Chapter 6

The Environment and the Task

# Summary

This chapter explains the effect of environmental variables on the design of instructional tasks. More specifically, it highlights the process of performer-scaling the following variables: equipment (size, width, length, weight, height, texture, motion), conditions (space variables of distance, direction, pathway, level, trajectory), temporal variables (speed, rhythm, timing), and relationship variables (parallel, cooperative, competitive). These variables affect how the learning environment is designed for both fundamental and specialized movement skills. The chapter also explains task progressions for both closed and open skills and presents four task-progression levels (preconsistent, consistent, combination, and application). These task progressions consider the characteristics of the learner in terms of level of movement skill learning and stage of motor skill development. In addition, the chapter explains the importance of providing relevant skill cues to promote learning by both fundamental and specialized movers.

# Key Objectives

* Identifying the affordances used to scale equipment and conditions in the learning environment
* Differentiating between a movement skill and a task
* Explaining the relationship between biomechanical principles and critical cues
* Defining closed and open skills and describing the task progressions for each
* Identifying the relationships between the constraints of the learner, the environment, and the task
* Describing the four levels of task progression for learning fundamental and specialized motor skills

# Big Ideas

* The two main environmental variables that affect learners’ skill acquisition are equipment and condition.
* The variables that affect equipment selection are size (length, width, height), weight, texture, surface, and motion. For each variable, the affordance level (ranging from easy to difficult) can be manipulated to match the size and developmental level of the child.
* The scaling of conditions can involve spatial variables (distance, direction, pathway, level, trajectory), temporal variables (speed, rhythm, timing), and relationship variables (number of individuals and the interaction between them).
* A movement skill is an action (e.g., running, throwing, kicking, balancing), whereas a task is a developmentally appropriate experience that a physical educator creates to promote learning of a skill.
* The critical elements of a skill provide the movement cues used by teachers to describe and demonstrate the skill actions. They also provide focus for teacher observations as students perform the skills, and they structure the content of the feedback that teachers give to students in order to help them maintain or change performance technique.
* Movement skill development is influenced by six biomechanical principles: maintaining balance, fluidity of movement, generating force, absorbing force, improving accuracy, and sequencing skills.
* Closed (static) skills are used in predictable and stable environments; the goal of these skills is consistency of the movement performance. In contrast, open (dynamic) skills are used in unpredictable and unstable environments; the goal of these skills is learning a variety of movement patterns in order to develop the schemata or rules to respond appropriately to changing environments. When designing open-skill task progressions, teachers must consider all of the variables associated with closed skills, as well as where the performer looks (attention) and how the performer selects a response (i.e., the performer’s choice of movement to address cues detected in the environment).
* When physical educators design instructional tasks, they should purposefully manipulate facets of the constraints of learner, task, and environment. In figure 6.7, the learner column represents the phases and stages of motor development and the levels of motor skill learning. The task column represents closed and open skills. The environment for learners in pre-K through grade 5 must always contain equipment and conditions that are scaled to their size, strength, and capabilities in order to afford skill success throughout the stages of motor development and the levels of motor skill learning.

# Part 1: Environmental Variables

Describe how equipment and conditions can be varied to promote mature performance of two skills: striking a ball and rolling (with the body).

|  |  |  |
| --- | --- | --- |
| Equipment variables | Striking a ball | Rolling (with the body) |
| Size |  |  |
| Width |  |  |
| Length |  |  |
| Weight |  |  |
| Height |  |  |
| Texture |  |  |
| Motion |  |  |
| Condition variables | Striking a ball | Rolling (with the body) |
| Distance |  |  |
| Direction |  |  |
| Pathway |  |  |
| Level |  |  |
| Trajectory |  |  |
| Speed |  |  |
| Rhythm |  |  |
| Timing |  |  |
| Parallel |  |  |
| Cooperative |  |  |
| Competitive |  |  |

# Part 2: Identifying Closed and Open Skills

Use the affordance continuum task progression charts presented in figures 6.5 and 6.6 on pages 81 and 83 to identify the type of task and the affordances manipulated for the skill to progress from easy to more difficult.

## Progression 1: Combine three dance steps.

1. Teach three separate dance steps.
2. Sequence steps 1 and 2 (no music).
3. Sequence steps 2 and 3 (no music).
4. Sequence all three steps (no music).
5. Perform the sequence to moderate-tempo music.
6. Perform the sequence to fast music.

What type of task is this? (Check one.)

Form-specific closed \_\_\_\_\_

Outcome-specific closed \_\_\_\_\_

Open skill \_\_\_\_\_\_

What affordances were used?

## Progression 2: Serve a volleyball to different locations.

1. Serve the ball over a low net from a short distance.
2. Serve the ball over a higher net from a short distance.
3. Serve the ball over a higher net from a medium distance.
4. Serve the ball over the higher net to a specific court quadrant.
5. Serve the ball over the higher net to a spot that avoids two cones simulating opposing players.

What type of task is this? (Check one.)

Form-specific closed \_\_\_\_\_

Outcome-specific closed \_\_\_\_\_

Open skill \_\_\_\_\_\_

What affordances were used?

## Progression 3: Play a keep-away game.

1. Perform bounce and chest passes to a stationary partner from a medium distance.
2. Perform bounce and chest passes with a receiving partner moving within a grid space.
3. Perform bounce and chest passes with a partner against a third student who is a stationary defense.
4. Perform bounce and chest passes with a partner against a third student who is a warm defense (one foot stays on the ground, moves other foot and arms).
5. Play 2v2 keep-away.

What type of task is this? (Check one.)

Form-specific closed \_\_\_\_\_

Outcome-specific closed \_\_\_\_\_

Open skill \_\_\_\_\_\_

What affordances were used?

# Review Questions

1. Affordances are flexible features of task and environment that teachers can manipulate to match the size and developmental capabilities of learners. Describe the two categories of affordance used to manipulate the environment.
2. Describe the variables and the affordance continuum used to scale equipment.
3. Describe the variables and the affordance continuum used to scale conditions.
4. Differentiate between a movement skill and a task.
5. What are critical cues, and what is their importance in teaching children movement skills?
6. Explain each of the biomechanical principles that underlie efficient skill performance.
7. Define closed and open skills and describe the task progressions for each.
8. Identify the relationships between the constraints of the learner, the environment, and the task.
9. Describe the four levels of task progression for learning fundamental and specialized motor skills.