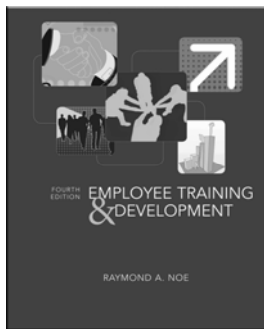


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Learning:
Theories and
Program Design

McGraw-Hill/Preise

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Introduction (1 of 2)

- Conditions necessary for learning to occur:
 - opportunities for trainees to practice and receive feedback
 - meaningful training content
 - prerequisites trainees need to successfully complete the program
 - allowing trainees to learn through observation and experience.

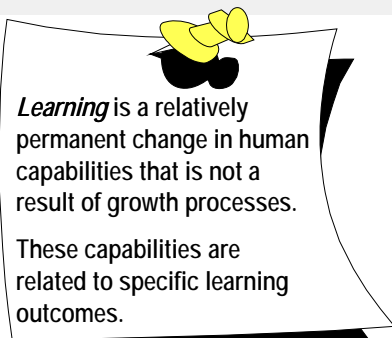
4-2

Introduction (2 of 2)

- For learning to occur it is important to identify *what is to be learned*
 - i.e., to identify learning outcomes
- Understanding *learning outcomes* is crucial
 - they influence characteristics of the training environment necessary for learning to occur
- The design of the training program is also important for learning to occur

4-3

What Is Learning?



Learning is a relatively permanent change in human capabilities that is not a result of growth processes.

These capabilities are related to specific learning outcomes.

4-4

Learning Outcomes (1 of 3)

- ☑ **Verbal information**
 - includes names or labels, facts, and bodies of knowledge
 - includes specialized knowledge employees need in their jobs
- ☑ **Intellectual skills**
 - include concepts and rules
 - critical to solve problems, serve customers, and create products

4-5

Learning Outcomes (2 of 3)

- ☑ **Motor skills**
 - include coordination of physical movements
- ☑ **Attitudes**
 - combination of beliefs and feeling that predispose a person to behave a certain way
 - important work-related attitudes include job satisfaction, commitment to the organization, and job involvement

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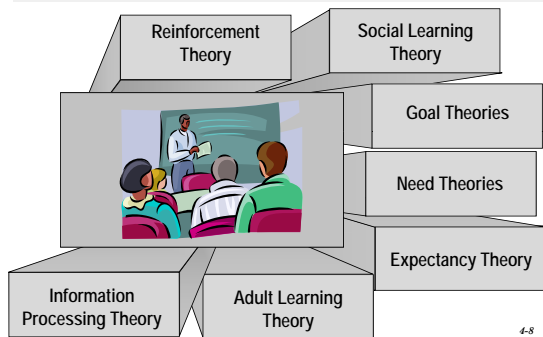
Learning Outcomes (3 of 3)

■ **Cognitive strategies**

- regulate the process of learning
- they relate to the learner's decision regarding:
 - what information to attend to (i.e., pay attention to)
 - how to remember
 - how to solve problems

4-7

Learning Theories



4-8

Reinforcement Theory (1 of 2)

- Emphasizes that people are motivated to perform or avoid certain behaviors because of past outcomes that have resulted from those behaviors
 - positive reinforcement
 - negative reinforcement
 - extinction
 - punishment

4-9

Reinforcement Theory (2 of 2)

- ☑ From a training perspective, it suggests that the trainer needs to identify what outcomes the learner finds most positive (and negative) for learners to:
 - acquire knowledge
 - change behavior
 - modify skills
- ☑ Trainers then need to link these outcomes to learners acquiring knowledge, skills, or changing behaviors

4-10

Schedules of Reinforcement

TABLE 4.2 Schedules of Reinforcement

Type of Schedule	Description	Effectiveness
Ratio Schedules		
Fixed-Ratio Schedule	Reinforcement whenever target behavior has taken place a given number of times	Rapid learning; frequent instances of target behavior; rapid extinction
Continuous Reinforcement	Reinforcement after each occurrence of target behavior	Same direction of behavior as with fixed-ratio schedules but more extreme
Variable-Ratio Schedule	Reinforcement after several occurrences of target behavior; number of occurrences before reinforcement may differ each time	Target behavior less susceptible to extinction than with fixed-ratio schedules
Interval Schedules		
Fixed-Interval Schedule	Reinforcement at a given time interval after performance of target behavior	Lower performance of target behavior than with ratio schedules; lower effectiveness if time interval is long
Variable-Interval Schedule	Reinforcement occurring periodically after performance of target behavior; time intervals may differ each time	Target behavior less susceptible to extinction than with fixed-interval schedules; lower performance of target behavior than with ratio schedules

Source: P. Wright and R. A. Yon, *Management of Organizations* (Irrwin Ridge, IL: Irwin/McGraw-Hill, 1995).

4-11

Social Learning Theory (1 of 3)

- ☑ Emphasizes that people learn by observing other persons (models) whom they believe are credible and knowledgeable
- ☑ Recognizes that behavior that is reinforced or rewarded tends to be repeated
- ☑ The models' behavior or skill that is rewarded is adopted by the observer

4-12

Social Learning Theory (2 of 3)

- ☑ Learning new skills or behavior comes from:
 - directly experiencing the consequences of using behavior or skills, or
 - the process of observing others and seeing the consequences of their behavior
- ☑ Learning is also influenced by a person's **self-efficacy**
 - **self-efficacy** – a person's judgment about whether he or she can successfully learn knowledge and skills

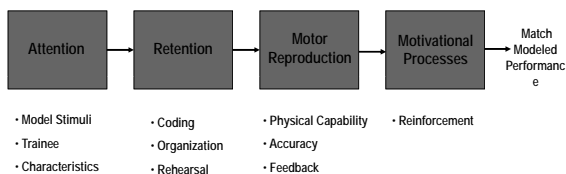
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Social Learning Theory (3 of 3)

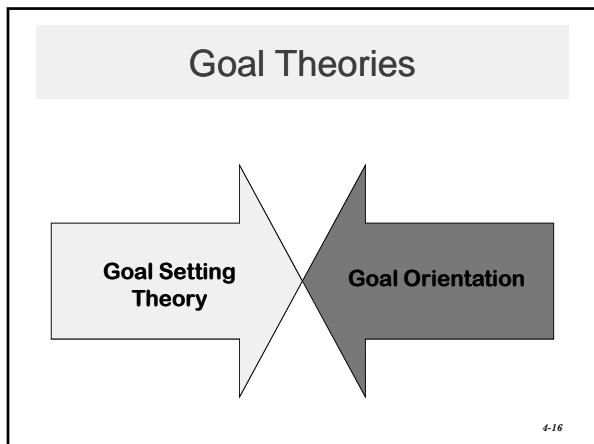
- ☑ Self-efficacy can be increased using:
 - **verbal persuasion** – offering words of encouragement to convince others they can learn
 - **logical verification** – perceiving a relationship between a new task and a task already mastered
 - **observation of others (modeling)** – having employees who already have mastered the learning outcomes demonstrate them for trainees
 - **past accomplishments** – allowing employees to build a history of successful accomplishments

4-14

Processes of Social Learning Theory



4-15



Goal Setting Theory (1 of 3)

- ❑ Assumes behavior results from a person's conscious goals and intentions

- ❑ Goals influence behavior by:
 - directing energy and attention
 - sustaining effort over time
 - motivating the person to develop strategies for goal attainment

4-17

Goal Setting Theory (2 of 3)

- ❑ Specific challenging goals result in better performance than vague, unchallenging goals

- ❑ Goals lead to high performance only if people are committed to the goal

- ❑ Employees are less likely to be committed to a goal if they believe it is too difficult

4-18

Goal Setting Theory (3 of 3)

- ☑ Goal setting theory is used in training program design
- ☑ It suggests that learning can be facilitated by providing trainees with specific challenging goals and objectives
- ☑ The influence of goal setting theory can be seen in the development of training lesson plans

4-19

Goal Orientation (1 of 3)

- ☑ Refers to the goals held by a trainee in a learning situation
 - **learning orientation** – relates to trying to increase ability or competence in a task
 - **performance orientation** – refers to a focus of learners on task performance and how they compare to others

4-20

Goal Orientation (2 of 3)

- ☑ It affects the amount of effort a trainee will expend in learning (motivation to learn)
- ☑ Learners with a **high learning orientation**:
 - direct greater attention to the task
 - learn for the sake of learning

4-21

Goal Orientation (3 of 3)

- ❑ Learners with a **high performance orientation**:
 - direct more attention to performing well
 - devote less effort to learning

- ❑ Trainees with a learning orientation:
 - exert greater effort to learn and use more complex learning strategies than trainees with a performance orientation

4-22

Need Theories

- ❑ Help explain the value that a person places on certain outcomes
 - **need – a deficiency that a person is experiencing at any point in time.**
- ❑ Suggest that to motivate learning:
 - trainers should identify trainees' needs, and
 - communicate how training program content relates to fulfilling these needs

- ❑ If the basic needs of trainees are not met, they are unlikely to be motivated to learn

4-23

Expectancy Theory (1 of 2)

- ❑ Suggests that a person's behavior is based on three factors:
 - expectancy
 - instrumentality
 - valance

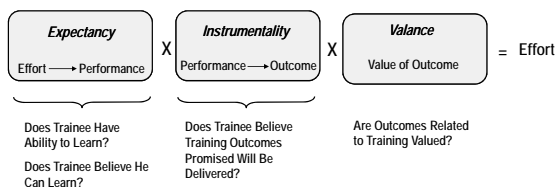
4-24

Expectancy Theory (2 of 2)

- Suggests that learning is most likely to occur when employees believe:
 - they can learn the content of the program (expectancy)
 - learning is linked to outcomes such as better job performance, a salary increase, or peer recognition (instrumentality)
 - employees value these outcomes

4-25

Expectancy Theory of Motivation



4-26

Adult Learning Theory

- It is based on several assumptions:
 - adults have the need to know why they are learning something
 - adults have a need to be self-directed
 - adults bring more work-related experiences into the learning situation
 - adults enter into a learning experience with a problem-centered approach to learning
 - adults are motivated to learn by both extrinsic and intrinsic motivators

4-27

Implications of Adult Learning Theory for Training

<i>Design Issue</i>	<i>Implications</i>
Self – concept	Mutual planning and collaboration in instruction
Experience	Use learner experience as basis for examples and applications
Readiness	Develop instruction based on learner's interests and competencies
Time perspective	Immediate application of content
Orientation to learning	Problem – centered instead of subject – centered

4-28

Information Processing Theory (1 of 3)

- ☑ Give more emphasis to the internal processes that occur when training content is learned and retained

- ☑ Highlights how external events influence learning

4-29

Information Processing Theory (2 of 3)

- ☑ It highlights how external events influence learning, which include:
 - changes in the intensity or frequency of the stimulus that affect attention
 - informing the learner of the objectives to establish an expectation
 - enhancing perceptual features of the material (stimulus), drawing the attention of the learner to certain features

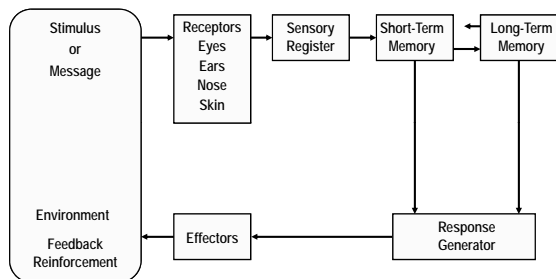
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Information Processing Theory (3 of 3)

- verbal instructions, pictures, diagrams, and maps suggesting ways to code the training content so that it can be stored in memory
- meaningful learning context (examples, problems) creating cues that facilitate coding
- demonstration or verbal instructions helping to organize the learner's response as well as facilitating the selection of the correct response

4-31

A Model of Human Information Processing



4-32

The Learning Process

This material asks three questions:

1. What are the physical and mental processes involved in learning?
2. How does learning occur?
3. Do trainees have different learning styles?

4-33

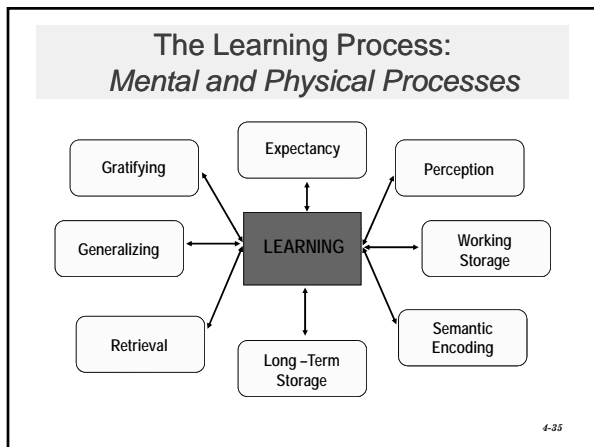
Relationship Among Learning Processes, Instructional Events, and Forms of Instruction

FIGURE 4.4 The Relationship among Learning Processes, Instructional Events, and Forms of Instruction

Processes of Learning	External Instructional Events	Forms of Instruction
1. Expectancy	1. Informing the learner of the lesson objective	1a. Specify in the modelled performance 1b. Indicate the level of verbal question to be answered
2. Perception	2. Presenting stimuli with distinctive features	2a. Emphasize the features of the subject to be learned 2b. Use handouts and figures or text to emphasize features 3a. Check lengthier material 3b. Provide a visual image of material to be learned
3. Working Storage	3. Limiting the amount to be learned	3c. Provide practice and monitoring to aid the attainment of automaticity 4a. Provide verbal cues to prepare combining material 4b. Provide verbal links to a larger meaningful context 4c. Use diagrams and models to show relationships among concepts
4. Semantic Encoding	4. Providing learning guidance	4d. Vary the context and setting for presentation and recall of material 5a. Relate newly learned material to previously learned information 5c. Provide a variety of contexts and situations during practice
5. Long-Term Storage	5. Elaborating the amount to be learned	5a. Suggest cues that elicit the recall of material 5b. Use familiar sounds or themes as cues 6a. Design the learning situation to share elements with the situation at age 6b. Provide verbal links to additional complexes of information
6. Retrieval	6. Providing cues that are used in recall	6a. Provide feedback on degree of accuracy and timing of performance 6b. Confirm whether original expectancies were met
7. Generalizing	7. Enhancing retention and learning transfer	
8. Quilting	8. Providing feedback about performance correctness	

Source: R. Gagne, "Learning Processes and Instruction," *Handing Beyond Behavior* (1967), 21-39.

4-34



The Learning Process: Learning Styles

TABLE 4.4 Learning Styles

Learning Style Type	Dominant Learning Abilities	Learning Characteristics
Diverger	<ul style="list-style-type: none">Concrete experienceReflective observation	<ul style="list-style-type: none">Is good at generating ideas, seeing a situation from multiple perspectives, and being aware of meaning and valueTends to be interested in people, culture, and the arts
Assimilator	<ul style="list-style-type: none">Abstract conceptualizationReflective observation	<ul style="list-style-type: none">Is good at inductive reasoning, creating theoretical models, and combining disparate observations into an integrated explanationTends to be less concerned with people than with ideas and abstract concepts
Converger	<ul style="list-style-type: none">Abstract conceptualizationActive experimentation	<ul style="list-style-type: none">Is good at devising practical applications of ideas, and hypothetical deductive reasoningPrefers dealing with technical tasks rather than interpersonal issues
Accommodator	<ul style="list-style-type: none">Concrete experienceActive experimentation	<ul style="list-style-type: none">Is good at implementing decisions, carrying out plans, and getting involved in new experiencesTends to be at ease with people but may be seen as impatient or pushy

Source: Based on D. Kolb, *Learning Styles Inventory*, Version 2 (Boston, MA: Bay View/McGraw-Hill Learning Group, 1995).

4-36

Age Influences on Learning (1 of 2)

- ☑ There is biological evidence that certain mental capacities decrease from age 20 to age 70
- ☑ Some trainers believe that there are four generations of employees with distinct attitudes toward work and preferred ways to learn:
 - millennials (or nexters)

4-37

Age Influences on Learning (2 of 2)

- gen Xers
- baby boomers
- traditionalists
- ☑ Trainers should consider generational differences in designing learning environments but keep in mind that definite conclusions regarding generational differences cannot be made

4-38

Implications of the Learning Process for Instruction: (1 of 2)

- ☑ Employees need to know why they should learn
- ☑ Employees need meaningful training content
- ☑ Employees need opportunities to practice
- ☑ Employees need to commit training content to memory
- ☑ Employees need feedback

4-39

Implications of the Learning Process for Instruction: (2 of 2)

- ☑ Employees learn through:
 - observation
 - experience
 - interacting with others
- ☑ Employees need the training program to be properly coordinated and arranged

4-10

Training Objectives

- ☑ Employees learn best when they understand the objective of the training program
- ☑ The **objective** refers to the purpose and expected outcome of training activities
- ☑ Training objectives based on the training needs analysis help employees understand why they need the training
- ☑ Objectives are useful for identifying the types of training outcomes that should be measured to evaluate a training program's effectiveness

4-11

A training objective has three components:

1. A statement of what the employee is expected to do (performance or outcome)
2. A statement of the quality or level of performance that is acceptable (criterion)
3. A statement of the conditions under which the trainee is expected to perform the desired outcome (conditions)

4-12

Training Administration Involves:

(1 of 2)

- ☑ Communicating courses and programs to employees
- ☑ Enrolling employees in courses and programs
- ☑ Preparing and processing any pre-training materials such as readings or tests
- ☑ Preparing materials that will be used in instruction
- ☑ Arranging for the training facility and room
- ☑ Testing equipment that will be used in instruction

4-43

Training Administration Involves:

(2 of 2)

- ☑ Having backup equipment should equipment fail
- ☑ Providing support during instruction
- ☑ Distributing evaluation materials
- ☑ Facilitating communications between trainer and trainees during and after training
- ☑ Recording course completion in the trainees' records or personnel files

4-44

Internal and External Conditions Necessary for Learning Outcomes (1 of 2)

Learning Outcome	Internal Conditions	External Conditions
Verbal Information (Labels, facts, and propositions)	Previously learned knowledge and verbal information Strategies for coding information into memory	Repeated practice Meaningful chunks Advance organizers Recall cues
Intellectual Skills (Knowing how)		Link between new and previously learned knowledge
Cognitive Strategies (Process of thinking and learning)	Recall of prerequisites, similar tasks, and strategies	Verbal description of strategy Strategy demonstration Practice with feedback Variety of tasks that provide opportunity to apply strategy

4-45

Internal and External Conditions Necessary for Learning Outcomes (2 of 2)

<i>Learning Outcome</i>	<i>Internal Conditions</i>	<i>External Conditions</i>
Attitudes (Choice of personal action)	Mastery of prerequisites Identification with model Cognitive dissonance	Demonstration by a model Positive learning environment Strong message from credible source Reinforcement
Motor Skills (Muscular actions)	Recall of part skills Coordination program	Practice Demonstration Gradual decrease of external feedback

4-16

- ### Considerations in Designing Effective Training Programs:
- ☑ Selecting and preparing the training site
 - ☑ Selecting trainers
 - ☑ Making the training site and instruction conducive to learning
 - ☑ Program design
- 4-17

