CHAPTER 5

Theories of Teaching

Principles of Teaching from Theories of Learning

Typically, theories of learning are only useful to adult learning practitioners when they are somehow applied to the facilitation of learning—a function assigned usually in our society to a person designated as teacher.

A distinction must be made between theories of learning and theories of teaching. Theories of learning deal with the ways in which an organism learns, whereas theories of teaching deal with the ways in which a person influences an organism to learn (Gage, 1972, p. 56).

Presumably, the learning theory subscribed to by a teacher will influence his or her teaching theory.

Hilgard, resisting this fragmentation of learning theory, identified 20 principles he believed to be universally acceptable from three different families of theories: *Stimulus-Response (S-R) theory*, *cognitive theory*, and *motivation and personality theory*. These principles are summarized in Table 5-1.

It is important for us to note Hilgard's conviction in his belief that his 20 principles would be "in large part acceptable to all parties"—a conviction that is grounded in his verification process. Hilgard limited the "parties" with whom he checked out these principles to control-oriented theorists. In spite of their differences about the internal mechanics of learning, these theorists are fairly close in their conceptualization of the role of the teacher.

Table 5-1
Summary of Hilgard's Principles

Principles emphasized in S-R theory	1. The learner should be an *active*, rather than a passive listener or viewer. 2. *Frequency of repetition* is still important in acquiring skill and for retention through overlearning. 3. *Reinforcement* is important; that is, repetition's desirable and correct responses should be rewarded. 4. *Generalization* and *discrimination* suggest the importance of practice in varied contexts, so that learning will become (or remain) appropriate to a wider (or more restricted) range of stimuli. 5. *Novelty* in behavior can be enhanced through imitation of models, through cueing, through shaping, and is not inconsistent with a liberalized S-R approach. 6. *Drive* is important in learning, but all personal-social motives do not conform to the drive-reduction principles based on food-deprivation experiments. 7. *Conflicts and frustrations* arise inevitably in the process of learning difficult discriminations and in social situations in which irrelevant motives may be aroused. Hence we must recognize and provide for their resolution or accommodation.
Principles emphasized in cognitive theory	1. *The perceptual features* of the problems given the learner are important conditions of learning figure-ground relations, directional signs, sequence, organic interrelatedness. Hence a learning problem should be so structured and presented that the essential features are open to the inspection of the learner. 2. *The organization of knowledge* should be an essential concern of the teacher or educational planner so that the direction from simple to complex is not from arbitrary, meaningless parts to meaningful wholes, but instead from simplified wholes to more complex wholes. 3. Learning *is culturally relative*, and both the wider culture and the subculture to which the learner belongs may affect his learning.

	4. *Cognitive feedback* confirms correct knowledge and corrects faulty learning. The learner tries something provisionally and then accepts or rejects what he/she does on the basis of its consequences. This is, of course, the cognitive equivalent of reinforcement in S-R theory, but cognitive theory tends to place more emphasis upon a kind of hypothesis testing through feedback. 5. *Goal-setting* by the learner is important as motivation for learning and personal successes and failures determine how individuals set future goals.
Principles from motivation and personality theory	1. The learner's *abilities* are important, and provisions have to be made for slower and more rapid learner, as well as for those with specialized abilities. 2. *Postnatal development* may be as important as hereditary and congenital determiners of ability and interest. Hence, the learner must be understood in terms of the influences that have shaped his/her development. 3. Learning is *culturally relative*, and both the wider culture and the subculture to which the learner belongs may affect learning. 4. *Anxiety level* of the individual learner may determine the beneficial or detrimental effects of certain kinds of encouragements to learn. 5. The same objective situation may tap *appropriate motives* for one learner and not for another, as for example, in the contrast between those motivated be affiliation and those motivated by achievement. 6. The *organization of motives and values* within the individual is relevant. Some long-range goals affect short-range activities. Thus college students of equal ability may do better in courses perceived as relevant to their majors than in those perceived as irrelevant. 7. The *group atmosphere* of learning (competition vs cooperation, authoritarianism vs democracy, individual isolation vs group identification) will affect satisfaction in learning as well as the products of learning (Hilgard and Bower, 1966, pp. 562–564).

TEACHING CONCEPTS DERIVED FROM LEARNING THEORIES ABOUT ANIMALS AND CHILDREN

Let's examine the concepts of a variety of theories about the nature of teaching and the role of the teacher. First, we'll look at the members of Hilgard's jury. These include Thorndike, Guthrie, Skinner, Hull, Tolman, and Gagne.

Thorndike essentially saw teaching as the control of learning by the management of reward. The teacher and learner must know the characteristics of a good performance in order that practice may be appropriately arranged. Errors must be diagnosed so that they will not be repeated. The teacher is not primarily concerned with the internal states of the organism, but with structuring the situation so that rewards will operate to strengthen desired responses. The learner should be interested, problem-oriented, and attentive. However, the best way to obtain these conditions is to manipulate the learning situation so that the learner accepts the problem posed because of the rewards involved. Attention is maintained and appropriate stimulus-response connections are strengthened through the precise application of rewards toward the goals set by the teacher. A teacher's role is to cause appropriate S-R bonds to be built up in the learner's behavior repertoire (Hilgard and Bower, 1966, pp. 22–23; Pittenger and Gooding, 1971, pp. 82–83).

Hilgard summarizes Guthrie's suggestions for teaching as follows:

1. If you wish to encourage a particular kind of behavior or discourage another, *discover the cues leading to the behavior in question*. In the one case, arrange the situation so that the desired behavior occurs when those cues are present; in the other case, arrange it so that the undesired behavior does not occur in the presence of the cues. This is all that is involved in the skillful use of reward and punishment. A student does not learn what was in a lecture or a book. He learns only what the lecture or book caused him to do.
2. *Use as many stimulus supports for desired behavior as possible*, because any ordinary behavior is a complex of movements to a complex of stimuli. The more stimuli there are associated with

> the desired behavior, the less likely that distracting stimuli and competing behavior will upset the desirable behavior (Hilgard and Bower, 1966, pp. 86–87).

From Skinner's (1968) vantage point, "Teaching is simply the arrangement of contingencies of reinforcement" (p. 5). Subsequent statements in *The Technology of Teaching* throw further light on his position:

> Some promising advances have recently been made in the field of learning. Special techniques have been designed to arrange what are called *contingencies of reinforcement*—the relations which prevail between behavior on the one hand and the consequences of behavior on the other—with the result that a much more effective control of behavior has been achieved. (p. 9)
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> Comparable results have been obtained with pigeons, rats, dogs, monkeys, human children and psychotic subjects. In spite of great phylogenic differences, all these organisms show amazingly similar properties of the learning process. It could be emphasized that this has been achieved by analyzing the effects of reinforcement with considerable precision. Only in this way can the behavior of the individual organism be brought under such precise control. (p. 14)
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> The human organism does, of course, learn without being taught. It is a good thing that this is so, and it would no doubt be a good thing if more could be learned in that way. . . . But discovery is no solution to the problems of education. A culture is no stronger than its capacity to transmit itself. It must impart an accumulation of skills, knowledge, and social and ethical practices to its new members. The institution of education is designed to serve this purpose. . . . It is dangerous to suggest to the student that it is beneath his dignity to learn what others already know, that there is something ignoble (and even destructive of "rational powers") in memorizing facts, codes, formulae, or passages from literary works, and that to be admired he must think in original ways. It is equally dangerous to forego teaching important facts and principles in order to give the student a chance to discover them for himself. (p. 110)

Hull was primarily concerned with the development of a systematic behavior theory that would improve the laboratory study of learning, and so he gave little attention to its implications for teaching. In assessing the significance of his work for education, Kingsley and Garry (1957) point out:

> Systematic order and arrangement would characterize the classroom patterned after Hull's theory. The development of habits and skills would proceed from the simple to the complex with a clear understanding of the stimuli and responses to be associated. The program would have to be dynamic and stimulating in view of the central position that reinforcement holds, inasmuch as aroused drives which can be reduced by satisfying outcomes are an essential condition of learning. . . . Practice would be presented for the purpose of building the desired habits and maintaining them, but would not proceed to the point at which the increase in inhibition from repeating the same response would make the child reluctant to respond. (pp. 104–105)

Tolman was also principally concerned with the laboratory study of learning, and Kingsley and Garry (1957) point out that "the fact that Tolman accepts different forms of learning makes it more difficult to infer how an educational program which followed his theory literally would operate." But the teacher's task would be concerned primarily with "the creating of stimulus-conditions which make it possible for the learner to perceive clearly what leads to what, and to understand the different means by which a given goal can be reached. Emphasis would be placed upon making vivid the relationships between the parts and the whole. . . . Because of variations in capacity with age, previous experience, etc., it would be necessary to select learning tasks which can be perceived as wholes" (pp. 119–120).

The gestalt psychologists saw the teacher's task as being essentially to help the individual see significant relationships and to manage instruction in order to organize his or her experiences into functional patterns. Through verbal explanations, showing pictures, putting words on chalkboards, presenting reading matter, and many other teaching activities, the teacher provides stimulating situations.

For this reason, careful lesson planning with due regard for suitable arrangement and orderly presentation is essential for good

teaching. Practices conducive to the establishment of appropriate relations and organization include starting with the familiar, basing each step on those already taken, putting together facts that belong together, grouping items according to their natural connections, placing subtopics under the topic to which they belong, using illustrations based on the learner's experience, giving major emphasis to essentials, centering supporting details around the main points, and avoiding irrelevant details (Kingsley and Garry, 1957, pp. 111–112). Furthermore, all the divisions and topics of each subject must be integrated, and all the various subjects of a course or program must be related to one another.

Robert Gagne in *The Conditions of Learning* (1965) agrees with these learning theorists that teaching means the arranging of conditions that are external to the learner (p. 26), but he disagrees that learning is a phenomenon that can be explained by simple theories. He believes that there are eight distinct types of learning, each with its own set of required conditions. These are summarized in Table 5-2.

Gagne (1965) further believes that the most important class of conditions that distinguishes one form of learning from another is its prerequisites, since the types are in hierarchical order, as follows:

Problem solving (type 8) requires as prerequisites:

Principles (type 7), which require as prerequisites:

Concepts (type 6), which require as prerequisites:

Multiple discriminations (type 5), which require as prerequisites:

Verbal associations (type 4) or other chains (type 3), which require as prerequisites:

Stimulus-response connections (type 2). (p. 60)

Gagne specifies eight component functions of the instructional situation that represent the ways in which the learner's environment acts on him and that must be managed by the teacher:

1. *Presenting the stimulus.* Every type of learning requires a stimulus, and usually these stimuli must be located within the learning environment, outside the learner. If a chain is being learned, an external cue must be provided for each link, even though

Table 5-2
Gagne's Eight Distinctive Types of Learning

Type 1	*Signal Learning*. The individual learns to make a general, diffuse response to a signal. This is the classical conditioned response of Pavlov.
Type 2	*Stimulus-Response Learning*. The learner acquires a precise response to a discriminated stimulus. What is learned is a connection (Thorndike) or a discriminated operant (Skinner), sometimes called an instrumental response (Kimble).
Type 3	*Chaining*. What is acquired is a chain of two or more stimulus-response connections. The conditions for such learning have been described by Skinner and others.
Type 4	*Verbal Association*. Verbal association is the learning of chains that are verbal. Basically, the conditions resemble those for other (motor) chains. However, the presence of language in the human being makes this a special type because internal links may be selected from the individual's previously learned repertoire of language.
Type 5	*Multiple Discrimination*. The individual learns to make different identifying responses to as many different stimuli, which may resemble each other in physical appearance to a greater or lesser degree.
Type 6	*Concept Learning*. The learner acquires a capability to make a common response to a class of stimuli that may differ from each other widely in physical appearance. He or she is able to make a response that identifies an entire class of objects or events.
Type 7	*Principle Learning*. In simplest terms, a principle is a chain of two or more concepts. It functions to control behavior in the manner suggested by a verbalized rule of the form "If A, then B," which, of course, may also be learned as Type 4.
Type 8	*Problem Solving*. Problem solving is a kind of learning that requires the internal events usually called thinking. Two or more previously acquired principles are somehow combined to produce a new capability that can be shown to depend on a "higher-order" principle (pp. 58-59).

these may become unnecessary later. If multiple discrimination is to be accomplished, the stimuli to be discriminated must be displayed so that correct connections can become differentiated from incorrect ones. If concepts are being learned, a suitable variety of objects or events representing a class must be displayed. If principles are being acquired, the stimulus objects to which they are expected to apply must somehow be represented to the student. And if problem solving is undertaken, the "problem situation" must similarly be represented in many different ways by objects already in the learner's environment, or by means of pictures, printed books, or oral communication.

2. *Directing attention and other learner activities*. Environmental components also act on the learner by directing attention to certain stimuli or aspects of stimulus objects and events. In very young children, vivid or suddenly changing stimulation may be used for this purpose. Very soon these can be supplanted by oral commands, and later still by printed directions such as, "Notice the number of electrons in the outer ring," or "Look at the graph in Figure 23." As implied by the statements, "Remember how a line is defined," or "Complete the following sentence," activities other than attention may also be directed by such instructions. These activities are not themselves learning. They are simply actions that must be taken by the learner in order to create the proper conditions for learning. Verbal directions that have these purposes can be presented either orally or in printed form.
3. *Providing a model for terminal performance*. The importance of the function of informing the learner about the general nature of the performance to be acquired has been emphasized previously on several occasions. There is no single way to do this, and many different components of the instructional situation may be employed. Most commonly, the "model" of performance to be expected following learning is conveyed by oral or printed communication.
4. *Furnishing external prompts*. In learning chains, as well as multiple discriminations, cues may be provided in the instructional situation to establish a proper sequence of connections or to increase the distinctiveness of stimuli. As learning proceeds, these extra cues may be made to "vanish" when they are no

longer needed. Stimuli that function as extra cues may take a variety of forms. For example, they may be pictorial, as when a sequence is depicted in a diagram reading from left to right. Or they may be auditory, as in emphasizing the differences in sound of such French words as *rue* and *rouge*. Verbal stimuli are often employed for both these purposes, as well as for the purpose of furnishing distinctive "coding links" in verbal chains. For example, when learning color coding for resistors, the word *penny* is used to link "brown" and "one"; the word *nothingness* is used to link "black" and "zero."

5. *Guiding the direction of thinking*. When principles are being learned, and particularly when learning takes the form of problem solving, instructions from the learner's environment may guide the direction of recalled internal connections (thoughts). As described previously, such guidance is presumed to increase the efficiency of learning by reducing the occurrence of irrelevant "hypotheses." Generally, instructions having this function of "hinting" and "suggesting" take the form of oral or printed prose statements.
6. *Inducing transfer of knowledge*. Transferring learned concepts and principles to novel situations may be accomplished in a number of ways. Discussion is one of the most convenient. Obviously, this is a special kind of interaction between the learner and his environment, and it is not possible to specify exactly what form of discussion will be taken at any given moment by stimulation form the environment. The process is usually initiated, however, by verbally stated questions of the "problem-solving" variety. An important alternative method is to more or less directly place the individual within a problem situation, without the use of words to describe it. A science demonstration may be used to serve this function. Also, videos can be used with considerable effectiveness to initiate problem-solving discussion by "getting the students into the situation" in a highly realistic manner.
7. *Assessing learning attainments*. The environment of the learner also acts to assess the extent to which the individual has attained a specific learning objective or subobjective. It does this by deliberately placing the learner in representative problem situations that concretely reflect the capability the individ-

ual is expected to have learned. Most frequently, this is done by asking questions. Although it is conceivable for the learner to formulate for himself or herself the questions to be asked, this is difficult for even the experienced adult learner. Preferably, the questions must come from an independent source, to ensure that they will be uninfluenced by the learner's wishes, but will accurately represent the objective.

8. *Providing feedback*. Feedback concerning the correctness of the learner's responses is closely related to assessment of learning outcomes. The questions that are asked of the learner, followed by his or her answers, must in turn be followed by information that lets the learner know whether he or she is right or wrong. Sometimes, this feedback from the learner's environment is very simple to arrange: a foreign word pronounced by the student may sound like one heard on a tape, or the color of a chemical solution may indicate the presence of an element being sought. At other times, it may be considerably more complex, as, for example, when the adequacy of a constructed prose paragraph describing an observed event is assessed, and the results are fed back to the learner.

These eight functions, then, represent the ways in which the learner's environment acts on the individual. These are the external conditions of learning that, when combined with certain prerequisite capabilities within the learner, bring about the desired change in performance. Obviously, there are many ways to establish these conditions in the learning environment, and many combinations of objects, devices, and verbal communications may be employed in doing so. Probably the most important consideration for the design of the learning environment, however, is not that several alternative ways of accomplishing the same function are usually available. Rather, the important point is that for a given function, certain means of interacting with the learner are quite ineffective. Accordingly, the characteristics of various media of instruction in performing these functions need to be considered carefully in making a choice (Gagne, 1965, pp. 268–271).

The learning theorists described above are the ones Hilgard believed would agree with his 20 principles (with the exception of the motivation and personality theorists, whom Hilgard didn't identify,

so we can't check with them directly). Obviously these theorists are unanimous in seeing teaching as the management of procedures that will assure specified behavioral changes as prescribed learning products. The role of the teacher, therefore, is that of a behavior shaper. Stated this baldly, it smacks of what contemporary critics of education see as a God-playing role (Bereiter, 1972, p. 25; Illich, 1970, p. 30).

TEACHING CONCEPTS DERIVED FROM LEARNING THEORIES OF ADULTS

When we look at the concepts of teaching of those theorists who derived their theories of learning primarily from studies of adults, it is obvious that they are very different from those discussed in the previous section. Carl Rogers (1969) makes one of the sharpest breaks in his lead statement:

> Teaching, in my estimation, is a vastly over-rated function. Having made such a statement, I scurry to the dictionary to see if I really mean what I say. Teaching means "to instruct." Personally I am not much interested in instructing another in what he should know or think. "To impart knowledge or skill." My reaction is, why not be more efficient, using a book or programmed learning? "To make to know." Here my hackles rise. I have no wish to make anyone know something. "To show, guide, direct." As I see it, too many people have been shown, guided, directed. So I come to the conclusion that I do mean what I said. Teaching is, for me, a relatively unimportant and vastly overvalued activity. (p. 103)

Rogers (1969) goes on to explain that in his view teaching and the imparting of knowledge make sense in an unchanging environment, which is why it has been an unquestioned function for centuries. "But if there is one truth about modern man, it is that he lives in an environment which is continually changing," and therefore, the aim of education must be the facilitation of learning (pp. 104–105). He defines the role of the teacher as that of a facilitator of learning. The critical element in performing this role is the personal relationship between the facilitator and the learner, which in turn is dependent on

the facilitator's possessing three attitudinal qualities: (1) realness or genuineness; (2) nonpossessive caring, prizing, trust, and respect; and (3) empathic understanding and sensitive and accurate listening (pp. 106–206). Rogers provides the following guidelines for a facilitator of learning (pp. 164–166):

1. The facilitator has much to do with setting the initial mood or climate of the group or class experience. If the facilitator's own basic philosophy is one of trust in the group and in the individuals who compose the group, then this point of view will be communicated in many subtle ways.
2. The facilitator helps to elicit and clarify the purposes of the individuals in the class as well as the more general purposes of the group. If he or she is not fearful of accepting contradictory purposes and conflicting aims, and is able to permit the individuals a sense of freedom in stating what they would like to do, then the facilitator is helping to create a climate for learning.
3. The facilitator relies on the desire of each student to implement those purposes that have meaning for him or her as the motivational force behind significant learning. Even if the desire of the student is to be guided and led by someone else, the facilitator can accept such a need and motive and can either serve as a guide when this is desired or can provide some other means, such as a set course of study, for the student whose major desire is to be dependent. And, for the majority of students, the facilitator can help to use a particular individual's own drives and purposes as the moving force behind his or her learning.
4. The facilitator endeavors to organize and make easily available the widest possible range of resources for learning. He or she strives to make available writings, materials, psychological aids, persons, equipment, trips, audiovisual aids—every conceivable resource that his or her students may wish to use for their own enhancement and for the fulfillment of their own purposes.
5. The facilitator regards himself or herself as a flexible resource to be used by the group. The facilitator does not downgrade himself or herself as a resource. He or she is available as a

counselor, lecturer, and advisor, a person with experience in the field. The facilitator wishes to be used by individual students and by the group in ways that seem most meaningful to them insofar as he or she can be comfortable in operating in the ways they wish.

6. In responding to expressions in the classroom group, the facilitator accepts both intellectual content and the emotionalized attitudes, endeavoring to give each aspect the approximate degree of emphasis that it has for the individual or the group. Insofar as the facilitator can be genuine in doing so, he or she accepts rationalizations and intellectualizing, as well as deep and real personal feelings.

7. As the acceptant classroom climate becomes established, the facilitator is increasingly able to become a participant learner, a member of the group, expressing his or her views as those of one individual only.

8. The facilitator takes the initiative in sharing his or her feelings as well as thoughts with the group—in ways that do not demand or impose but represent simply the personal sharing that students may take or leave. Thus, the facilitator is free to express his or her own feelings in giving feedback to students, in reacting to them as individuals, and in sharing personal satisfactions or disappointments. In such expressions it is the facilitator's "owned" attitudes that are shared, not judgments of evaluations of others.

9. Throughout the classroom experience, the facilitator remains alert to the expressions indicative of deep or strong feelings. These may be feelings of conflict, pain, and the like, which exist primarily within the individual. Here, the facilitator endeavors to understand these from the person's point of view and to communicate his or her empathic understanding. On the other hand, the feelings may be those of anger, scorn, affection, rivalry, and the like—interpersonal attitudes among members of the groups. Again, the facilitator is as alert to these feelings, and by his or her acceptance of such tensions or bonds he or she helps to bring them into the open for constructive understanding and use by the group.

10. In this functioning as a facilitator of learning, the leader endeavors to recognize and accept his or her own limitations. The facilitator realizes that he or she can grant freedom to students only to the extent that he or she is comfortable in giving such freedom. The facilitator can be understanding only to the extent that he or she actually desires to enter the inner world of students. The facilitator can share himself or herself only to the extent that he or she is reasonably comfortable in taking that risk. The facilitator can participate as a member of the group only when the facilitator actually feels that he or she and the students have an equality as learners. The facilitator can exhibit trust of the students' desire to learn only insofar as he or she feels that trust. There will be many times when the facilitator's attitudes are not facilitative of learning. He or she will feel suspicious of the students, or will find it impossible to accept attitudes that differ strongly from his or her own, or will be unable to understand some of the student feelings that are markedly different from his or her own, or feel strongly judgmental and evaluative. When the facilitator experiences nonfacilitative attitudes, he or she will endeavor to get close to the them, to be clearly aware of them, and to state them just as they are within himself or herself. Once the facilitator has expressed these angers, these judgments, these mistrusts, these doubts of others and doubts of self as something coming from within himself or herself, not as objective facts in outward reality, he or she will find the air cleared for a significant interchange with his or her students. Such an interchange can go a long way toward resolving the very attitudes that he or she has been experiencing, and thus make it possible to be more of a facilitator of learning (Rogers, 1969, pp. 164–166).

Although Maslow does not spell out his conception of the role of teacher, he no doubt would subscribe to Rogers' guidelines, with perhaps a bit more emphasis on the teacher's responsibility for providing safety. Several followers of Rogers and Maslow have experimented with translating their theories into classroom behavior. George Brown, for example, describes the development of confluent education ("the term for the integration or flowing together of the affective and cognitive elements in individual and group learning")

in the Ford-Esalen Project in Affective Education in California in the late 1960s in his *Human Teaching for Human Learning* (1971). Elizabeth Drews describes an experiment to test a new program designed to foster self-initiated learning and self-actualization in ninth-graders in Michigan in which the teachers defined their roles as facilitators of learning (Drews, 1966).

Flowing in the same stream of thought, Goodwin Watson (1960-61) provides the following summary of "what is known about learning," which is easily read as "guidelines for the facilitation of learning":

1. Behavior which is rewarded—from the learner's point of view—is more likely to recur.
2. Sheer repetition without reward is a poor way to learn.
3. Threat and punishment have variable effects upon learning, but they can and do commonly produce avoidance behavior in which the reward is the diminution of punishment possibilities.
4. How "ready" we are to learn something new is contingent upon the confluence of diverse—and changing—factors, some of which include:
   a. adequate existing experience to permit the new to be learned (we can learn only in relation to what we already know);
   b. adequate significance and relevance for the learner to engage in learning activity (we learn only what is appropriate to our purposes);
   c. freedom from discouragement, the expectation of failure, or threats to physical, emotional, or intellectual well-being.
5. Whatever is to be learned will remain unlearnable if we believe that we cannot learn it or if we perceive it as irrelevant or if the learning situation is perceived as threatening.
6. Novelty (per 4 and 5 above) is generally rewarding.
7. We learn best that which we participate in selecting and planning ourselves.
8. Genuine participation (as compared with feigned participation intended to avoid punishment) intensifies motivation, flexibility, and rate of learning.

9. An autocratic atmosphere (produced by a dominating teacher who controls direction via intricate punishments) produces in learners apathetic conformity, various—and frequently devious—kinds of defiance, scapegoating (venting hostility generated by the repressive atmosphere on colleagues), or escape. . . . An autocratic atmosphere also produces increasing dependence upon the authority, with consequent obsequiousness, anxiety, shyness, and acquiescence.
10. "Closed," authoritarian environments (such as are characteristic of most conventional schools and classrooms) condemn most learners to continuing criticism, sarcasm, discouragement, and failure so that self-confidence, aspiration (for anything but escape), and a healthy self-concept are destroyed.
11. The best time to learn anything is when whatever is to be learned is immediately useful to us.
12. An "open," nonauthoritarian atmosphere can, then, be seen as conductive to learner initiative and creativity, encouraging the learning of attitudes of self-confidence, originality, self-reliance, enterprise, and independence. All of which is equivalent to learning how to learn.

Houle (1972, pp. 32–39) has proposed a "fundamental system" of educational design that rests on seven assumptions:

1. Any episode of learning occurs in a specific situation and is profoundly influenced by that fact.
2. The analysis or planning of educational activities must be based on the realities of human experience and on their constant change.
3. Education is a practical art (like architecture) that draws on many theoretical disciplines in the humanities and the social and biological sciences.
4. Education is a cooperative rather than an operative art. ("An operative art is one in which the creation of a product or performance is essentially controlled by the person using the art. . . . A cooperative art . . . works in a facilitative way by guiding and directing a natural entity or process. The farmer, physician, and educator are three classic examples of cooperative artists.")

5. The planning or analysis of an educational activity is usually undertaken in terms of some period that the mind abstracts for analytical purposes from the complicated reality.
6. The planning or analysis of an educational activity may be undertaken by an educator, a learner, an independent analyst, or some combination of the three.
7. Any design of education can best be understood as a complex of interacting elements, not as a sequence of events.

Houle (1978, pp. 48–56) then identifies the following components in his fundamental system, which it is the task of the educator to manage:

1. A possible educational activity is identified.
2. A decision is made to proceed.
3. Objectives are identified and refined.
4. A suitable format is designed.
   a. Learning resources are selected.
   b. A leader or group of leaders is chosen.
   c. Methods are selected and used.
   d. A time schedule is made.
   e. A sequence of events is devised.
   f. Social reinforcement of learning is provided.
   g. The nature of each individual learner is taken into account.
   h. Roles and relationships are made clear.
   i. Criteria for evaluating progress are identified.
   j. The design is made clear to all concerned.
5. The format is fitted into larger patterns of life.
   a. Learners are guided into or out of the activity both at the beginning and subsequently.
   b. Life styles are modified to allow time and resources for the new activity.
   c. Financing is arranged.
   d. The activity is interpreted to related publics.

6. The program is carried out.
7. The results of the activity are measured and appraised.
8. The situation is examined in terms of the possibility of a new educational activity.

Because Tough's studies have been concerned with the self-initiated learning projects of adults, he has focused on the "helping role" of the teacher or other resource person. His investigations have produced the following "fairly consistent composite picture of the ideal helper":

One cluster of characteristics might be summarized by saying that the ideal helper is warm and loving. The individual accepts and cares about the learner and about the learner's project or problem, and takes it seriously. The helper is willing to spend time helping and showing approval, support, encouragement, and friendship. He or she regards the learner as an equal. As a result of these characteristics, the learner feels free to approach this ideal helper, and can talk freely and easily with him or her in a warm and relaxed atmosphere.

A second cluster of characteristics involves the helper's perceptions of the person's capacity as a self-planner. The ideal helper has confidence in the learner's ability to make appropriate plans and arrangements for this learning. The helper has a high regard for the learner's skill as a self-planner, and does not want to take the decision-making control away from him or her.

Third, the ideal helper views personal interaction with the learner as a dialogue, a true encounter in which he or she listens as well as talks. Help will be tailored to the needs, goals, and requests of this unique learner. The helper listens, accepts, understands, responds, helps. These perceptions of the interaction are in sharp contrast to those of "helpers" who want to control, command, manipulate, persuade, influence, and change the learner. Such helpers seem to view communication as "an inexhaustible monologue, addressed to everyone and no one in the form of 'mass communication'. . . . Such a helper perceives the learner as an object, and expects to do something to that object. He is not primarily interested in the other person as a person, and in his needs, wishes, and welfare" (Tough, 1979).

Another cluster of internal characteristics involves the helper's reasons for helping. Perhaps the helper helps because of his or her affection and concern for the learner, Or perhaps the helper may, in

an open and positive way, expect to gain as much as he or she gives. Other sorts of motivation are feelings of pleasure for knowing he or she was helpful, and satisfaction from seeing progress or from the learner's gratitude.

Finally, the ideal helper is probably an open and growing person, not a closed, negative, static, defensive, fearful, or suspicious sort of person. The helper himself or herself is frequently a learner, and seeks growth and new experiences. He or she probably tends to be spontaneous and authentic, and to feel free to behave as a unique person rather than in some stereotyped way (Tough, 1979, pp. 195–197).

These characteristics fit well into an integrated conception of the role of the andragogical teacher. An operational set of principles for that conception of the andragogical teacher is shown in Table 5-3.

CONCEPTS OF TEACHING DERIVED FROM THEORIES OF TEACHING

Some teaching theories, especially the mechanistic models, have evolved directly from learning theories. Others have evolved from analyses of teacher behavior and its consequences and from experimenting with manipulation of the variables in the teaching/learning situation. The previous section presented teaching theories derived from learning theories; this section discusses concepts derived from theories of teaching.

Dewey's Concepts

Perhaps the system of ideas about effective teaching propounded by John Dewey during the first half of the twentieth century has had the greatest impact in the field. Dewey contrasted his basic principles with those of traditional education:

> To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teacher, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means of attaining ends which make direct vital appeal; to preparation for a more or less remote future is opposed making the most of the opportunities of present life; to

Table 5-3
The Role of the Teacher

Conditions of Learning	Principles of Teaching
The learners feel a need to learn.	1. The teacher exposes students to new possibilities of self-fulfillment. 2. The teacher helps each student clarify his own aspirations for improved behavior. 3. The teacher helps each student diagnose the gap between his aspiration and his present level of performance. 4. The teacher helps the students identify the life problems they experience because of the gaps in their personal equipment.
The learning environment is characterized by physical comfort, mutual trust and respect, mutual helpfulness, freedom of expression, and acceptance of differences.	5. The teacher provides physical conditions that are comfortable (as to seating, smoking, temperature, ventilation, lighting, decoration) and conducive to interaction (preferably, no person sitting behind another person). 6. The teacher accepts each student as a person of worth and respects his feelings and ideas. 7. The teacher seeks to build relationships of mutual trust and helpfulness among the students by encouraging cooperative activities and refraining from inducing competitiveness and judgmentalness. 8. The teacher exposes his own feelings and contributes his resources as a colearner in the spirit of mutual inquiry.
The learners perceive the goals of a learning experience to be their goals.	9. The teacher involves the students in a mutual process of formulating learning objectives in which the needs of the students, of the institution, of the teacher, of the subject matter, and of the society are taken into account.
The learners accept a share of the responsibility for planning and operating a learning experience, and	10. The teacher shares his thinking about options available in the designing of learning experiences and the selection of materials and

Table 5-3 Continued

Conditions of Learning	Principles of Teaching
therefore have a feeling of commitment toward it. The learners participate actively in the learning process.	methods and involves the students in deciding among these options jointly.
	11. The teacher helps the students to organize themselves (project groups, learning-teaching teams, independent study, etc.) to share responsibility in the process of mutual inquiry.
The learning process is related to and makes use of the experience of the learners.	12. The teacher helps the students exploit their own experiences as resources for learning through the use of such techniques as discussion, role playing case method, etc. 13. The teacher gears the presentation of his own resources to the levels of experience of his particular students. 14. The teacher helps the students to apply new learning to their experience, and thus to make the learning more meaningful and integrated.
The learners have a sense of progress toward their goals.	15. The teacher involves the students in developing mutually acceptable criteria and methods for measuring progress toward the learning objectives. 16. The teacher helps the students develop and apply procedures for self-evaluation according to these criteria.

(Knowles, 1980, pp. 57–58).

static aims and materials is opposed acquaintance with a changing world. (Dewey, 1938, pp. 5–6)

Dewey's system is organized around several key concepts. The central concept is experience. In Dewey's system, experience is always the starting point of an educational process; it is never the result. All genuine education comes about through *experience* (1938, p. 13). The central challenge of an education based on *experience* is to select

the kind of present experiences that live fruitfully and creatively in subsequent experiences (pp. 16–17).

A second key concept is *democracy.*

> The question I would raise concerns why we prefer democratic and humane arrangements to those which are autocratic and harsh. . . . Can we find any reason that does not ultimately come down to the belief that democratic social arrangements promote a better quality of human experience, one which is more widely accessible and enjoyed, than do nondemocratic and antidemocratic forms of social life? (1938, pp. 24–25)

Another key concept is *continuity.*

> The principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after. . . . Growth, or growing and developing, not only physically but intellectually and morally, is one exemplification of the principle of continuity. (1938, pp. 27–28)

> A primary responsibility of educators is that they not only be aware of the general principle of the shaping of actual experience by environing conditions, but that they also recognize in the concrete what surroundings are conducive to having experiences that lead to growth. Above all, they should know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worth while. (1938, p. 35)

Another key concept is *interaction.*

> The word "interaction" expresses the second chief principle for interpreting an experience in its educational function and force. It assigns equal rights to both factors in experience—objective and internal conditions. Any normal experience is an interplay of these two sets of conditions. Taken together, or in their interaction, they form what we call a situation. The trouble with traditional education was not that it emphasized the external

> conditions that enter into the control of the experiences, but that it paid so little attention to the internal factors which also decide what kind of experience is had [the powers and purposes of those taught]. (1938, pp. 38–44)

> It is not the subject per se that is educative or that is conducive to growth. There is no subject that is in and of itself, or without regard to the stage of growth attained by the learner, [an end] such that inherent educational value may be attributed to it. Failure to take into account adaptation to the needs and capacities of individuals was the source of the idea that certain subjects and certain methods are intrinsically cultural or intrinsically good for mental discipline. . . . In a certain sense every experience should do something to prepare a person for later experiences of a deeper and more expansive quality. That is the very meaning of growth, continuity, reconstruction of experience. (1938, pp. 46–47)

> The educator is responsible for a knowledge of individuals and for a knowledge of subject matter that will enable activities to be selected which lend themselves to social organization, an organization in which all individuals have an opportunity to contribute something, and in which the activities in which all participate are the chief carrier of control. . . . The principle that development of experience comes about through interaction means that education is essentially a social process. . . . The teacher loses the position of external boss or dictator but takes on that of leader of group activities. (pp. 61–66)

Many of Dewey's ideas were distorted, misinterpreted, and exaggerated during the heyday of the progressive school movement a few generations ago, which is why it is important to quote him directly. In light of contemporary thinking about teaching, though, don't these ideas seem fresh and useful?

Teaching Through Inquiry

A second set of concepts about teaching with roots both in Dewey's ideas—especially his formulation of scientific thinking—and in those of the cognitive theorists is referred to as the *discovery*

method, the inquiry method, self-directed learning, and problem-solving learning.

Jerome Bruner, perhaps the most notable proponent of this approach to teaching, offers the cognitive theorists' perspective of inquiry teaching and learning (1961b, 1966). In an extensive series of essays, he identifies three roles of teachers as communicators of knowledge, models who inspire, and symbols of "education."

Bruner (1966) contends that a theory of instruction or inquiry teaching must meet the following four criteria:

1. A theory of instruction should specify the experiences that most effectively implant in the individual a predisposition toward learning.
2. A theory of instruction must specify the ways in which a body of knowledge should be structured so that it can be most readily grasped by the learner.
3. A theory of instruction should specify the most effective sequences in which to present the materials to be learned.
4. A theory of instruction should specify the nature and pacing of rewards and punishments in the process of learning and teaching. (pp. 40–41)

Any attempts to determine whether a theory of instruction meets Bruner's four criteria should include considerations of the following types of questions:

- Are there materials that will increase a student's desire to learn? If so, what are they?
- How can I, as a teacher, enhance the students' will to learn? What can be done to make students eager to learn the material?
- What is the most effective method of presentation for this material? Is an interactive or representative presentation best suited for this material? Bruner (1966) identifies modes of presentation in a hierarchical system involving an *enactive mode, iconic mode,* and *symbolic mode* (pp. 10–14). The first level, the enactive mode, requires action on the part of the learner; the second level, the iconic mode, refers to the process of mentally organizing

material; and, the third level, the symbolic mode, involves use of symbols such as language.

- Are the learning materials, tools, and even material appropriate for the level of the students?
- What is the optimal presentation sequence? Is the holistic approach most effective, or should the teacher teach the foundations of the material and then supply the details?
- What and when are rewards to be administered? How will the instruction handle students' successes and errors?

Bruner predicates his system on the will to learn, a trait he believes to exist in all people. The will to learn is an intrinsic motive, one that finds both its source and its reward in its own exercise. The will to learn becomes a "problem" only under specialized circumstances such as those of a school, where a curriculum is set, students confined, and a path fixed. The problem exists not so much in learning itself, but in the fact that what the school imposes often fails to enlist the natural energies that sustain spontaneous learning—curiosity, a desire for competence, aspiration to emulate a model, and a deep-sensed commitment to the web of social reciprocity (the human need to respond to others and to operate jointly with them toward an objective (1966, pp. 125–127).

Bruner (1961b) further distinguishes teaching in the *expository mode* and teaching in the *hypothetical mode:*

> In the former, the decisions concerning the mode and pace and style of exposition are principally determined by the teacher as expositor; the student is the listener. . . . In the hypothetical mode, the teacher and the student are in a more cooperative position. . . . The student is not a bench-bound listener, but takes a part in the formulation and at times may play the principal role in it. (p. 126)

The hypothetical mode leads to students engaging in acts of discovery, a process that Bruner sees as having four benefits: (1) increasing intellectual powers, (2) shifting from extrinsic to intrinsic rewards, (3) learning the heuristics of discovering, and (4) making material more readily accessible in memory. This mode is more congruent with and more likely to nurture the will to learn.

Bruner conveys the operational aspects of discovery teaching by describing it in action in case studies of actual courses. But Postman and Weingartner provide the following list of behaviors observable in teachers using the inquiry method:

- The teacher rarely tells students what he thinks they ought to know. He believes that telling, when used as a basic teaching strategy, deprives students of the excitement of doing their own finding and of the opportunity for increasing their power as learners.
- His basic mode of discourse with students is questioning. While he uses both convergent and divergent questions, he regards the latter as the more important tool. He emphatically does not view questions as a means of seducing students into parroting the text or syllabus; rather, he sees questions as instruments to open engaged minds to unsuspected possibilities.
- Generally, he does not accept a single statement as an answer to a question. In fact, he has a persisting aversion to anyone, any syllabus, any text that offers The Right Answer. Not because answers and solutions are unwelcome—indeed, he is trying to help students be more efficient problem solvers—but because he knows how often The Right Answer serves only to terminate further thought. He knows the power of pluralizing. He does not ask for the reason, but for the reasons. Not for the cause, but the causes. Never the meaning, what are the meanings? He knows, too, the power of contingent thinking. He is the most "It depends" learner in his class.
- He encourages student/student interaction as opposed to student/teacher interaction. And generally he avoids acting as a mediator or judge of the quality of ideas expressed. If each person could have with him at all times a full roster of authorities, perhaps it would not be necessary for individuals to make independent judgments. But so long as this is not possible, the individual must learn to depend on himself as a thinker. The inquiry teacher is interested in students developing their own criteria or standards for judging the quality, precision, and relevance of ideas. He permits such development to occur by minimizing his role as arbiter of what is acceptable and what is not.
- He rarely summarizes the positions taken by students on the learnings that occur. He recognizes that the act of summary, of

"closure," tends to have the effect of ending further thought. Because he regards learning as a process, not a terminal event, his "summaries" are apt to be stated as hypotheses, tendencies, and directions. He assumes that no one ever learns once and for all how to write, or how to read, or what were the causes of the Civil War. Rather, he assumes that one is always in the process of acquiring skills, assimilating new information, formulating or refining generalizations. Thus, he is always cautious about defining the limits of learning, about saying, "This is what you will learn between now and the Christmas holidays," or even (especially), "This is what you will learn in the ninth grade." The only significant terminal behavior he recognizes is death, and he suspects that those who talk of learning as some kind of "terminal point" are either compulsive travelers or have simply not observed children closely enough. Moreover, he recognizes that learning does not occur with the same intensity in any two people, and he regards verbal attempts to disregard this fact as a semantic fiction. If a student has arrived at a particular conclusion, then little is gained by the teacher's restating it. If the student has not arrived at a conclusion, then it is presumptuous and dishonest for the teacher to contend that he has. (Any teacher who tells you precisely what his students learned during any lesson, unit, or semester quite literally does not know what he is talking about.)

- His lessons develop from the responses of students and not from a previously determined "logical" structure. The only kind of lesson plan, or syllabus, that makes sense to him is one that tries to predict, account for, and deal with the authentic responses of learners to a particular problem: the kinds of questions they will ask, the obstacles they will face, their attitudes, the possible solutions they will offer, and soon. Thus, he is rarely frustrated or inconvenienced by "wrong answers," false starts, irrelevant directions. These are the stuff of which his best lessons and opportunities are made. In short, the "content" of his lessons are the responses of his students. Since he is concerned with the processes of thought rather than the end results of thought (The Answer!), he does not feel compelled to "cover ground" (there's the traveler again), or to ensure that his students embrace a particular doctrine, or to exclude a student's idea because it is not

germane. (Not germane to what? Obviously, it is germane to the student's thinking about the problem.) He is engaged in exploring the way students think, not what they should think (before the Christmas holidays). That is why he spends more of his time listening to students than talking to or at them.

- Generally, each of his lessons poses a problem for students. Almost all of his questions, proposed activities, and assignments are aimed at having his students clarify a problem, make observations relevant to the solution of the problem, and make generalizations based on their observations. His goal is to engage students in those activities that produce knowledge: defining, questioning, observing, classifying, generalizing, verifying, applying. As we have said, all knowledge is a result of these activities. Whatever we think we "know" about astronomy, sociology, chemistry, biology, linguistics, and the like was discovered or invented by someone who was more or less an expert in using inductive methods of inquiry. Thus, our inquiry, or "inductive," teacher is largely interested in helping his students to become more proficient as users of these methods. He measures his success in terms of behavioral changes in students: the frequency with which they ask questions; the increase in the relevance and cogency of their question; the frequency and conviction of their challenges to assertions made by other students or teachers or textbooks; the relevance and clarity of the standards on which they base their challenges; their willingness to suspend judgments when they have insufficient data; their willingness to modify or otherwise change their position when data warrant such change; the increase in their tolerance for diverse answers; their ability to apply generalizations, attitudes, and information to novel situations.

These behaviors and attitudes amount to a definition of a different role for the teacher from that which he has traditionally assumed. The inquiry environment, like any other school environment, is a series of human encounters, the nature of which is largely determined by the "teacher." "Teacher" is here placed in quotation marks to call attention to the fact that most of the word's conventional meanings are inimical to inquiry methods. It is not uncommon, for example, to hear "teachers" make statements such as, "Oh,

I taught them that, but they didn't learn it." There is no utterance made in the Teachers' Room more extraordinary than this. From our point of view, it is on the same level as a salesman's remarking, "I sold it to him, but the didn't buy it," which is to say, it makes no sense. It seems to mean that "teaching" is what a "teacher" does, which, in turn, may or may not bear any relationship to what those being "taught" do (Postman and Weingartner, 1969, pp. 34–37).

Suchman (1972) has described vividly the success of the Inquiry Training Project at the University of Illinois in developing inquiry skills in elementary school children. As a result of this experience, he feels confident in the feasibility of "an inquiry-centered curriculum"

> in which the children would find themselves launched into areas of study by first being confronted by concrete problem-focused episodes for which they would attempt to build explanatory systems. Part of their data gathering might well be in the question-asking mode and certainly along the way time would have to be spent in building inquiry skills through critiques and other such procedures. Yet there would also be room for helping the children enlarge their conceptual systems through more teacher-directed means. (p. 158)

Crutchfield (1972) counts four sets of skills involved in productive thinking, his synonym for problem-solving or inquiry learning:

1. Skills of problem discovery and formulation
2. Skills in organizing and processing problem information
3. Skills in idea generation
4. Skills in the evaluation of ideas (pp. 192–195)

The notion that the development of skills of inquiry should be a primary goal of youth education is the cornerstone of the concept of education as a lifelong process. This makes it especially significant that the Governing Board of the UNESCO Institute for Education in Hamburg, Germany, decided in March 1972 to focus on research and experimental projects in an exploratory study, "The Concept of Lifelong Education and Its Implications for School Curriculum."

Teaching Through Modeling

Albert Bandura, at Stanford University, has developed the most elaborate system of thought on imitation, identification, or modeling as concepts of teaching. Labeling the system *social learning*, Bandura regards reinforcement theories of instrumental conditioning, such as Skinner's, as able to account for the control of previously learned matching responses, but unable to account for the way new response patterns are acquired through observation and imitation.

In teaching by modeling, the teacher behaves in ways that he or she wants the learner to imitate. The teacher's basic technique is role modeling. Bandura and Walters (1963) identified three kinds of effects from exposing the learner to a model: (1) a *modeling effect*, whereby the learner acquires new kinds of response patterns; (2) an *inhibitory or disinhibitory effect*, whereby the learner decreases or increases the frequency, latency, or intensity of previously acquired responses; and (3) *an eliciting effect*, whereby the learner merely receives from the model a cue for releasing a response that is neither new nor inhibited. For example, the modeling effect occurs when the teacher himself or herself shows learners how to listen empathically to one another by listening empathically to them. The inhibiting or disinhibiting effect occurs when the teacher lets the learners know, through modeling, that it is or is not approved behavior to express their feelings openly. Thus, the teacher inhibits or disinhibits an old response. The eliciting effect occurs when, through modeling, the teacher teaches the art of giving and receiving feedback by inviting the learners to constructively criticize his or her own performance. Accordingly, the teacher is providing a cue eliciting a response neither new nor inhibited.

Gage (1972) remarks that "learning through imitation seems to be especially appropriate for tasks that have little cognitive structure" (p. 47). This observation seems to be borne out by the fact that social learning has been applied principally to behavioral modification in therapeutic settings to correct deviant or antisocial behavior, but its application to such positive educational purposes as the development of attitudes, beliefs, and performance skills has also been demonstrated (Bandura, 1969, pp. 599–624). No doubt every teacher employs modeling as one of many techniques, whether consciously or unconsciously. The teacher's potency as a model will be influenced

by such characteristics as age, sex, socioeconomic status, social power, ethnic background, and intellectual and vocational status.

Although social learning has been employed chiefly to achieve behavioral changes through external management of reinforcement contingencies, in recent years there has been a growing interest in self-control processes in which individuals regulate their own behavior by arranging appropriate contingencies for themselves. These self-directed endeavors comprise a variety of strategies, about which Bandura (1969) makes the following observations.

> The selection of well-defined objectives, both intermediate and ultimate, is an essential aspect of any self-directed program of change. The goals that individuals choose for themselves must be specified in sufficiently detailed behavioral terms to provide adequate guidance for the actions that must be taken daily to attain desired outcomes.
>
> To further increase goal commitment, participants are asked to make contractual agreements to practice self-controlling behaviors in their daily activities. . . . Under conditions where individuals voluntarily commit themselves to given courses of action, subsequent tendencies to deviate are likely to be counteracted by negative self-evaluations. Through this mechanism, and anticipated social reactions of others, contractual commitments reinforce adherence to corrective practices.
>
> Satisfactions derived from evident changes help to sustain successful endeavors, therefore, utilized objective records of behavioral changes as an additional source of reinforcement for their self-controlling behavior. . . .
>
> Since behavior is extensively under external stimulus control, persons can regulate the frequency with which they engage in certain activities by altering stimulus conditions under which the behavior customarily occurs. Overeating, for example, will arise more often when appetizing foods are prominently displayed in frequented places in the household than if they are stored out of sight and made less accessible. . . .
>
> Behavior that provides immediate positive reinforcement, such as eating, smoking, and drinking, tends to be performed in diverse situations and at varied times. Therefore, another important

aspect of self-managed change involves progressive narrowing of stimulus control over behavior. Continuing with the obesity illustration, individuals are encouraged gradually to delimit the circumstances under which they eat until eventually their eating behavior is brought under control of a specific set of stimulus conditions. This outcome is achieved by having the clients commit themselves to a graduated program in which they refrain from eating in non-dining settings, between regular mealtimes, and while engaging in other activities such as watching television, reading, or listening to the radio. . . .

The foregoing procedures are primarily aimed at instituting self-controlling behavior, but unless positive consequences are also arranged the well-intentioned practices are likely to be short-lived. . . . Self-control measures usually produce immediate unpleasant effects while the personal benefits are considerably delayed. Self-reinforcing operations are, therefore, employed to provide immediate support for self-controlling behavior until the benefits that eventually accrue take over the reinforcing function.

As a final feature of self-directed change programs, increases in desired behavior and reductions in undesired behavior are attempted gradually. In this way the incidence of experienced discomforts is kept low, and steady progress toward the eventual goal can be achieved. (pp. 254–257)

Perspective Transformation/Critical Reflectivity

A recent new thrust in theorizing about the purpose of teaching/learning is the notion that it is not sufficient for adult education programs to satisfy the identified learning needs of individuals, organizations, and society. Rather, they should seek to help adult learners transform their very way of thinking about themselves and their world—what Mezirow (1991) calls "perspective transformation." Brookfield (1986) proposes that this can be achieved through the development of competence in "critical reflectivity." He states his case in these words:

> It will be the case, then, that the most significant personal learning adults undertake cannot be specified in advance in terms of objectives to be obtained or behaviors (of whatever kind) to be performed. Thus, significant personal learning might be defined as that learning in which adults come to reflect on their self-images, change their self-concepts, question their previously internalized norms (behavioral and moral), and reinterpret their current and past behaviors from a new perspective. . . .
>
> Significant personal learning entails fundamental change in learners and leads them to redefine and reinterpret their personal, social, and occupational world. In the process, adults may come to explore affective, cognitive, and psychomotor domains that they previously had not perceived as relevant to themselves. (pp. 213–214)

Brookfield (1986) points out that the addition of this "analytic component" to the role of the facilitator of learning requires that the facilitators and practitioners prompt learners to consider alternative perspectives on their personal political, work, and social lives. Hence, effective facilitation means that learners will be challenged to examine their previously held values, beliefs, and behaviors and will be confronted with ones that they may not want to consider. Such challenges and confrontations need not be done in an adversarial, combative, or threatening manner; indeed, the most effective facilitator is one who can encourage adults to consider rationally and carefully perspectives and interpretations of the world that diverge from those they already hold, without making these adults feel they are being cajoled or threatened. This experience may produce anxiety, but such anxiety should be accepted as a normal component of learning and not something to be avoided at all costs for fear that learners will leave the group. There are forms of fulfillment that are quite unlike those produced by a wholly joyful encounter with a new form of knowledge or a new skill area. It is this dimension of increased insight through critical reflection on current assumptions and past beliefs and behaviors that is sometimes ignored in treatments of adult learning (pp. 285-286).

CHANGE THEORY

Another system of thought that has great implications for educational practice has to do with influencing the educative quality of total environments. Concepts and strategies in this system are drawn from field theory, systems theory, organizational development and consultation theories, and ecological psychology.

The systems theorists have provided conceptual frameworks for analyzing organizations of all types as complex social systems with interacting subsystems (Cleland, 1969; Kast and Rosenzweig, 1970; Knowles, 1980; Parsons, 1951; Seiler, 1967; Von Bertalanffy, 1968; Zadeh, 1969). Knowles (1980, pp. 66–80) presents an interpretation of some of the applications of their work for human resources development in one of his earlier works:

> One of the misconceptions in our cultural heritage is the notion that organizations exist purely to get things done. This is only one of their purposes; it is their work purpose. But every organization is also a social system that serves as an instrumentality for helping people meet human needs and achieve human goals. In fact, this is the primary purpose for which people take part in organizations—to meet their needs and achieve their goals—and when an organization does not serve this purpose for them they tend to withdraw from it. So organizations also have a human purpose.
>
> Adult education is a means available to organizations for furthering both purposes. Their work purpose is furthered to the extent that they use adult education to develop the competencies of their personnel to do the work required to accomplish the goals of the organizations. Their human purpose is furthered to the extent that they use adult education to help their personnel develop the competencies that will enable them to work up the ladder of Maslow's hierarchy of needs for survival through safety, affection, and esteem to self-actualization.
>
> As if by some law of reciprocity, therefore, organization provides an environment for adult education. In the spirit of Marshall McLuhan's *The Medium Is the Message*, the quality of learning that takes place in an organization is affected by the kind of organization it is. This is to say that an organization is

not simply an instrumentality for providing organized learning activities to adults; it also provides an environment that either facilitates or inhibits learning.

For example, if a young executive is being taught in his corporations' management-development program to involve his subordinates in decision making within his department, but his own superiors never involve him in making decisions, which management practice is he likely to adopt? Or if an adult church member is being taught to "love thy neighbor," but the total church life is characterized by discrimination, jealousy, and intolerance, which value is more likely to be learned? Or if an adult student in a course on "The Meaning of Democratic Behavior" is taught that the clearest point of differentiation between democracy and other forms of government is the citizen's sharing in the process of public policy formulation, but the teacher has never given him a chance to share responsibility for conducting the course and the institution has never asked his advice on what courses should be offered, what is he likely to learn about the meaning of democracy?

No educational institution teaches just through its courses, workshops, and institutes; no corporation teaches just through its in-service education programs; and no voluntary organization teaches just through its meetings and study groups. They all teach by everything they do, and often they teach opposite lessons in their organizational operation from what they teach in their educational program.

This line of reasoning has led modern adult-education theorists to place increasing emphasis on the importance of building an educative environment in all institutions and organizations that undertake to help people learn. What are the characteristics of an educative environment? They are essentially the manifestations of the conditions of learning listed at the end of the last chapter. But they can probably be boiled down to four basic characteristics: 1) respect for personality, 2) participation in decision making, 3) freedom of expression and availability of information, and 4) mutuality of responsibility in defining goals, planning and conducting activities, and evaluating.

In effect, an educative environment—at least in a democratic culture—is one that exemplifies democratic values, that practices a democratic philosophy.

A democratic philosophy is characterized by a concern for the development of persons, a deep conviction as to the worth of every individual, and faith that people will make the right decisions for themselves if given the necessary information and support. It gives precedence to the growth of people over the accomplishment of things when these two values are in conflict. It emphasizes the release of human potential over the control of human behavior. In a truly democratic organization there is a spirit of mutual trust, an openness of communications, a general attitude of helpfulness and cooperation, and a willingness to accept responsibility, in contrast to paternalism, regimentation, restriction of information, suspicion, and enforced dependency on authority.

When applied to the organization of adult education, a democratic philosophy means that the learning activities will be based on the real needs and interests of the participants; that the policies will be determined by a group that is a representative of all participants; and that there will be a maximum of participation by all members of the organization in sharing responsibility for making and carrying out decisions. The intimate relationship between democratic philosophy and adult education is eloquently expressed in these words of Eduard Lindeman:

> One of the chief distinctions between conventional and adult education is to be found in the learning process itself. None but the humble become good teachers of adults. In an adult class the student's experience counts for as much as the teacher's knowledge. Both are exchangeable at par. Indeed, in some of the best adult classes it is sometimes difficult to discover who is learning most, the teacher or the students. This two-way learning is also reflected in the management of adult-education enterprises. Shared learning is duplicated by shared authority. In conventional education the pupils adapt themselves to the curriculum offered, but in adult education the pupils aid in formulating the curricula. . . . Under democratic conditions authority is of the

> group. This is not an easy lesson to learn, but until it is learned democracy cannot succeed. (Gessner, 1956, p. 166)
>
> I have a suspicion that for an organization to foster adult learning to the fullest possible degree it must go even farther than merely practicing a democratic philosophy, that it will really stimulate individual self-renewal to the extent that it consciously engages in continuous self-renewal for itself. Just as a teacher's most potent tool is the example of his own behavior, so I believe an organization's most effective instrument of influence is its own behavior.
>
> This proposition is based on the premise that an organization tends to serve as a role model for those it influences. So if its purpose is to encourage its personnel, members, or constituents to engage in a process of continuous change and growth, it is likely to succeed to the extent that it models the role of organizational change and growth. This proposition suggests, therefore, that an organization must be innovative as well as democratic if it is to provide an environment conducive to learning. Table 5-4 provides some illustrative characteristics that seem to distinguish innovative from static organizations, as I interpret the insights from recent research on this fascinating subject. The right-hand column might well serve as a beginning checklist of desirable organizational goals in the dimensions of structure, atmosphere, management philosophy, decision making, and communication. (pp. 66–68)

An increasing number of systems theory applicators are developing sophisticated procedures and tools to assess organizational health, diagnose needs for change, feed data back into the system for continued renewal, and use the data for precision in planning (Baughart, 1969; Bushnell and Rappaport, 1972; Davis, 1966; Handy and Hussain, 1968; Hare, 1967; Hartley, 1968; Kaufman, 1972; Rudwick, 1969; Schuttenberg, 1972).

The change theorists, building largely on the field-theoretical concepts of Kurt Lewin, have been concerned with the planning of change, the choice and use of strategies of change, organizational development, the role of the consultant and change agent, management of conflict, intervention theory, resistance to change, human relations training and the ethics of change agentry (Argyris, 1962, 1970; Bennis, 1966; Bennis, Benne, and Chin, 1968; Blake and

Table 5-4
Some Characteristics of Static Versus Innovative Organizations

DIMENSIONS	CHARACTERISTICS	
	Static Organizations	**Innovative Organizations**
Structure	Rigid—much energy given to maintaining permanent departments, committees; reverence for tradition, constitution and by-laws.	Flexible—much use of temporary task forces; easy shifting of departmental lines; readiness to change constitution; depart from tradition.
	Hierarchical—adherence to chain of command.	Multiple linkages based on functional collaboration.
	Roles defined narrowly.	Roles defined broadly.
	Property-bound.	Property-mobile.
Atmosphere	Task-centered, impersonal.	People-centered, caring.
	Cold, formal, reserved.	Warm, informal, intimate.
	Suspicious.	Trusting.
Management	Function of management is to control personnel through coercive power.	Function of management is to release the energy of personnel; power is used supportively.
Philosophy and Attitudes	Cautious—low risk-taking.	Experimental—high risk-taking.
	Attitude toward errors: to be avoided.	Attitude toward errors: to be learned from.
	Emphasis on personnel selection.	Emphasis on personnel development.
	Self-sufficiency—closed system regarding sharing resources.	Interdependency—open system regarding sharing resources.
	Emphasis on conserving resources.	Emphasis on developing and using resources.
	Low tolerance for ambiguity.	High tolerance for ambiguity.
Decision making and Policy making	High participation at top, low at bottom.	Relevant participation by all those affected.
	Clear distinction between policy making and policy execution.	Collaborative policy making and policy execution.

(table continued on next page)

Table 5-4 Continued

DIMENSIONS	CHARACTERISTICS	
	Static Organizations	**Innovative Organizations**
	Decision making by legal mechanisms.	Decision making by problem solving.
	Decisions treated as final.	Decisions treated as hypotheses to be tested.
Communication	Flow restricted.	Open flow—easy access.
	One-way—downward.	Multidirectional—up, down, sideways.
	Feelings repressed or hidden.	Feelings expressed.

Mouton, 1964; Eiben and Milliren, 1976; Greiner, 1971; Lewin, 1951; Lippitt, 1969; Schein, 1969; Watson, 1967; Zurcher, 1977).

SUMMARY

Theories of learning differ from theories of teaching. Various researchers have studied the topics of learning and teaching theories and the teaching/learning interaction. Consequently, a variety of theories exist about the nature of teaching and the teacher's role. Gage recognizes the distinction between the two theoretical frameworks, and asserts that learning theories address methods of learning, whereas teaching theories address the methods employed to influence learning. Understandably, there is a strong correlation between learning and teaching theories: the learning theory(ies) adopted by the teacher affect the teaching theory(ies) employed. Both learning theories and teaching theories have played a prominent role in the research efforts, providing both principles of teaching and teaching concepts.

Hilgard's contribution is the identification of a schema of 20 learning principles from stimulus-response, cognitive, and motivation and personality theories. He used prominent theorists with similar notions about the roles of teachers to validate his premise. These

included Thorndike, Guthrie, Skinner, Hull, Tolman, and Gagne, each an important contributor to the field.

Other theorists, including Rogers and Maslow, have focused on studies of adults in their research efforts. Their findings differ vastly from researchers who focused on animals and children. For instance, Rogers emphasizes the concepts of environment and facilitation in his explication of teaching—a sentiment with which Maslow would undoubtedly agree. The only exception is that Maslow would place an even greater emphasis on the teacher's responsibility for providing safety. Watson, Houle, and Tough have also provided insight in this area of study.

Of the concepts derived from theories of teaching, Dewey's are perhaps the most influential. His work resulted in the development of a system established on the concepts of experience, democracy, continuity, and interaction. It is Dewey's conceptualization of scientific thinking, in conjunction with those of cognitive theorists, that spawned the discovery or inquiry method. Other contributors in this area include Bruner, Suchman, and Crutchfield.

Identification or modeling as concepts of teaching, the most elaborate system of thought or imitation, was developed by Bandura. In this system, role modeling is the teacher's fundamental technique. Gage, analyzing the usefulness of the technique, states, "learning through imitation seems to be especially appropriate for tasks that have little cognitive structure."

Continued research efforts have resulted in new systems of thought. The value of teaching/learning as a tool to invoke critical thinking on the part of adults is an emerging concept: Mezirow calls this perspective transformation, and Brookfield calls it critical reflectivity. Another system of thought, drawing from field theory, systems theory, organizational development and consultation theories and ecological psychology, encompasses the ramifications of influencing the educative quality of total environments.

REFLECTION QUESTIONS

5.1 What is the wisdom behind Hilgard's 20 principles of teaching?

5.2 What ideas from Guthrie and Skinner (both behaviorists) make the most sense to you and why?

5.3 Using Robert Gagne's types of learning (Table 5-2), classify your own learning when reading this chapter versus applying what your learned when instructing.

5.4 Summarize Carl Rogers's view of the teacher/learner relationship.

5.5 Summarized John Dewey's contribution to understanding the learning process.

5.6 How do you see teaching through inquiry and teaching through modeling as being useful?

5.7 Describe a transformational learning experience that you or someone you know has gone through.