

# CONTENTS

## PART ONE

### BASIC CONCEPTS AND PRINCIPLES

#### 1. TEACHING BEHAVIOR AND THE LOGIC OF SCIENTIFIC INQUIRY 3

Relation of Psychology to Education 4  
*The science of psychology    The present state of educational theory*

Professional Knowledge and Critical Inquiry 6  
*Theory and practice    Theory and practice in teaching*

Concepts and Methods of Scientific Investigation 8  
*The starting point    The concept of variables    The experimental method and hypothesis testing    The correlational method and hypothesis testing    Tests of statistical significance*

Experimentation in the Classroom 29  
*The problem of applying research    The research-development continuum    The teacher and the development sequence*

Summary 36

Study and Discussion Questions 39

Recommended Readings 41

#### 2. A PSYCHOLOGICAL MODEL OF TEACHING BEHAVIOR 43

The Teacher as Decision Maker 43  
*Plans as a psychological concept    Teaching plans and learning    The decision components in teaching plans*

The Decision-Making Model 48  
*Alternatives and consequences    Probability estimates    Values of a decision    Decision rules    Dynamics of the*

*decision-making process*      *Characteristics of the decision-making process*      *Uses of the decision-making model*      *Decisions as hypotheses about learning*

Summary      65  
 Study and Discussion Questions      67  
 Recommended Readings      69

### 3. INSTRUCTIONAL STRATEGIES AND LEARNING      71

A Model of the Learning Organism      72  
*Kinds of models*      *Dangers in using models*      *Assumptions about the learning organism*      *Assumptions about learning processes*

A Model of Instructional Strategies      80  
*Formulation of goals*      *Planning the instructional strategy*  
*Plans for evaluating the strategy*

Summary      100  
 Study and Discussion Questions      103  
 Recommended Readings      106

## PART TWO

## THE PROBLEMS OF LEARNING

### 4. MOTIVATION AND LEARNING      109

What Is Motivation?      110  
*Motivation as an explanatory construct*      *Model of the motivational process*

Motives and Needs      113

The Need System      116  
*Classification of needs*      *Principles of classification*      *Identification of needs*

How Motives and Needs Are Learned      127  
*Need satisfaction and reinforcement of behavior*      *Social influences on the acquisition of needs*      *Social class and need acquisition*      *Home influence and goal orientation*      *Child-rearing practices and need acquisition*

Effects of School Experience on Goal Setting      136  
*Success and failure and level of aspiration*      *Influence of the group on goal-setting behavior*

Motivation and Instructional Strategies	144
<i>Incentives and motivation</i>	<i>Educational objectives and the learner's goals</i>
<i>Providing success experiences</i>	
Summary	153
Study and Discussion Questions	155
Recommended Readings	158
5. LEARNING AND THE COGNITIVE PROCESSES: CONCEPT FORMATION	160
What Is a Concept?	161
<i>Processes involved in concept formation</i>	<i>Functions of concepts</i>
The Learning of Concepts	164
<i>Formal and informal concept formation</i>	<i>Influence of previous learning on concept formation</i>
<i>and appropriate experience</i>	<i>Concept formation and Stereotyped concepts</i>
Variables Influencing the Learning of Concepts	173
<i>Use of examples</i>	<i>Practice and concept acquisition</i>
<i>Reinforcement and concept acquisition</i>	<i>Verbalization and concept acquisition</i>
Instructional Strategies and Concept Learning	188
<i>The criterion behavior</i>	<i>Learning goals</i>
<i>Controlling stimuli</i>	<i>Patterns of controlling stimuli</i>
<i>Deductive and inductive strategies</i>	
Summary	194
Study and Discussion Questions	197
Recommended Readings	199
6. LEARNING AND THE COGNITIVE PROCESSES: GENERALIZATIONS AND ASSOCIATIVE THINKING	200
The Acquisition of Generalizations	201
<i>Definition of a generalization</i>	<i>Levels of understanding generalizations</i>
<i>Acquiring generalizations by deduction and induction</i>	<i>Relative effectiveness of inductive and deductive processes</i>
Discovery Learning	205
<i>Experimentation on discovery learning</i>	<i>Curricular studies using discovery methods</i>
<i>as a teaching technique</i>	<i>Evaluation of discovery learning</i>
Cognitive Organization	215
<i>Sequencing cognitive operations</i>	<i>Influence of prior learning on cognitive structure</i>

Associative Thinking	225	
<i>The meaningfulness of associations</i>		<i>Association and memory</i>
Instructional Strategies for Cognitive Development	241	
<i>Selection of objectives</i>		<i>The criterion behavior</i>
<i>Instructional-strategy patterns</i>		
Summary	246	
Study and Discussion Questions	248	
Recommended Readings	250	
7. THE LEARNING OF PROBLEM-SOLVING AND CREATIVE BEHAVIOR	252	
Problems and Problem-Solving Behavior	253	
<i>Problem situations</i>		<i>Types of problems</i>
How Problems Are Solved	256	
<i>Analysis of the goal</i>		<i>Analysis of the situation</i>
<i>Analysis making</i>		<i>Hypothesis making</i>
Effects of Success and Failure on Problem Solving	260	
<i>Individual reactions to failure in problem solving</i>		<i>Alleviating the effects of failure in problem solving</i>
Influence of "Set" on Problem-Solving Behavior	269	
<i>Set as a function of familiarity</i>		<i>Controlling the influence of set</i>
Influence of the Realism of the Problem on Problem Solving	275	
<i>Kinds of realistic problems</i>		<i>Laboratory versus field experience</i>
Transfer of Learning in Problem Solving	278	
<i>Transfer to similar problems</i>		<i>Transfer of generalizations</i>
Problem Solving in Groups	282	
<i>Transfer value of group problem solving</i>		<i>Effectiveness of group problem solving</i>
<i>Instructional decisions on group problem solving</i>		
Creative Behavior	292	
<i>Difference between original and creative behavior</i>		<i>Variables influencing acquisition of original behavior</i>
<i>Evaluation of research on creativity</i>		
Instructional Strategies for the Development of Problem-Solving Behavior	298	
<i>Instructional goals</i>		<i>Instructional-strategy patterns</i>
Summary	300	

Study and Discussion Questions	302
Recommended Readings	306
<b>8. THE LEARNING OF ATTITUDES</b>	<b>307</b>
What Is an Attitude?	308
<i>Attitudes as anticipatory responses</i>	<i>Difference between attitudes and motives</i>
<i>Attitudes as inferences from observed behavior</i>	<i>Validity and reliability of inferences about attitudes</i>
How Attitudes Are Learned	315
<i>Rewards for learning attitudes</i>	<i>Conflict in attitudes</i>
<i>Influence of models on the acquisition of attitudes</i>	<i>Influence of groups on acquisition of attitudes</i>
Instructional Strategies for Attitude Acquisition	336
<i>The criterion behavior</i>	<i>Patterns of stimulus arrangements</i>
<i>Evaluative judgments</i>	
Summary	338
Study and Discussion Questions	339
Recommended Readings	341
<b>9. THE LEARNING OF ATTITUDES: COMMUNICATION PROCESSES</b>	<b>342</b>
Experimental Studies of Persuasive Communication	343
Variables Influencing the Persuasiveness of a Communication	346
<i>Prestige and credibility of the communicator</i>	<i>Influence of fear-arousing appeals</i>
<i>Influence of logical arguments</i>	<i>Influence of group membership</i>
<i>Influence of personal involvement</i>	<i>Imitative behavior and communication</i>
The Influence of Attitudes on Cognition	362
<i>Forms of influence</i>	<i>Incompatible cognitions and attitude change</i>
School Programs to Promote Attitude Change	367
<i>Influence of information on attitude change</i>	<i>People as information sources</i>
<i>Comprehensive school programs</i>	
The Evaluative Process and the Learning of Values	373
<i>Definition of a value</i>	<i>How values are learned</i>
<i>Values and the parent-child relationship</i>	<i>Influence of school on development of a value system</i>
<i>Complex systems of attitudes and values</i>	
Instructional Strategies	380

Summary	381
Study and Discussion Questions	382
Recommended Readings	385
<b>10. THE LEARNING OF COMPLEX PERFORMANCES</b>	<b>386</b>
Kinds of Performances and Their Evaluation	388
<i>Structured and unstructured performances</i>	<i>Public and private performances</i>
<i>Criteria for evaluating performances</i>	
Understanding vs. Manipulative Behavior	389
Characteristics of a Skill Performance	391
<i>Accuracy</i>	<i>Coordination</i>
<i>Speed</i>	<i>The use of cues</i>
The Acquisition of Skill Performances	396
<i>Influence of demonstration or guidance</i>	<i>Effect of reinforcement</i>
<i>Stage of development of the learner</i>	<i>Effects of practice</i>
<i>Massed and spaced practice</i>	
Instructional Strategies	413
<i>Patterns of instructional strategies</i>	<i>The practice component of the instructional strategy</i>
<i>Evaluation decisions</i>	
Summary	416
Study and Discussion Questions	417
Recommended Readings	419
<b>11. PERSONALITY AND THE SELF-CONCEPT</b>	<b>420</b>
Roles and Role Behavior	421
<i>Roles and positions in a social system</i>	<i>Role expectations</i>
<i>How roles are learned</i>	<i>Role adjustment</i>
<i>The school and role acquisition</i>	
The Self-Concept	432
<i>Development of the self-concept</i>	<i>Preservation of the self-concept</i>
<i>The teacher and the child's self-concept</i>	
Personality Adjustment	441
The Socialization Process and Personality	443
<i>Communication of cultural expectations</i>	<i>Variations in socialization processes</i>
Instructional Strategies	447
Summary	448
Study and Discussion Questions	450
Recommended Readings	453

## 12. PATTERNS OF DEVELOPMENT

- The Process of Development 456  
*Differentiation of responses*      *Integration of responses*
- Factors Influencing Development 458  
*Influence of heredity*      *Influence of environment*      *Interdependence of heredity and environment*
- Variations in Development Patterns 463  
*Difference in rate of development among individuals*      *Differences in rate of development in each child*      *Differences in cultural expectancies at various age levels*
- Range of Differences in Individual Development 471  
*Distributions of individual differences*      *Individual differences in school achievement*      *Reducing the range of individual differences*
- Predicting Developmental Status 474  
*Early and late maturation*      *Reliability of predictions of developmental status*
- Theories of Development 481  
*Development as mastery of developmental tasks*      *Concept of a critical period for learning*      *Piaget's developmental theory*
- Summary 494
- Study and Discussion Questions 496
- Recommended Readings 499

## PART THREE

## THE SOCIAL CONDITIONS OF LEARNING

13. TEACHER-STUDENT INTERACTIONS 503
- A Model of Interpersonal Interaction 505  
*Comparisons among interaction opportunities*      *The social power of the teacher*
- Patterns of Teacher-Student Interaction 509  
*Maintenance of goal orientation*      *The teacher's need satisfaction in interpersonal relations*      *The teacher's control of need satisfactions*      *Utilizing students' needs for productive activity*      *The use of reward and punishment*      *The teacher's behavior as a stimulus event*      *Pupils' perception of the teacher's behavior*
- Classroom Climate 520  
*Influence of classroom climate on pupil behavior*      *Compara-*

*tive influence of teacher and class behavior*      *Influence of  
the class on teacher behavior*

**Influence of Perception on Interpersonal Interactions**

*Systems of trait associations*      *Accuracy of teachers' per-  
ceptions of pupils*

**The Organization of Classroom Groups**      535

*The instructional group*      *Group and individual goals in  
instructional groups*      *Factors affecting group effectiveness*  
*The teacher's use of grouping procedures*

Summary      541

Study and Discussion Questions      544

Recommended Readings      547

**14. THE SCHOOL AS A  
SOCIAL SYSTEM**      548

**Social Position and Social Status**      549

*Individual social status in the school*      *Influence of formal  
organizations of students on status*      *Influence of formal or-  
ganization of activities on student status*      *Influence of in-  
formal organizations on student social status*

**Effects of Social Position and Status on Pupil Behavior**      557

*Social status and need satisfaction*      *Social status and group  
membership*

**Effects of the School's Social System on Learning**      561

**The Teacher's Role in the School's Social System**      565

*Variations in teacher role expectations*      *The teacher's role  
in relation to the principal*      *Resolving role conflict*

Summary      572

Study and Discussion Questions      574

Recommended Readings      575

**PART FOUR**

**METHODS OF EVALUATION**

**15. THE EVALUATION OF LEARNING**      579

**What Is an Evaluation Procedure?**      580

*Major phases of evaluation*      *Criteria for evaluation*

**Educational Objectives and Evaluation Procedures**      585



Tests and Evaluation Procedures	586	
<i>Tests as samples of behavior</i>		<i>Necessary characteristics of a behavior sample</i>
Characteristics of Measurement Procedures	589	
<i>The relative character of measurement</i>		<i>Reliability of a measurement procedure</i>
<i>Validity of a measurement procedure</i>		
Observation of Pupil Behavior as a Measurement Procedure		595
<i>Problems in using the observational method</i>		<i>Improving the teacher's observation of pupil behavior</i>
A Test Situation	598	
<i>Advantages of a test situation</i>		<i>Choosing appropriate test situations and measurement procedures</i>
Summary	600	
Study and Discussion Questions	602	
Recommended Readings	604	
16. CLASSROOM EVALUATION PROCEDURES	605	
What Is to Be Evaluated?	606	
<i>Specific definition of educational objectives</i>		<i>Determination of relative importance of objectives</i>
Selecting Test Exercises	609	
<i>Test tasks as stimuli</i>		<i>Test stimuli designed to evoke recall responses</i>
<i>Test stimuli designed to evoke conceptual responses</i>		<i>Test stimuli designed to evoke generalizing responses</i>
<i>Test stimuli designed to evoke skill performances</i>		
Item Form	617	
<i>Uses of short-form questions</i>		<i>Uses of essay questions</i>
Scope of Evaluative Procedures	620	
<i>Test frequency</i>		<i>Use of short quizzes</i>
<i>Comprehensive evaluation</i>		
Scoring and Grading	623	
<i>Grades as evaluative symbols</i>		<i>The meaning of a grade</i>
<i>Improving grading systems</i>		
Objectivity in Scoring Test Performances	627	
Limitations of Classroom Evaluation Procedures	629	
Measurement of the Social Structure of a Class	631	
Summary	637	

Study and Discussion Questions 639  
 Recommended Readings 641

17. THE USE OF STANDARDIZED TESTS 642

The Process of Test Standardization 643  
*Standardization of test conditions*    *Test norms*    *Test reliability and validity*

Intelligence Tests 646  
*Inferring intellectual ability from test performance*    *Intelligence tests as measures of relative brightness*    *Validity of intelligence tests*    *Stability of intelligence-test scores*    *IQ scores and percentile scores*    *Interpreting intelligence-test scores*    *Influence of environment*    *Social class and intelligence-test performance*    *Aptitude tests*

Achievement Tests 664  
*Age and grade scores*    *Achievement-test norms*    *Curricular validity of achievement tests*    *Predictive validity of achievement tests*

Measures of Personality Characteristics 668  
*Interest tests*    *Other self-report measures*

Cumulative Records 672

The Social Consequences of Testing 673

Summary 675  
 Study and Discussion Questions 678  
 Recommended Readings 679