CHAPTER 1

THE CLASSIFICATION OF MOTOR SKILLS
Motor Skill: Definition

- A goal to achieve or action goal.
- Performed voluntarily
- Requires body, head, and/or limb movement.
- Must be learned or relearned
MOVEMENTS

 Behavioral characteristics of the body, the head, and/or a specific limb or combination of limbs.

 Grouped by category
  
  - Throwing (side arm, underhand, overhead)
  
  - Catching (one hand, two hand, underhand)
  
  - Jumping (one foot, two foot, high jump)
ONE-DIMENSION CLASSIFICATION SYSTEMS

- Used to identify skill characteristics that are similar.
- Divided into two categories, which represent extreme ends of a continuum.
- One dimensional systems
  - Size of primary musculature required
  - Specificity of where actions begin or end
  - Stability of the environment
SIZE OF PRIMARY MUSCULATURE

- Gross .................. to ................. Fine
# Classify the Following Motor Skills

<table>
<thead>
<tr>
<th>Gross</th>
<th>TO</th>
<th>Fine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pitching a baseball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keyboarding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Running</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knitting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Why is it important to classify skills based upon degree of musculature?
DISTINCTIVENESS OF THE MOVEMENTS

- Discrete ............... Serial ................. Continuous
CLASSIFY THE FOLLOWING SKILLS

DISCRETE..............SERIAL............CONTINUOUS

MOTOR SKILLS
- Shooting a free-throw
- Walking
- Catching a ball
- Triple Jump
- Dance Routine

Why is it important to classify skills based upon degree of distinctiveness?
STABILITY OF THE ENVIRONMENT

Closed skill………………………….Open Skill

Environment refers to the object the person is acting on or to the characteristics of the context in which the person performs the skill.
OPEN/CLOSED CLASSIFICATION SYSTEM

- Closed skill
  - Performer initiates the action
  - Environmental context is stable (does not change from trial to trial)

- Open Skill
  - Performer must act according to the actions of skill
  - Performer must act according to the actions of the changing environment
CLASSIFY THE FOLLOWING MOTOR SKILLS

CLOSED........................TO..................OPEN

MOTOR SKILLS IN THE GAME OF TENNIS

- Tennis serve
- Hitting a baseball off a batting tee
- Jump shot in the game of basketball
- Extra point (kicking) in football
- Walking to class

Why is it important to classify motor skills in degree of stability?
Walking Rehab

- Develop a closed practice for re-training one to walk in rehab?
- Develop a open practice for re-training one to walk in rehab?
Gentile’s 2-Dimensions Taxonomy

The two dimensions are:

Environmental context (Open or Close)

Function of actions
Environmental Context

- Inter-trial variability – the conditions during the performance are the same or different from one trial to another.

  - Examples
    - Ball’s path and speed is same each trial
    - Ball’s path and speed is different for each trial
Function of Action

1. Does the movement involve moving the body or no
   - i.e., standing still when shooting an arrow
   - i.e., Moving while shooting

2. Does the movement involve manipulating an object or not?
   - i.e., Movement requires a ball, puck, stick, bat, racquet, paddle, tool, or another persons
   - i.e., Movement does not an object.
## Gentile’s Model

<table>
<thead>
<tr>
<th>Environmental Context</th>
<th>Body Stability</th>
<th>Body Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No object manipulation</td>
<td>No object manipulation</td>
</tr>
<tr>
<td>Stationary with no intertrial</td>
<td>Body stability/ no object</td>
<td>Body transport/ no object</td>
</tr>
<tr>
<td>Stationary with intertrial</td>
<td>Body stability/ no object</td>
<td>Body transport/ object</td>
</tr>
<tr>
<td>In-motion with no intertrial</td>
<td>Body stability/ no object</td>
<td>Body transport/ no object</td>
</tr>
<tr>
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<td>Body transport/ object</td>
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Example: Applying Gentile’s Model

<table>
<thead>
<tr>
<th>Action Function</th>
<th>Body Transport:</th>
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</tr>
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<tbody>
<tr>
<td><strong>Environmental Context</strong></td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Regulatory Conditions:</strong></td>
<td><strong>Stationary</strong></td>
<td><strong>Stationary</strong></td>
<td><strong>Stationary</strong></td>
<td><strong>Stationary</strong></td>
</tr>
<tr>
<td><strong>Intertrial Variability:</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Hitting off a batting tee from the same height for every trial. The hitter is stationary and does not strike the ball.</td>
<td>Hitting off a batting tee from the same height for every trial. The hitter is stationary but strikes the ball with a bat.</td>
<td>Hitting off a batting tee from the same height for every trial. The hitter moves in all different directions then swings at the ball.</td>
<td>Hitting off a batting tee. But for every attempt the height of ball on the tee is raised or lowered. Hitter is stationary but strikes the ball with bat.</td>
<td>Hitting off a batting tee. But for every attempt the height of ball on the tee is raised or lowered. The hitter moves in different directions then swings at the ball.</td>
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<td><strong>Has Motion</strong></td>
<td><strong>Standing and watching the thrower throw different types of pitches.</strong></td>
<td><strong>Hitting a ball stationary involving a pitcher who is pitching different types of speed, sizes of ball, throwing patterns and/or force.</strong></td>
<td>** Pretending to hitting with no bodily movement or stationary while the pitcher moves throwing different pitches.**</td>
<td><strong>Hitting a ball differently involving different throw where the hitter and thrower are moving.</strong></td>
</tr>
<tr>
<td><strong>Intertrial Variability:</strong></td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Stationary</strong></td>
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Chapter 1
Developmentally Appropriate Activity

- 2. Hitting off a batting tee from the same height where hitter strikes the ball with a bat.
- 6. Hitting off a batting tee but from a different height with each strike.
- 8. Hitting off a pitching machine where the ball comes at the same height and speed. The hitter stands in the same area and strikes the ball with a bat.
- 14. Hitting a ball from a pitcher who is pitching different types of speeds every throw.
PRACTICAL APPLICATION OF GENTILE’S MODEL

Closed Skill
1. Stationary
   - No intertrial
2. Stationary
   - Intertrial

Open Skill
3. In Motion
   - No Intertrial
4. In Motion
   - Intertrial

In rehab or teaching, we start with 1 and progress to 4.
PRACTICAL APPLICATION OF THE TAXONOMY

1. Evaluation of movement capabilities and limitations.
2. Select functionally appropriate activities.
3. Chart an individual’s progress through rehab or skill development.