Chapter Four
Learning & Transfer of Training
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.
Objectives

- Explain the features of instruction and the work environment that are necessary for learning and transfer of training
Learning & Transfer

- Both learning and transfer are important.

- Learning refers to a relatively permanent change in human capabilities.

- Transfer refers to trainees applying what they have learned to their jobs.
Two Types of Transfer

- Generalization refers to applying what was learned to situations that are similar but not identical to those in training.

- Maintenance refers to trainees continuing to use what they learned over time.
Model of Learning & Transfer

- Trainee Characteristics
- Training Design
- Work Environment

Learning

Transfer of Training
- Generalization
- Maintenance
Learning Outcomes

- **Verbal Information**
  - specialized knowledge, including names, labels, facts, and bodies of knowledge

- **Intellectual Skills**
  - concepts and rules critical to solve problems, serve customers, and create products

- **Motor Skills**
  - coordination of physical movements
Learning Outcomes

- Attitudes
  - beliefs and feelings that predispose a person to behave in a certain way

- Cognitive Strategies
  - strategies that regulate thinking and learning
  - they relate to decisions regarding what information to attend to, how to remember, and how to solve problems
Learning Theories

- Reinforcement Theory
- Social Learning Theory
- Goal Theories
- Need Theories
- Expectancy Theory
- Adult Learning Theory
- Information Processing Theory
Reinforcement Theory

- Individuals are motivated to perform or avoid behaviors because of past outcomes of behavior.

- Trainers need to identify what outcomes learners find most positive and negative and then link these outcomes to acquiring new knowledge and skills.
Reinforcement Theory

- Positive reinforcement is a pleasurable outcome resulting from a behavior.
- Negative reinforcement is the removal of an unpleasant outcome.
- Extinction is withdrawing positive or negative reinforcers to eliminate a behavior.
- Punishment involves providing an unpleasant outcome after a behavior.
Social Learning Theory

- Individuals learn by observing models of behavior, emulating behavior, and receiving reinforcement and rewards.

- Learning results from directly experiencing the consequences of using a skill, observing others, and seeing the consequences of their behavior.
Social Learning Theory

- Four processes involved in learning
  - Attention
  - Retention
  - Motor reproduction
  - Motivational processes
Social Learning Theory

- Self-efficacy is important
  - an individual’s belief that he/she can successfully learn knowledge and skills

- Self-efficacy can be increased through:
  - verbal persuasion
  - logical verification
  - modeling
  - past accomplishment
Goal Orientation

- Learning orientation relates to trying to increase ability and competence in a task
  - People with a learning orientation view mistakes as useful for learning

- Performance orientation refers to a desire to look good in comparison to others
  - Individuals with a performance orientation avoid mistakes because they do not want to appear foolish

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Goal Orientation

- Trainers should strive to promote a learning orientation among trainees
  - Set goals around experimentation
  - Deemphasize competition
  - Create a community of learning
  - Provide constructive feedback when trainees make mistakes
Maslow’s Hierarchy

- Physiological
- Safety
- Social
- Esteem
- Self-Actualization
Alderfer’s Theory

- **Existence**
  - physical needs such as food, clothing, and shelter

- **Relatedness**
  - interpersonal needs in personal and professional settings

- **Growth**
  - needs for personal development
McClelland’s Theory

- Need for achievement
  - need to achieve challenging goals, prove something, and recognition

- Need for power
  - need to dominate and influence others

- Need for affiliation
  - need to be a part of something and desire social relationships
Needs Theory Implications

- Trainers should attempt to understand learners’ needs, explain how training will meet needs, and adapt training.

- If certain basic needs are not met, motivation may suffer.

- Training should not necessarily attempt to meet all needs, however.
Expectancy Theory

Expectancy
Effort → Performance

Does the trainee have the ability to learn?
Does the trainee believe he or she can learn?

Instrumentality
Performance → Outcome

Does the trainee believe training outcomes promised will be delivered?

Valence
Value of Outcome

Are outcomes related to training valued?

= Effort
Expectancy Theory

Based on this model, trainers should:

- ensure trainees are confident in their ability (expectancy)
- provide and communicate valued rewards (valence)
- ensure valued rewards are received if trainees successfully learn and transfer (instrumentality)
Adult Learning Theory

- Adults have the need to know “why”
- Adults have a need to be self-directed
- Adults bring more work-related experiences to the learning situation
- Adults enter a learning experience with a problem-centered approach
- Adults are extrinsically and intrinsically motivated
Adult Learning Implications

- Mutual planning and collaboration
- Use learner experiences for examples and applications
- Develop instruction based on learners’ interests and competencies
- Provide opportunities for application
- Ensure training is problem centered
Information Processing Theory

Diagram:
- Stimulus or Message
- Environment Feedback Reinforcement
- Receptors (eyes, ears, nose, skin)
- Sensory Register
- Short-Term Memory
- Long-Term Memory
- Effectors
- Response Generator
Closed v. Open Skills

Transfer can be enhanced by understanding the type of skill

Closed Skills
  o Involve responding to predictable situations with standardized responses

Open Skills
  o Involve responding to variable situations with adaptive responses
Closed Skills

Promoting transfer for closed skills:
- provide detailed checklists to follow
- provide high-fidelity practice
- shape favorable attitudes toward compliance
- reward compliance
Open Skills

- Promoting transfer for open skills:
  - teach general principles
  - shape favorable attitudes toward experimentation
  - allow trainees to make mistakes without fear of punishment
  - provide rewards for experimentation
Theory of Identical Elements

- Transfer will be maximized when the tasks, materials, and equipment in training are similar to the work environment.

- Identical elements are particularly important for promoting near transfer, applying learned capabilities exactly to the work situation.
Stimulus Generalization

- Transfer is enhanced when the most important features, or general principles, are emphasized during training.

- The stimulus generalization approach is appropriate to promote far transfer, applying learned capabilities to the work environment when it is not identical to training.
Cognitive Theory of Transfer

- Transfer depends on a trainee’s ability to retrieve learned capabilities
- Meaningful material and coding schemes enhance storage and recall of training
Learning depends on the learner’s cognitive processes, organizing the content in a mental representation, and relating the content to existing knowledge from long-term memory.
Mental & Physical Processes

Learning is a function of eight processes:
  - expectancy
  - perception
  - working storage
  - semantic encoding
  - long-term storage
  - retrieval
  - generalizing
  - gratifying
Learning Strategies

- Different learning strategies influence how training content is coded
  - rehearsal: learning through repetition
  - organizing: finding similarities and themes
  - elaboration: relating the material to other more familiar knowledge

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Learning can be considered a dynamic cycle involving four stages:

- **Concrete experience**: trainees encounter a concrete experience.
- **Reflective observation**: trainees think about the problem.
- **Abstract conceptualization**: trainees generate ideas on how to solve the problem.
- **Active experimentation**: trainees implement ideas to solve the problem.
Employees need to know the objectives

- An objective may have three components
  - what the learner is expected to do or know
  - quality or level of acceptable performance
  - conditions under which the learner is expected to perform
Employees need meaningful content

- Content should be linked to current job experiences and tasks that have meaning
- Material should be presented using familiar concepts, terms, and examples
- Content should be aligned with personal and professional goals
Employees need to practice

- Practice should:
  - involve the trainee actively
  - include overlearning
  - take the appropriate amount of time
  - include the appropriate unit of learning
Employees need a number of pre-practice conditions

- Provide strategies that will result in the greatest learning
- Encourage trainees to reflect
- Provide advanced organizers
- Help trainees set challenging learning goals
- Create realistic expectations for trainees
- For training in teams, clarify roles and responsibilities
Employees need practice involving experience

- Learners need practice involving direct experience
- Overlearning is needed, which involves continuing to practice the new skill or behavior beyond the point at which the learner has demonstrated proficiency more than once
- Incorporate errors in the learning process
Massed vs. Spaced Practice

- Massed practice involves practicing continuously without rest

- With spaced practice, individuals are given rest intervals within the practice session

- Effectiveness of massed versus spaced practice varies by the characteristics of the task
Whole vs. Part Practice

- One option with practice is focusing on all tasks at the same time (whole practice)

- Another option is practicing each component as soon as it is introduced in a training program (part practice)

- Trainers should incorporate both types
Employees need to commit content to memory

- Make trainees aware of how they are creating, processing, and accessing memory
- Training programs must be explicit on content and elaborate on details
- Overlearning can help
Employees need feedback

- Employees need feedback about how well they are meeting training objectives
- Feedback should be specific and follow the behavior as closely as possible
Employees learn through observation, experience, and interaction

- Individuals learn through observation and imitating the actions of models

- Trainers should promote three key types of interaction:
  - Learner-content
  - Learner-instructor
  - Learner-learner
Employees need the training program to be properly coordinated and arranged

- Communicate courses to employees
- Prepare instructional materials
- Arrange the training facility and room
- Testing equipment that will be used
- Provide support during instruction
- Distribute evaluation materials
Encourage trainee responsibility and self-management

- Self-management refers to a person’s attempt to control aspects of decision making and behavior.

- Self-management training involves setting goals to use skills on the job, identifying obstacles and ways to overcome them, and self-administering rewards.

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Ensure a supportive work environment

- Characteristics of a positive climate for transfer include:
  - Supervisors and coworkers encourage transfer
  - Task cues to use new skills
  - Lack of punishment for using new skills
  - Extrinsic reinforcement consequences
  - Intrinsic reinforcement consequences
Internal & External Conditions

- Internal conditions are processes within the learner that are necessary for learning.
- External conditions are processes in the learning environment that are necessary for learning.
- External conditions should directly influence forms of instruction, and they should be designed to facilitate the internal conditions.