



EMPLOYEE TRAINING *and* DEVELOPMENT

Learning and Transfer of Training

Chapter 4



6th Edition
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Objectives

- Discuss the five types of learner outcomes
- Explain the implications of learning theory for instructional design
- Incorporate adult learning theory into the design of a training program
- Describe how learners receive, process, store, retrieve, and act upon information

Objectives

- Discuss the internal conditions (within the learner) and external conditions (learning environment) necessary for the trainee to learn each type of capability
- Discuss the implications of open and closed skills and near and far transfer for designing training programs
- Explain the features of instruction and the work environment that are necessary for learning and transfer of training

Introduction

- Certain conditions must be present for learning to occur:
 - Provide opportunities for trainees to practice and receive feedback
 - Offer meaningful training content
 - Identify any prerequisites that trainees need to complete the program successfully
 - Allow trainees to learn through observation and experience and ensure that the work environment supports use of skills

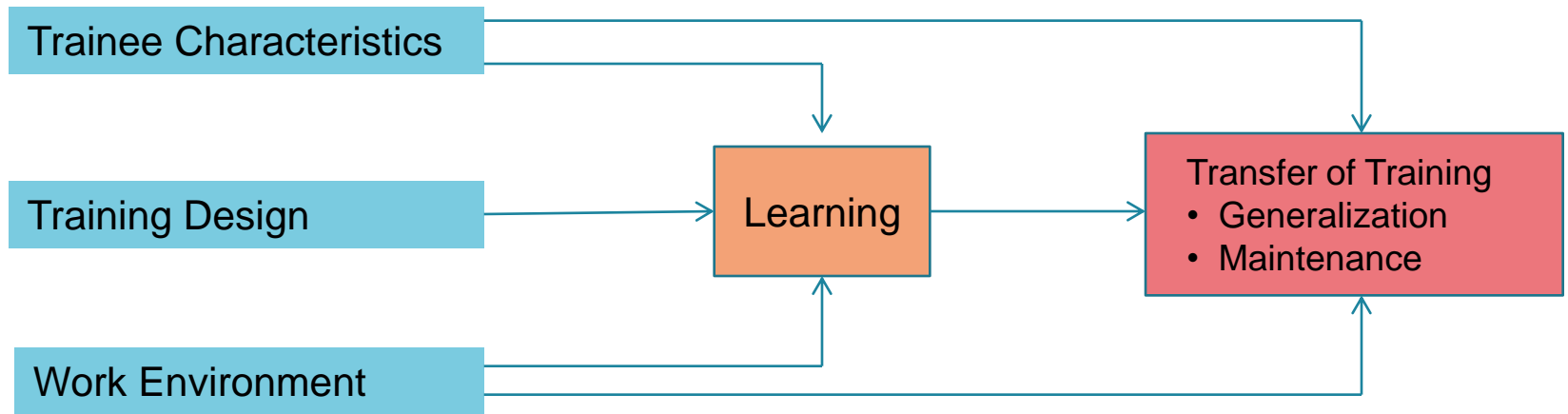
Introduction

- **Transfer of training:** Trainees effectively and continually applying what they have learned in training to their jobs
- **Generalization:** Trainee's ability to apply what they learned to on-the job work problems
- **Maintenance:** Process of trainees continuing to use what they learned over time

Table 4.1 – Learning Outcomes

Type of Learning Outcome	Description of Capability	Example
Verbal information	State, tell, or describe previously stored information.	State three reasons for following company safety procedures.
Intellectual skills	Apply generalizable concepts and rules to solve problems and generate novel products.	Design and code a computer program that meets customer requirements.
Motor skills	Execute a physical action with precision and timing.	Shoot a gun and consistently hit a small moving target.
Attitudes	Choose a personal course of action.	Choose to respond to all incoming mail within 24 hours.
Cognitive strategies	Manage one's own thinking and learning processes.	Use three different strategies selectively to diagnose engine malfunctions.

Figure 4.1 A Model of Learning and Transfer of Training



Learning Theories

Reinforcement
Theory

Social Learning
Theory

Goal Theories

Need Theories

Expectancy
Theory

Adult Learning
Theory

Information
Processing
Theory

Reinforcement Theory

- Emphasizes that people are motivated to perform or avoid certain behaviors because of past outcomes that have resulted from those behaviors
 - Processes in reinforcement theory
 - Positive reinforcement
 - Negative reinforcement
 - Extinction
 - Punishment
- The trainer needs to identify what outcomes the learner finds most positive and negative

Reinforcement Theory

- Trainers then need to link these outcomes to learners acquiring knowledge, skills, or changing behaviours
- Trainers can withhold or provide job-related, personal, and career-related benefits to learners who master program content
- Behavior modification is a training method that is primarily based on reinforcement theory
 - Employees were encouraged to increase the number of safe behaviors they demonstrated on the job

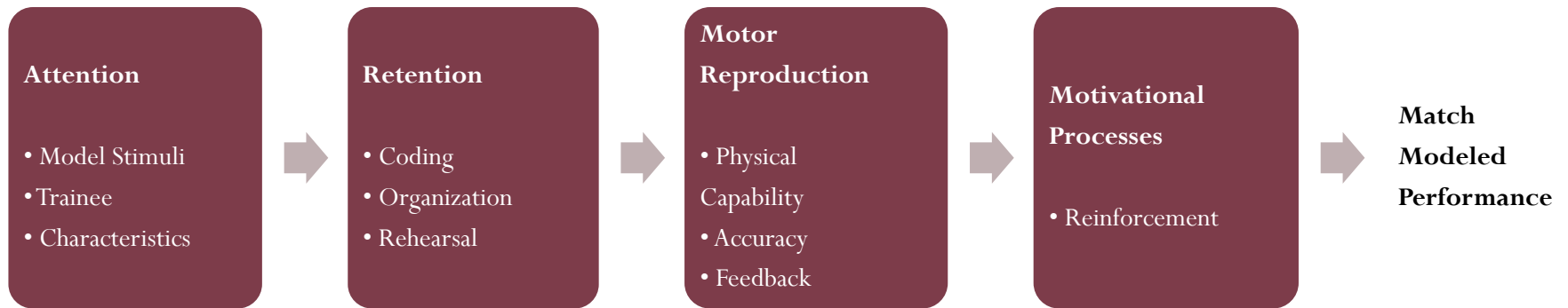
Social Learning Theory

- Emphasizes that people learn by observing other persons (models) whom they believe are credible and knowledgeable
- The theory recognizes that behavior that is reinforced or rewarded tends to be repeated
- Learning new skills or behavior comes from:
 - Directly experiencing the consequences of using a behavior or skill
 - The process of observing others and seeing the consequences of their behavior

Social Learning Theory

- Person's self-efficacy can be increased using several methods
 - Verbal persuasion
 - Logical verification
 - Observation of others (modeling)
 - Past accomplishments

Figure 4.2 - Processes of Social Learning Theory



Goal Theories

- **Goal setting theory:** Assumes that behavior results from a person's conscious goals and intentions
- Goals influence a person's behavior by:
 - Directing energy and attention
 - Sustaining effort over time
 - Motivating the person to develop strategies for goal attainment

Goal Theories

- Goal setting theory
 - It 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

Goal Theories

- **Goal orientation:** Goals held by a trainee in a learning situation
 - Includes learning and performance orientation
 - **Learning orientation:** Trying to increase ability or competence in a task
 - **Performance orientation:** Learners who focus on task performance and how they compare to others

Goal Theories

- Goal orientation
 - It affects the amount of effort a trainee will expend in learning (motivation to learn)
 - Learners with a high learning orientation will direct greater attention to the task and learn for the sake of learning in comparison to learners with a performance orientation
 - Learners with a performance orientation will direct more attention to performing well and less effort to learning

Need Theories

- Helps to explain the value that a person places on certain outcomes
- **Need:** A deficiency that a person is experiencing at any point in time
- Maslow's and Alderfer's need theories focused on physiological needs, relatedness needs, and growth needs

Need Theories

- The major difference between Alderfer's and Maslow's hierarchies of needs is that Alderfer allows the possibility that if higher-level needs are not satisfied, employees will refocus on lower-level needs
- McClelland's need theory focused primarily on needs for achievement, affiliation, and power

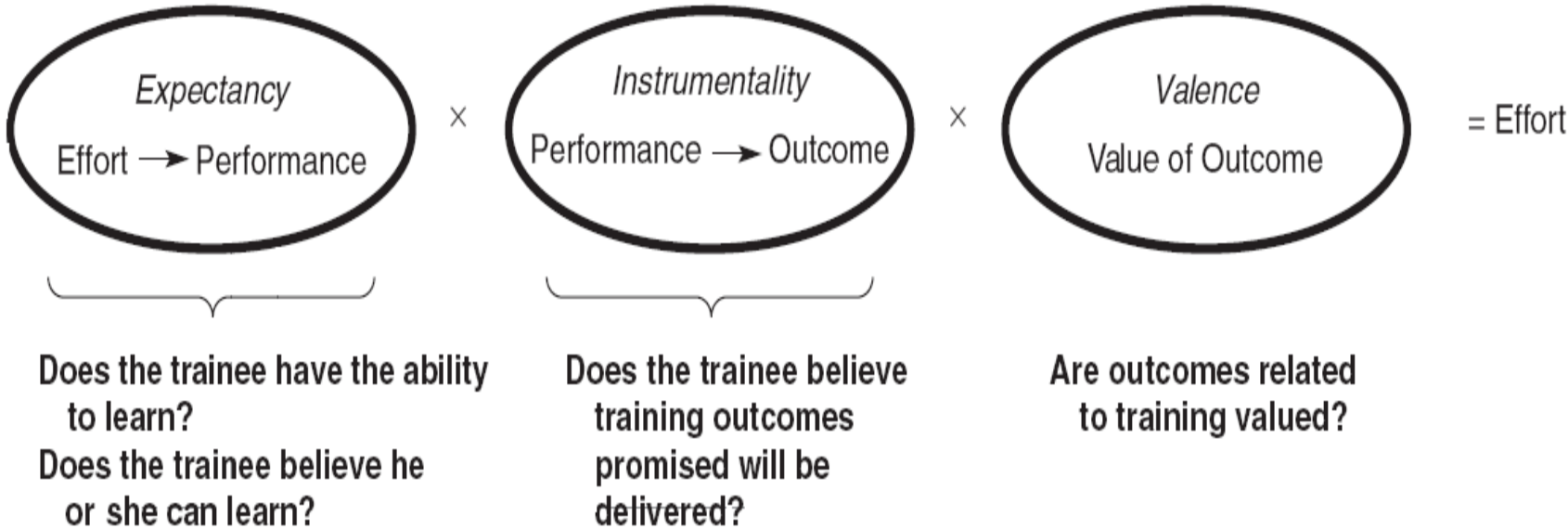
Need Theories

- Suggest that to motivate learning, trainers should identify trainees' needs and communicate how training program content relates to fulfilling these needs
 - If certain basic needs of trainees are not met, they are unlikely to be motivated to learn
- Implication of need theory relates to providing employees with a choice of training programs to attend

Expectancy Theory

- It suggests that a person's behavior is based on three factors:
 - **Expectancies:** Link between trying to perform a behavior and actually performing well
 - **Instrumentality:** Belief that performing a given behavior is associated with a particular outcome
 - **Valence:** Value that a person places on an outcome

Figure 4.3 - Expectancy Theory of Motivation



Adult Learning Theory

- Was developed out of a need for a specific theory of how adults learn
- **Andragogy**: Theory of adult learning

Adult Learning Theory

- Assumptions of the theory
 - 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 a learning experience with a problem-centered approach to learning
 - Adults are motivated to learn by both extrinsic and intrinsic motivators

Table 4.2 - Implications of Adult Learning Theory for Training

Design Issues	Implications
Self-concept	Mutual planning and collaboration in instruction
Experience	Use learner experience as basis for examples and applications
Readiness	Develop instruction based on the learner's interests and competencies
Time Perspective	Immediate application of content
Orientation to learning	Problem-centered instead of subject-centered

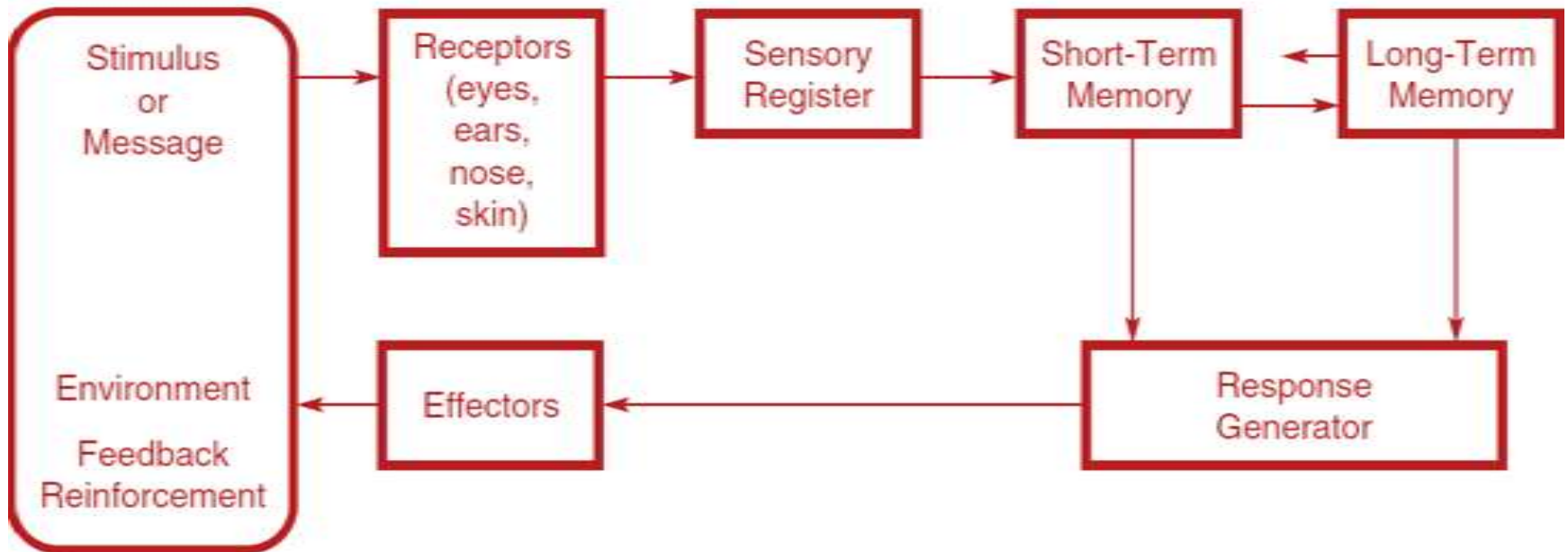
Information Processing Theory

- It gives more emphasis to the internal processes that occur when training content is learned and retained
- Highlights external events influencing learning
 - Changes in the intensity of the stimulus that affect attention
 - Informing the learner of the objectives to establish an expectation
 - Enhancing perceptual features of the material

Information Processing Theory

- 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

Figure 4.4 – A Model of Human Information Processing



Transfer of Training Theory

- Transfer of training is more difficult when tasks during training are different from the work environment
 - **Closed skills:** Training objectives that are linked to learning specific skills that are to be identically produced by the trainee on their job
 - **Open skills:** Linked to more general learning principles

Table 4.3 - Transfer of Training Theories

Theory	Emphasis	Appropriate Conditions	Type of Transfer
Identical elements	Training environment is identical to work environment.	Training focuses on closed skills Work environment features are predictable and stable. Example: Training to use equipment. Training focuses on open skills.	Near
Stimulus generalization	General principles are applicable to many different work situations.	Work environment is unpredictable and highly variable. Example: Training in interpersonal skills.	Far
Cognitive theory	Meaningful material and coding schemes enhance storage and recall of training content.	All types of training and environments.	Near and far

The Learning Process

- Mental and physical processes
 - **Expectancy:** Mental state that the learner brings to the instructional process
 - **Perception:** Ability to organize the message from the environment so that it can be processed and acted upon
 - **Working storage:** Rehearsal and repetition of information occurs
 - **Semantic encoding:** Actual coding process of incoming messages

The Learning Process

- Learning strategies
 - **Rehearsal:** Focuses on learning through repetition
 - **Organizing:** Requires the learner to find similarities and themes in the training material
 - **Elaboration:** Requires the trainee to relate the training material to other, more familiar knowledge

The Learning Process

- The learning cycle involves four stages:
 - Concrete experience
 - Reflective observation
 - Abstract conceptualization
 - Active experimentation

Table 4.5 – Learning Styles

Learning Style Type	Dominant Learning Abilities	Learning Characteristics
<i>Diverger</i>	<ul style="list-style-type: none">• Concrete experience• Reflective observation	<ul style="list-style-type: none">• Is good at generating ideas, seeing a situation from multiple perspectives, and being aware of meaning and value• Tends to be interested in people, culture, and the arts
<i>Assimilator</i>	<ul style="list-style-type: none">• Abstract conceptualization• Reflective observation	<ul style="list-style-type: none">• Is good at inductive reasoning, creating theoretical models, and combining disparate observations into an integrated explanation• Tends to be less concerned with people than with ideas and abstract concepts
<i>Converger</i>	<ul style="list-style-type: none">• Abstract conceptualization• Active experimentation	<ul style="list-style-type: none">• Is good at decisiveness, practical application of ideas, and hypothetical deductive reasoning• Prefers dealing with technical tasks rather than interpersonal issues
<i>Accommodator</i>	<ul style="list-style-type: none">• Concrete experience• Active experimentation	<ul style="list-style-type: none">• Is good at implementing decisions, carrying out plans, and getting involved in new experiences• Tends to be at ease with people but may be seen as impatient or pushy

The Learning Process

- **Instruction:** Trainer's manipulation of the environment in order to help trainees learn
- **Training context:** The physical, intellectual, and emotional environment in which training occurs.
- **Practice:** Physical or mental rehearsal of a task, knowledge, or skill to achieve proficiency in performing the task or skill or demonstrating the knowledge.

Table 4.6 - Features of Instruction and the Work Environment that Facilitate Learning and Transfer of Training

- Objectives
- Meaningful content
- Opportunities to practice
- Methods for committing training content to memory
- Feedback
- Observation, experience, and social interaction
- Proper coordination and arrangement of the training program
- Encourage trainee responsibility and self-management
- Ensure that the work environment supports learning and transfer

Table 4.8 - Characteristics of Good Training Objectives

- Provide a clear idea of what the trainee is expected to be able to do at the end of training.
- Include standards of performance that can be measured or evaluated.
- State the specific resources (e.g., tools and equipment) that the trainee needs to perform the action or behavior specified.
- Describe the conditions under which performance of the objective is expected to occur (e.g., the physical work environment, such as at night or in high temperatures; mental stresses, such as angry customers; or equipment failure, such as malfunctioning computer equipment).

The Learning Process

- Pre-practice conditions
 - Provide information about the process or strategy
 - Encourage trainees to develop a strategy (**metacognition**) to reflect on their own learning process
 - Provide **advance organizers**
 - Help trainees set challenging learning goals
 - Create realistic expectations
 - Communicate performance expectations

The Learning Process

- **Overlearning:** Trainees need to continue to practice even if they have been able to perform the objective several times
- **Error management training:** Giving trainees opportunities to make errors during training and to learn from them
- **Massed practice:** Individuals practice a task continuously, without resting

The Learning Process

- **Spaced practice:** Individuals are given rest intervals within practice sessions
 - Spaced practice is superior to massed practice
- **Overall task complexity:** Degree to which a task requires a number of distinct behaviors, the number of choices involved in performing the task, and the degree of uncertainty in performing the task
- **Mental requirements:** Degree to which the task requires the subject to use or demonstrate mental skills or cognitive skills or abilities to perform the task

The Learning Process

- **Physical requirements:** Degree to which the task requires the person to use or demonstrate physical skills and abilities to perform and complete the task
- **Whole practice:** All tasks or objectives should be practiced at the same time
- **Part practice:** An objective or task should be practiced individually as soon as each is introduced in the training program
- Practice must be related to the training objectives

The Learning Process

- To create long-term memory, training programs must be explicit on content and elaborate on details
- If a lengthy process or procedure is to be taught, instruction needs to be delivered in short sessions in order to not exceed memory limits
- **Automatization:** Making performance of a task, recall of knowledge, or demonstration of a skill so automatic that it requires little thought or attention
- **Feedback:** Information about how well people are meeting the training objectives

Table 4.12 - Three Types of Instructional Interaction

Type	When to Use
Learner-content	Requires mastering a task that is completed alone. Learn process of studying information and acting on it in a team context
Learner-learner	Requires mastering a task that is completed in a group. Learners will gain new knowledge or validate their understanding by discussing content with peers.
Learner-instructor	Best for in-depth topic exploration and to develop strengths in critical analysis and thinking. Discussion may be limited when large amounts of material need to be presented in a short timespan.

The Learning Process

- Employees learn through observation, experience, and interacting with others
- **Communities of practice:** Groups of employees who work together, learn from each other, and develop a common understanding of how to get work accomplished

The Learning Process

- **Training administration:** Coordinating activities before, during, and after the program
 - Communicating courses and programs to employees
 - Enrolling employees in courses and programs
 - Preparing and processing any pretraining materials
 - Preparing materials that will be used in instruction
 - Arranging for the training facility and room
 - Testing equipment that will be used in instruction
 - Having backup equipment

The Learning Process

- Providing support during instruction
- Distributing evaluation materials
- Facilitating communications between trainer and trainees during and after training
- Recording course completion in the trainees' training records

Encourage Trainee Responsibility and Self-Management

- **Self-management:** Person's attempt to control certain aspects of decision making and behavior
 - Determining the degree of support and negative consequences in the work setting
 - Setting goals for using learned capabilities
 - Applying learned capabilities
 - Monitoring use of learned capabilities
 - Engaging in self-reinforcement

Ensure that the Work Environment Supports Learning and Transfer

- **Lapses:** Take place when the trainee uses previously learned, less effective capabilities instead of trying to apply the capability emphasized in the training program
- **Climate for transfer:** Trainees' perceptions about a wide variety of characteristics of the work environment that facilitate or inhibit the use of trained skills or behavior

Table 4.13 - Examples of Obstacles in the Work Environment That Inhibit Transfer of Training

Obstacle Work Conditions	Description of Influence
<p>Time pressures</p> <p>Inadequate equipment</p> <p>Few opportunities to use skills</p> <p>Inadequate budget</p>	<p>Trainee has difficulty using new knowledge, skills, or behavior.</p>
<p>Lack of Peer Support</p> <p>Peers discourage use of new knowledge and skills on the job.</p> <p>Peers are unwilling to provide feedback.</p> <p>Peers see training as waste of time.</p>	<p>Peers do not support use of new knowledge, skills, or behavior.</p>
<p>Lack of Management Support</p> <p>Management does not accept ideas or suggestions that are learned in training.</p> <p>Management does not discuss training opportunities.</p> <p>Management opposes use of skills learned in training.</p> <p>Management communicates that training is a waste of time.</p> <p>Management is unwilling to provide reinforcement, feedback, and encouragement needed for trainees to use training content.</p>	<p>Managers do not reinforce training or provide opportunities to use new knowledge, skills, or behavior</p>

Instructional Emphasis for Learning Outcomes

- **Internal conditions:** Processes within the learner that must be present for learning to occur
 - Processes include how information is registered, stored in memory, and recalled
- **External conditions:** Processes in the learning environment that facilitate learning
 - Include the physical learning environment

Table 4.15 - Internal and External Conditions Necessary for Learning Outcomes

Learning Outcomes	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
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