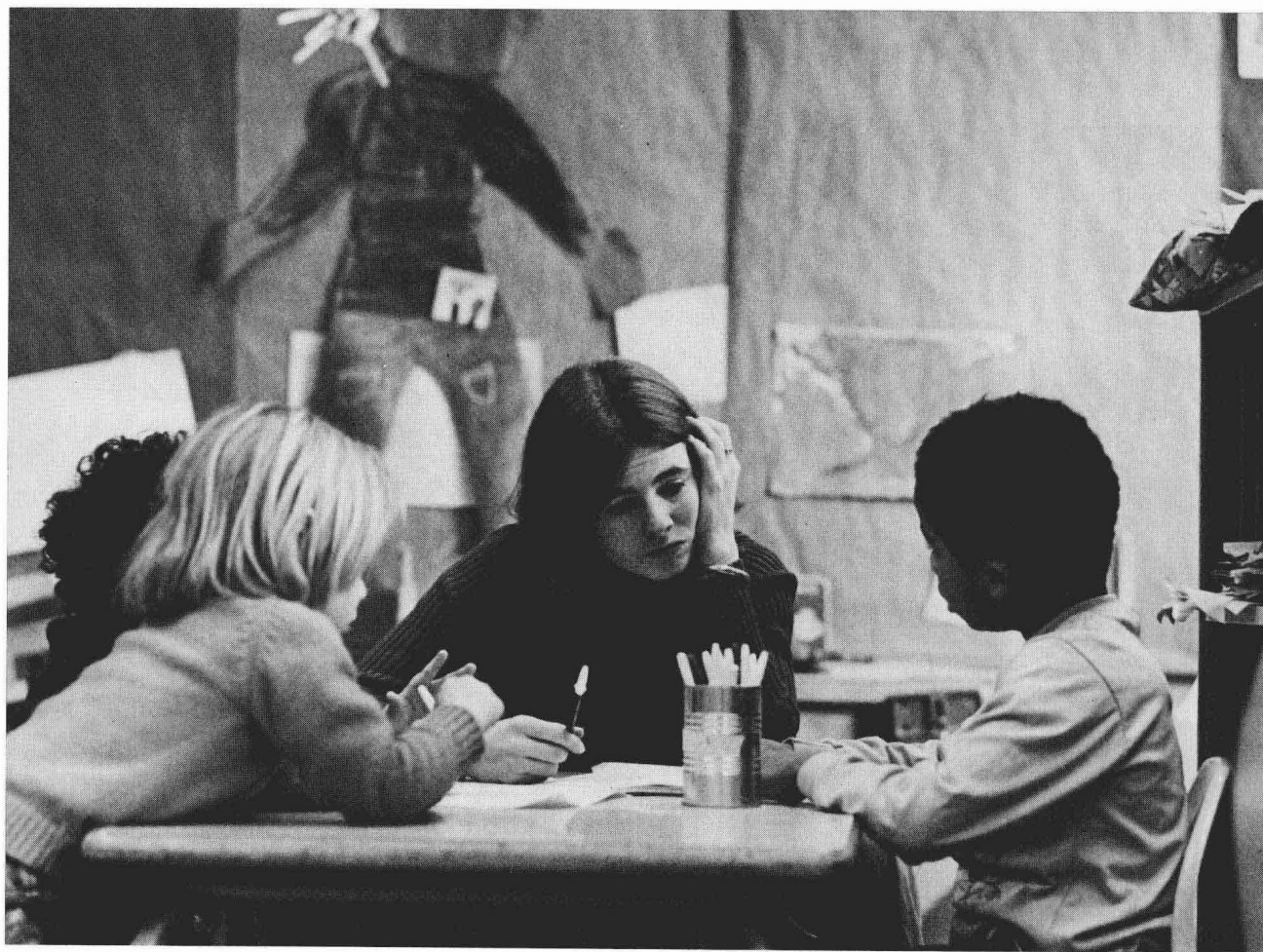
The final decision that must be made is whether the project is worth the effort. Although an enormous amount of work went into this book, writing it was mostly an enjoyable experience. We will be most pleased if students get as much out of reading it as we did from writing it. We would like to offer special thanks to Richard Tucker for the key role he has played in the development of this book. We sincerely appreciate the contributions of the many other individuals who devoted their time and talents to the text, especially David Halfen, Jim Romig, Joanne Tinsley, Andrew Rojecki, Elaine Kurisu, Jackie Johnson, Muriel Price, and the friendly, patient ladies who operate the switchboard at Scott, Foresman. This book is dedicated to our spouses, Susan and Eric, with very special thanks for their contributions, support, and patience, to Megan, Edward, and Erin, and to Professor Jay Ostwalt, to whom this text was promised ten years ago.



# Psychology and Instruction

A Practical Approach to Educational Psychology

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## Chapter 1

# Introduction

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### Theories of Education

#### Basic Principles of Teaching

- Create a Favorable Classroom Climate
- Understand the Characteristics of the Age-Group You Teach
- Define Educational Goals
- Make Learning Meaningful
- Individualize Instruction
- Base Instruction on Entering Behavior
- Allow Mastery Learning
- Provide for Active Learning
- Reduce Student Failure
- Seek Help from Others

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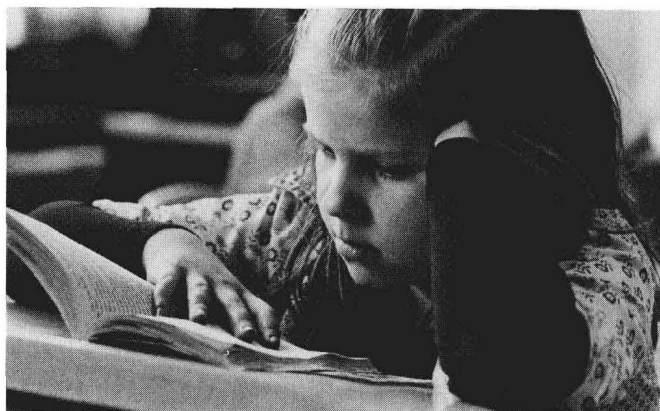
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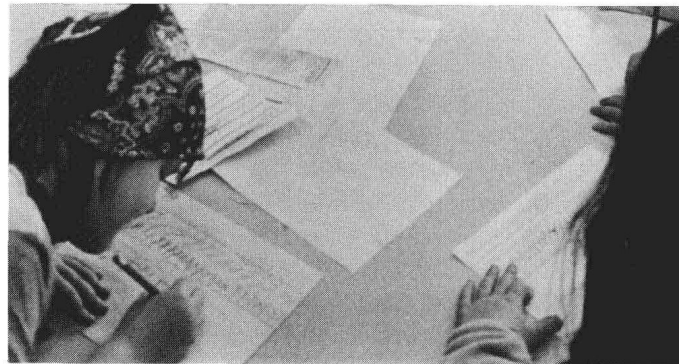
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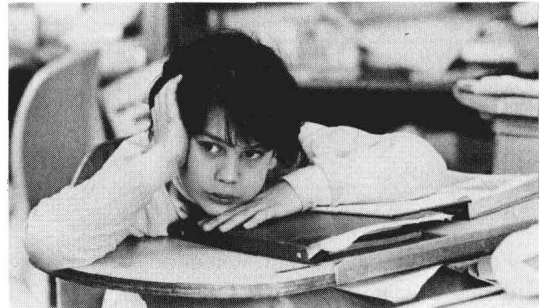


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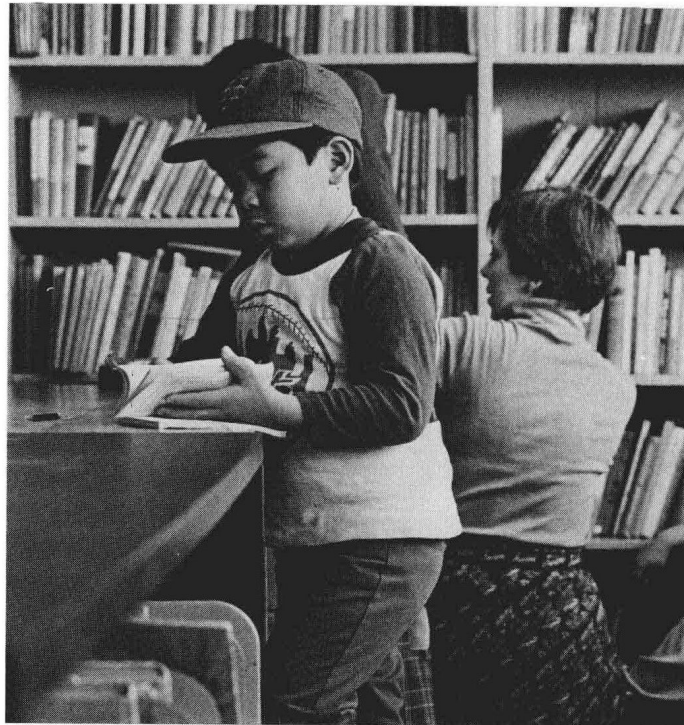
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The functions of teachers are twofold: First, they should help students learn in ways that are meaningful and efficient. This will allow children to reach their highest level of achievement and to have the greatest number of options in choosing an adult life-style. This will also provide society with the educated people necessary to strive to create a thriving civilization that will support happy, meaningful lives.

Second, teachers should see to it that children enjoy themselves while they are in school. We spend a sizable portion of our lives in classrooms. Not only should the educational system prepare children to be happier and more successful adults, it should also ensure that they are happy while they are in school. Fortunately, the goals of meaningful achievement and happiness are compatible. Children need not be tense and competitive in order to succeed. Our best educational practices can develop effective learners who are also having a good time.

Society builds schools and entrusts teachers with the responsibility of pursuing these goals. No other human-services profession has such prolonged and convenient access to children. Teachers are our first line of defense in solving the problems of childhood and preventing the problems of adulthood. We are far from having solutions to every problem of growing up, and we may be even farther from implementing the solutions that we do have. But we now possess much information that when properly applied will take us closer than ever before to the goal of happy, achieving children.

## THEORIES OF EDUCATION

Two broad, opposing points of view dominate educational theory and practice today. One point of view holds that children have an innate interest in learning that, when given the proper amount of freedom, will stimulate children to learn and to grow at their maximal rate. As long as children are allowed to learn only when they are interested in learning and are only given opportunities to learn but are never forced, learning will be efficient as well as joyous. The teacher's primary duties are to be available when the child wants to ask questions and to provide materials from which the child can learn new principles. For example, a teacher might provide sticks of varying lengths from which the child could learn about serial order and would then be available for discussing this concept with the child, *if the child initiated such learning*.

A key assumption of this philosophy is that only the children know when they are ready to learn, and that any attempt on the teacher's part to teach a fact or a principle before the children are ready only inhibits the learning process. This approach assumes that the child's readiness for each new principle is tied to a maturational process that cannot be speeded up through teaching or through enriched experience.

The opposing view also sees children as having an innate potential for learning, but holds that learning will occur only when the appropriate experiences are provided for them. Efficient and enjoyable learning takes place when the children's experiences are carefully arranged and programmed for them.



Thus, the teacher's job is to arrange and to sequence the program of learning experiences for the child. For example, the teacher must insure that each child masters such skills as counting objects and making "greater than" and "less than" comparisons between two groups of objects before teaching addition. Learning will be a worthwhile experience when children are taught each set of principles in an effective way that reduces errors and when they are allowed to master one set of principles before proceeding to the next.

This division of educational theory into two camps is only a rough one; there are many theorists who take their own positions between these two views. Educational theories can be viewed on a continuum with the two approaches that we described lying at extreme ends. We will call these extreme positions *free* and *programmed* education, respectively. Although they characterize most current disputes over educational theory, these views have been with us in one form or another since Plato began having intellectual disputes with his student, Aristotle. This dialogue takes many different forms and assumes many different labels throughout history, from the early Greeks, through the empiricist-nativist debates of the Renaissance, to current times. Fortunately, however, the greatest number of educators fall towards the middle of this continuum rather than at the extremes.

This book, too, will be written from the middle ground of thought. On the one hand, we believe that children should be regimented as little as possible, but we also believe that the teacher should play a *major role* in

guiding and arranging learning experiences. Children need not follow rigid schedules in order to learn, but a certain amount of organization and arrangement of learning is necessary.

Stated differently, the issue is how often should the teacher guide the student? Both of the opposing theoretical viewpoints recognize the importance of guidance, but differ on the amount necessary. You can avoid both extreme viewpoints by adopting a flexible, pragmatic approach, as the following classroom experiment illustrates.

The experiment took place in the Laboratory Preschool of the University of North Carolina at Charlotte, which serves children from middle- and upper-income families (Haskett & Lenfestey, 1974). The teachers were concerned that the children were not interested enough in the children's books that were distributed about the classroom. As Figure 1-1 shows, none of the children spent any significant amount of time looking at the books during the first part of the study (labeled "baseline" on Figure 1-1).

The teachers asked how they could encourage their students to read the books without adding undue regimentation to their activities. First, novel books were added to the collection in an attempt to attract the students' attention. The second part of Figure 1-1 shows that the addition of ten to fifteen new books each day did lead five of the children to spend more time with the books, but the teachers felt that this was still inadequate. They decided, therefore, to set an example for the children.

For the next five days, two to four of the teachers picked up a book at the beginning of each session, found a place to sit down, and began reading aloud. The children re-

sponded by looking frequently at the books (as the "models" part of Figure 1-1 shows). To check to see if their modeling was responsible for the changes in their students' behavior, the teachers stopped reading, but continued adding novel books for five days, and then began modeling reading again for three more days. As Figure 1-1 shows, the amount of attention the children paid to the books fell when the teachers stopped setting an example, but rose when the teachers resumed modeling the desired activity again.

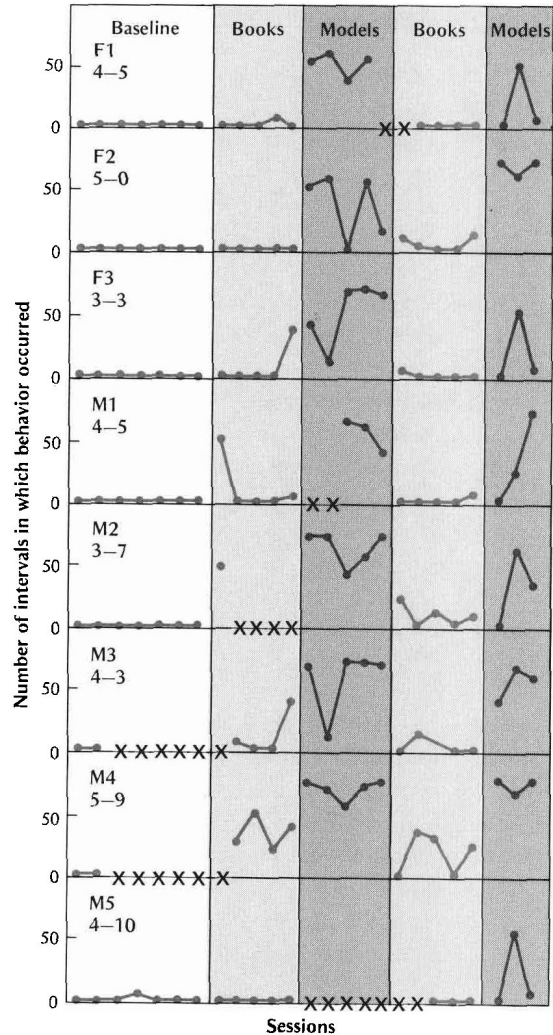
This study illustrates the orientation of this text. Education requires guidance, but it need not result in a loss of the joy of learning. Teachers can effectively guide learning without creating a dull and regimented atmosphere.

## BASIC PRINCIPLES OF TEACHING

Through years of experience, teachers gradually formed opinions about the effectiveness of methods of instruction. More recently, educators have used the methods of science to compare methods more objectively and have developed a "science of instruction." This chapter summarizes what we feel are some of the most useful principles of education in order to give a general overview of the orientation of this text. Support for these principles will be cited in the more specific discussion that follows.

### Create a Favorable Classroom Climate

As a prospective teacher, you will need to give considerable thought to the kind of place your classroom will be. Will you have



**Figure 1-1.** The number of intervals in which each student attended to a book. Each student is identified by age in years and months and by sex (M-male, F-female). Absences are indicated by Xs. The students were observed under typical classroom conditions during the "Baseline" phase; novel books were placed in the classroom during the "Books" phase; and the teachers modeled reading the books during the "Models" phase. (From Haskett & Lenfestey, 1974)

### DOES GOOD TEACHING MAKE A DIFFERENCE?

"Studies published in the mid-1950s (Bloom, 1956; Bloom & Statler, 1957) compared the achievement of students in the 48 states at the end of 12 years of school. . . . Put in terms of grade equivalents in the highest state, the average student in the lowest state had completed only an eighth-grade education in 12 years.

"Recently, the International Study of Educational Achievement completed studies of achievement in mathematics, science, literature, reading, English as a second language, French as a second language, and civic competence. Altogether, about 28 nations have been involved in these comparative survey studies (Comber & Keeves, 1973; Husén, 1967; Purves, 1973; Thorndike, 1973). When one considers only the so-called 'developed' nations, the difference between the mean scores of the highest and the lowest nations on a particular subject field also approximates one standard deviation on the total distribution of scores at the end of about 12 years of school. When a few 'developing' nations are included in the distributions, the mean score

for the students in the developing nations is about two standard deviations below the highest mean of the developed nations. Again, put crudely in terms of time and learning, an average student in a developing nation has obtained about 6 years of learning in 12 years and an average student in a low-scoring developed nation has obtained 8 years of learning in 12 years, in contrast to what the average student in the highest scoring of the developed nations has learned in 12 years. . . .

"While time and learning are not so easily equated, it is evident in these national and international studies that the accidents of birthplace and geography determine that a student in one set of communities and schools may spend 1½–2 years to learn what a student in another set of communities and schools will learn in 1 year. Or, to put it into time and human resources spent, it may cost twice as much for a particular level of learning in one place as it does in another place." (Bloom, 1974, p. 682)

Clearly, it is not geography that matters as much as the quality of education.



a classroom that fosters achievement and enjoyment? Will you arrange the desks so that they encourage studying rather than kicking? In short, will your classroom be a nice place to be? With some planning, you can use the atmosphere of the classroom to facilitate your educational programs, rather than to fight against them. For example, there could be one area in elementary classrooms where children can quietly work sitting in their seats and another area where they can engage in group discussions and behave in more informal ways. This physical arrangement encourages quiet when it is appropriate and encourages talking when that is appropriate. Many different areas of

this sort might be provided in an open classroom, but the teacher in an overcrowded self-contained room could accomplish the same goals by arranging different seating areas or by putting mats on the floor for different types of activities.

You can also make your classroom more pleasant and effective by using audio-visual aids, creative learning games, interesting reading materials, and bright decorations. These activities and decorations make a classroom an enjoyable place to spend the better part of the day. Playing rock records may give middle-school students a better understanding of poetry, and it will certainly make the classroom a more exciting place to



### COMPUTERS AS TEACHERS?

In cities from Palo Alto, California, to McComb, Mississippi, to New York City, children are learning from teachers who are computers. They receive their lessons on small television screens and "talk" to their "teachers" by way of typewriters. Extensive research suggests that children enjoy this type of teaching and learn a great deal from it.

A study conducted in rural Mississippi by Patrick Suppes, one of the principal developers of computer-assisted instruction at Stanford University, showed that a group of children who were given daily 15-minute computer lessons in mathematics gained from 1.10 to 2.03 years of academic achievement, compared to gains of 0.26 to 1.26 years of achievement for students who did not receive computer tutoring (Suppes, 1966).

These results suggest that computers can function as very effective teachers indeed. But it seems very unlikely that computers will ever take jobs away from people-type teachers. It is not feasible to develop computer tutoring in the foreseeable future for anything except very clear-cut, repetitive instructional tasks. Computers, therefore, may someday free you from some of the drudgery of teaching, giving you more time and energy for more creative and human kinds of teaching.

be. Many such strategies for improving the atmosphere for learning are possible and can help ensure good teaching.

The most significant factor for creating a favorable classroom environment, however, is your own behavior as the teacher. A considerable amount of research supports this assertion. Several studies show that student achievement is highest when teachers show enthusiasm, present information in a clear and organized manner, preview and review the topics in their lessons, teach relevant material, show concern that the students will learn what they need, make flexible use of teaching materials and methods, and give informative personal feedback rather than harsh criticism (Firestone & Brody, 1975; Rosenshine & Furst, 1973).

Evidence also suggests that effective teachers display warmth, give their students an expectation of success (Rappaport & Rappaport, 1975), and know their pupils as individuals (Johnson, 1970). Coercive and dominating teachers tend to produce rebellion, distraction, and a lack of spontaneity in their students; psychologically unstable teachers tend to produce students with adjustment problems (Johnson, 1970). And as we shall see later, the most effective teachers are the ones that make learning meaningful, involve their students in decisions about goals and standards in a democratic way, and make wise use of rewards.

### Understand the Characteristics of the Age-Group You Teach

We all know that behavior changes with age, but we often fail to grasp the implications of this fact. Children's behavior varies considerably within age levels, but not as