

Advanced Industrial Psychology
Industrial Training


Psychology of Training



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What We Will Cover in This Section

- Psychological theories that impact training.
- Characteristics of the trainee.
- Characteristics of instructional design.
- Characteristics of the trainer.



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Model for Training

- Acquisition.
Initial learning of the desired material.
- Retention.
Maintaining learned information in memory over time.
- Transfer.
Applying learned material on the job.

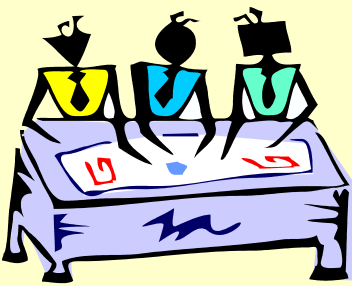
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Issues and Problems

- Little good empirical research in this area.
- We know a good deal about learning but little about the link between industrial training and on-the-job application.
- The small amount of data focus on reaction to training, not acquisition and transfer.
- There is no good taxonomy of cognitive and skill factors that lead to job success.

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The Trainee



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Characteristics of the Trainee

- **Trainee Readiness**
 - Prerequisite skills, knowledge, and ability.
- **Trainee Motivation**
 - Direction
 - Intensity
 - Persistence

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Enhancing Motivation

- Giving people a sense of accomplishment.
- Letting people know the relevance of the training to the job.
- Making enhanced job performance important.

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Personality

- Self efficacy.
Belief in one's ability to complete some job or task.
- Locus of control.
The extent to which a person makes an internal or external attribution to the cause of events.

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Social Learning Theory (Bandura)

- Vicarious learning...we learn by watching others.
- Elements.
 - Positive model.
 - Successful model.
 - Feeling, I can do this.
 - Social persuasion.

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Goal Setting

- Principle: getting people to set goals leads to higher levels of achievement.
- Elements.
 - Specific and challenging.
 - Achievable.
 - Periodic feedback.
 - Personal acceptance.
 - Organizational support.

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Operant Conditioning, Part 1


- Positive reinforcement.
 - Immediate.
 - Continuous then intermittent.
 - In training and on the job.
- Negative reinforcement.
 - Used to show people how to avoid unpleasant situations.

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Operant Conditioning, Part 2

- Punishment.

NEVER!

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Bloom's Taxonomy



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What Are They?

- Cognitive
- Psychomotor
- Affective

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Cognitive Development Levels (Bloom)

1. **KNOWLEDGE.** Recalls and identifies terms, facts, rules, classifications, generalizations, principles, and methods.
2. **COMPREHENSION.** Identifies samples, explains, generalizes.
3. **APPLICATION.** Applies rules, methods, and principles to new situations.

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Cognitive Development Levels (Bloom)

- 4. **ANALYSIS.** Breaks thoughts, ideas, communications into parts, determines point of view, recognizes elements, themes, implications.
- 5. **SYNTHESIS.** Creates new patterns, products, methods, and concepts.
- 6. **EVALUATION.** Makes judgmental evaluation of things on the basis of evidence, review, and clear criteria.

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Psychomotor Levels (Bloom)

- 1. **REFLEX.** Involuntary response.
- 2. **IMITATION.** Mimics and follows the activities of a model.
- 3. **MANIPULATION.** Follows directions, performs actions and fixes the performance after practice.

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Psychomotor Levels (Bloom)

- 4. **PRECISION.** Performs the skill independently of a model or directions. Works accurately and precisely.
- 5. **ARTICULATION.** Coordinates a series of physical activities in sequence quickly and accurately.
- 6. **NATURALIZATION.** Responds automatically and spontaneously. The response is automatic and spontaneous.

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Affective Levels (Bloom)

1. **RECEIVE.** Is aware of or attends to the information.
2. **RESPOND.** Obeys expectations.
3. **VALUE.** Displays the desired behavior in situations where there is no direct pressure to obey (compliance).

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Affective Levels (Bloom)

4. **ORGANIZATION.** Is committed to the values. Displays and communicates these publicly.
5. **CHARACTERIZATION.** Behavior of the person is consistent with the values; they are internalized in day-to-day living.

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Why worry about these levels?

- Progressive levels of learning.
- Identify prerequisites.
- Target training.



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Stages of Learning

- 1. DECLARATIVE LEARNING.** Acquisition of factual knowledge alone.
- 2. KNOWLEDGE COMPILATION.**
- 3. PROCEDURAL KNOWLEDGE.** How to use the information.

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Training Design: Acquisition



Issues to consider in designing training to enhance initial student learning.

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Part vs. Whole Learning

PART LEARNING. The elements to be learned are broken into discrete tasks/steps that are learned separately.

WHOLE LEARNING. The entire task is learned/practiced as a single unit.

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Massed vs. Distributed Practice

- **MASSED PRACTICE.** Frequent, repetitive practice.
 - Leads to rapid acquisition.
 - Leads to rapid forgetting.
- **DISTRIBUTED PRACTICE.** Practice spaced over time.
 - Leads to learning resistant to forgetting.
 - Takes time.

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Automaticity

Tasks become so integrated that they become automatic, performed without thought and with little attention.

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Competence and Consciousness

	Conscious	Unconscious
Competent	Competent. Person is aware of skill and performs task with thought.	Expert. Person performs automatically without thought.
Not Competent	Beginner. Task requires total attention and thought.	Novice. Person lacks expertise. Lack of attention causes mistakes.

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Vigilance Decrement

Decline in performance over time when the environmental cues (signals) are infrequent and are not detected.

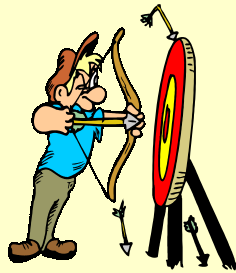
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Feedback (Knowledge of Results)

- **When?**
 - During training.
 - On the job.
- **Characteristics.**
 - Accurately perceived.
 - Credible source.
 - Individual differences.



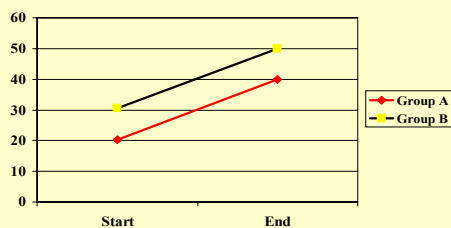
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Person::Teaching Interaction

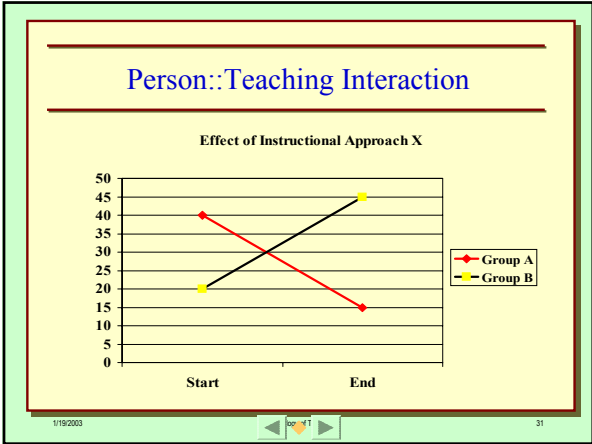
Effect of Instructional Approach X



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Training Design: Retention

Issues to consider when designing training to ensure that it will be available for application to the job.

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Overlearning

Learners are repeatedly drilled on a task that they have already mastered.

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Training Design: Transfer

Issues to consider when designing training to enhance transfer to the job.



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Types of Transfer

- **POSITIVE TRANSFER**
Training enhances job performance.
- **ZERO TRANSFER**
Training has no effect on job performance.
- **NEGATIVE TRANSFER**
Training impedes job performance.

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Identical Elements Theory

Job Response.


Training Task Stimuli	Same as training	Different from training
Same as job	High positive	Negative
Different from job	Positive	None

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Instructional Design


- **TASK DIMENSION**


- **CONTENT DIMENSION**
 - Facts.
 - Concepts.
 - Procedures.
 - Rules.
 - Principles.

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Key Issues: The Trainer Should...

- Set expectations.
- Convince people that outcomes can be achieved.
- Demonstrate the links between training success and job success.
- Influence the value of better job performance.



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THE END

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