

CHAPTER 12

TRANSFER OF LEARNING

THIS CHAPTER'S CONCEPT

Transfer of Learning from one performance situation to another is an integral part of skill learning and performance

INTRODUCTION

- Transfer of learning is one of the most universally applied principles of education and rehabilitation

WHAT IS TRANSFER OF LEARNING?

- Influence of previous experience on performing a skill in a new context or on learning a new skill
- Can be:

Developmental & Instructional Methods

- Sequencing skills in rehab, training, or teaching
 - ◆ Simple to complex
 - ◆ Basic skill to sport skill
 - ◆ Functionally appropriate activities
- Instructional or Clinical methods
 - ◆ Lead up game to the specific sport
 - ◆ Practice/ rehab session to actual context

Assessing the Effectiveness of Practice

Transfer test performances are the best assessments.

- practice usually under or over inflates performances
- transfer tests determines the impact of instruction, method, or protocol.

The effectiveness of any practice condition should be determined only on the basis of how the practiced skill is performed in a “test” context (transfer-appropriate processing theory of transfer)

"SPECIFICITY OF PRACTICE PRINCIPLE"

- *To achieve optimal performance in a test, one should experience practice conditions that match test conditions as closely as possible*

ASSESSING POSITIVE TRANSFER

Experimental designs to determine if transfer has occurred:

1. Experience with one skill to learning another skill
2. Performing a skill in one situation to performing it in another context

Continued

Assessing Positive Transfer

Experimental Group	Practice skill A	Perform skill B
Control Group	No practice	Perform skill B

Experimental Group	Perform a skill in context A	Perform same skill in context B
Control Group	No practice	Perform the skill in same context B

PERCENTAGE OF TRANSFER

- Used to determine amount of positive transfer
- Percentage of difference between experimental and control group's performance score on Skill B or in context B
- % of positive transfer =

$$\frac{\text{Experimental Group} - \text{Control Group}}{\text{Experimental Group} + \text{Control Group}} \times 100$$

WHY DOES POSITIVE TRANSFER OCCUR?

Two possible reasons:

1. Similarity between the components of two skills or two performance situations. (Identical element theory)
2. Similarity between cognitive processes required of two skills or two performance situations. (Transfer-appropriate processing theory)

Cadaver Versus Computer dissection

- Virtual reality to real environment training...has shown promise.
- What about learning anatomy when dissection of cadaver versus Adam software dissection??
 - ◆ Some med schools are going away from cadavers?
 - ★ What do you think may happen to surgeons who did not experience cadavers and those who experienced software??

WHAT CAUSES NEGATIVE TRANSFER?

- Environmental context characteristics of two performance situations are similar but movement characteristics are different
 - ◆ Change the spatial location of the movement
 - ◆ A change in the timing of the movement
- A person tries to unlearn a way of performing a skill and learn a new way to perform it!
- Negative transfer is temporary
 - ◆ It does carry across all stages of learning
 - ◆ But negative transfer causes psychological artifacts

WHY DOES NEGATIVE TRANSFER EFFECTS OCCUR?

- A specific connection has been made between the perceptual characteristics of skill and the movement. When the skills or situations differ from what is learned it results in negative transfer.
- Mental confusion is another reason

BILATERAL TRANSFER

- Transfer of learning relates to learning of the same task but with different limbs
- Experimental design:

	pre test	practice	posttest
preferred limb	X	X	X
non preferred	X		X

Researcher compares the pretest-to-posttest improvement

WHY DOES BILATERAL TRANSFER OCCUR?

- The cognitive aspects of the skill is what is transferred (cognitive explanation)
- Transfer of motor control program from practiced limb to other (motor control explanation)

Does a greater amount of transfer occur when a person learns a skill using one limb before learning it with the other limb?

Asymmetric transfer Question

Does a greater amount of transfer occur when one person learns when practicing both limbs?

- Symmetric transfer question

And the winner is!

- Asymmetric but wait?
 - ◆ Doesn't limb dominance and limb preference have an affect?
 - ★ Greatest amount of transfer occurs from preferred to the non-preferred limb

TEACHING FOR BILATERAL TRANSFER

- Early in learning...
 - ◆ Train the preferred limb
- Once proficiency is achieved...
 - ◆ Switch and practice the other limb
- Then what??
 - ◆ Alternate limbs!!