

Review

Teaching for physical literacy: Implications to instructional design and PETE

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Abstract

Physical education teachers play an important role in helping students' development of the motor skills needed to be physically literate individuals. Research suggests that teacher made instructional design decisions can lead to enhanced motor skill learning. After presenting a model of evidence-based research this paper presents information that will help teachers plan and execute lessons designed to improve students' motor skills. Variables that impact motor skill learning in physical education including time, type of practice, content, presentation and organizational strategies, and student skill level are presented and discussed. A brief section on student attitudes, their relation to motor skill learning and to physical literacy is included. Motor skills are needed for physically literate people to enjoy lifelong physical activity. Physical education teachers and the decisions they make contribute to students' learning and whether the goal of physical literacy is met. Copyright © 2015, Shanghai University of Sport. Production and hosting by Elsevier B.V. All rights reserved.

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1. Introduction

The promotion of physically literate individuals, through their participation in physical education (PE) programs, is a somewhat recent goal. Researchers and national organizations from several countries (i.e., UK, Canada, and the US) have presented definitions of physical literacy^{1–3} and have incorporated its goals within national standards⁴ and provincial curricula.⁵ Components of definitions of physical literacy from these sources suggest that physically literate individuals are competent, confident, and motivated with the knowledge, skills and attitudes for lifelong physical activity (PA). Physical literacy promotes teaching the whole child, allowing for successful and appropriate participation in PA throughout life.

Conversations regarding the best ways to teach and demonstrate physical literacy within the three learning

domains (psychomotor, cognitive, and affective) and the role of monism (the view that the mind and body are whole) within the definition of physical literacy continue among professionals and policy makers in many countries.^{1,6,7} While the definitions, components, and areas of focus may vary slightly among groups, one constant component is the need for individuals to develop the skills associated with specific topics in order to become competent in that area. How teachers select, organize, and carry out tasks for students to perform plays a vital role in students' abilities to develop the skills needed to achieve physical literacy. The purpose of this paper is to provide an overview of instructional design decisions that teachers make where research suggests that motor skill learning can be enhanced. A second purpose is to show a connection between how developing motor competency is related to the development of positive attitudes, another component of physical literacy.

Teachers play an important role in students' development of motor skills. Good teaching results in learning for all students and for motor skill learning to occur, teachers must work to differentiate instruction for students in their classes.⁸ Without

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learning the act of teaching does not accomplish its purpose and many students will not develop the skills they need to become physically literate.

The development of motor skill requires teachers to develop lessons that are aimed toward student learning. Research on teaching in PE has now occurred for more than 40 years and there is a body of evidence to suggest that how instructional decisions are implemented and adjusted during classes has a large role in student learning. Teachers are vital to the process but informed decisions can help students learn.

We once thought that teachers taught and that students then implemented what the teacher told them—and then learning occurred.⁹ Most researchers no longer believe that is the way learning takes place in PE. Students mediate the instructions that are given to them by adjusting how they implement tasks and in how they complete the assigned practice. Without considering how instruction impacts individual students, learning likely will not occur for everyone and students will not become physically literate.

One way to think about how instructional design effects motor skill learning can be seen in Fig. 1. Teachers make instructional decisions by planning a lesson, a unit of instruction, and a curriculum. Then, they implement the plan and take actions to help students learn the material. For example, a teacher may plan a unit of instruction in fundamental movement skills for elementary school students by designing content to cover, what will be taught in each class session, how the material will be presented to students, and how students will practice to learn the skills. These last two activities, presentation of the content and instructional design for practice, are the keys to whether students learn.

You will note that the arrows in Fig. 1 go in two directions. The teacher's instructional design decisions impact the student, but how the student chooses to implement those decisions should influence how the teacher proceeds and adjusts the lesson. As we will detail later in this section, practice is essential to learning, but if the student does not perform the task assigned or if it is too difficult they will not learn. Within tasks, good teachers are constantly examining what students are and are not able to do and then appropriately modify their instruction.

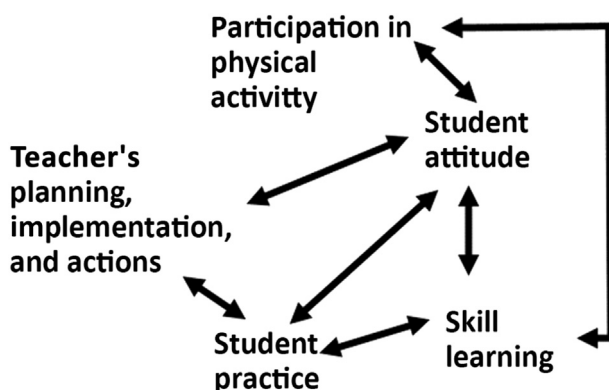


Fig. 1. A model of the instruction and learning variables in physical education.

Student practice, if done well and in sufficient quantities, results in skill learning. This impacts how students will practice on future tasks and in their attitude toward PE and PA.¹⁰ Their attitude then impacts whether they will participate in other PA outside of class.¹¹ Since all of us want to feel competent in any endeavor in which we participate, physical literacy, through the development of motor skills, is necessary for further and sustained participation.

In this section we will review instructional design decisions and their implementation that have been shown to impact student learning in PE. We will begin by discussing time and how it is used and then discuss student practice—quality and quantity—and motor skill learning. We then will discuss a number of instructional activities that can influence student practice in ways that promote learning.

2. Time

Time spent with the subject matter is strongly correlated with student motor skill achievement in PE.¹² Time is necessary for learning but how that time is used is as important as the time itself.^{13,14} Those two aspects—time allocated for practice and how the time is used are essential for learning. If students are not engaged during the allocated time then motor skill learning will not occur—no matter how much time is allocated. For example, if a teacher has students actively engaged then learning is occurring. If, however, the teacher has designed instruction where students spend a lot of time waiting in lines, waiting for equipment to practice, or are in situations that do not permit practice it may look like activity is occurring, but it is only for a few students at a time and learning is not occurring. In fact, Silverman et al.¹² found that time where students were waiting was negatively related to motor skill learning.

It is important to note the special case of game play and other game-like situations and their relation to motor skill learning. When PE classes are playing games motor skill learning probably is not occurring. For example, scrimmage—a game-like situation where the teacher is giving feedback about student performance—has been found to be negatively related to student motor skill achievement.¹² The more time students spend in these game-like situations the less learning occurs. This likely is because students who do not have the skill to participate in a game-like situation are not getting needed practice trials and may, in fact, avoid being placed in a situation where they will fail and embarrass themselves. Without the requisite skill, students will not be successful in a game. It is possible that skill-related games and modified games with others at a similar skill level would provide a transition to game play, but that only can occur if the teacher designs the activity so that students can practice skills. As will become clear in the next subsection practice is very important for motor skill learning.

3. Student practice

How individual students practice is the most important variable in motor skill learning in PE. In fact, student

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