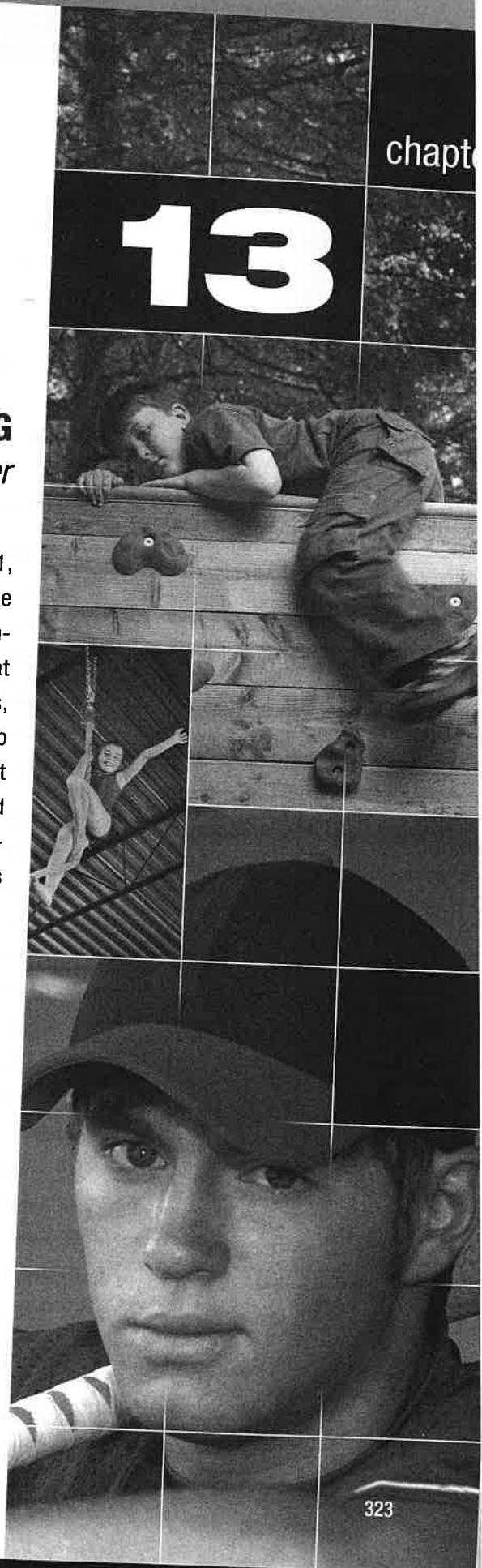


INQUIRY TEACHING

Learner as Problem Solver

As you will recall from Chapter 1, teacher-directed instruction became the predominant approach to teaching physical education in the late 1800s. That method went unchallenged for over 60 years, even as physical education programs began to shift away from sport-centered content. The first and perhaps biggest challenge to teacher-directed instruction emerged in the 1960s from a fast-growing, vocal group of advocates for programs based on the development of intellectual ability, problem solving, and generic movement skills. Labeled *movement education*, such programs have since become the basis for a large number of physical education programs, most notably in the elementary grades. Some teachers retain the original "movement education" label while others use the broader term *movement-based physical education* to denote the philosophy, content, and teaching methods to which they adhere. By whatever label, programs with *movement* in their name share some common characteristics that are relevant to this book of instructional models.

As just mentioned, the "movement movement" (Locke, 1970, p. 208) was perhaps the first significant programmatic shift away from sport-centered



curriculums in physical education. The major learning outcomes in sport-centered programs involve the development of skills, knowledge, and tactics needed for proficiency in a given game form (e.g., basketball, soccer, hockey). The content of any such program is the list of sports to be taught during the school year. Teachers instruct by showing and telling students how to be proficient performers and then giving students time to practice under the teacher's supervision. Of course, you know this as the Direct Instruction model from Chapter 8. But the content of movement-based programs is quite different, at times even directly opposed to sport-centered programming. Taken from a variety of sources, the major purposes of movement-based programs are:

1. The development of basic and generic movement skills that may or may not be precursors to those needed in more complex sport forms (In other words, it is OK if the learned movement does not have any direct application to a known sport—it is also OK if it does.)
2. The development of problem-solving and other intellectual abilities as they apply to human movement
3. The development of expressive and creative movement

It is clear to the advocates of movement-based programs that direct instruction will not work at all to help students achieve these goals. As you know, different objectives should lead to different kinds of instruction. The content of movement-based physical education has remained prominent in our field today, while the most important outcome from the “movement movement” has been the development of an array of inquiry-based strategies used to teach physical education. The method for movement-based teaching has been given several names: problem solving, exploration teaching, child-centered teaching, discovery teaching, and indirect teaching. Regardless of the name, all movement-based instruction shares one important characteristic: rather than the teacher showing and telling students how to move, she uses questions to prompt student engagement in both the cognitive and psychomotor domains. Essentially, the teacher asks a question that leads to some type of student thinking, which in turn leads to a “movement answer” displayed by students. The types of questions can vary, as can the types and level of student thinking and movement answers.

Because question-based learning is at the center of this kind of instruction, the term *Inquiry Teaching* will be used in this chapter to describe this array of strategies that can be defined as an instructional model. No formal Inquiry Teaching model has been developed for physical education, but the unique characteristics of question-based teaching, and the many recognizable strategies included within it, do formulate a coherent set of procedures that teachers can use to promote student thinking, problem solving, and exploration in physical education. And, although those strategies were originally devel-

oped for movement- based programming, they can be used effectively to teach a wide range of physical education content today.

The Inquiry Teaching model described in this chapter shares some similarities with other models in this book, most notably Cooperative Learning (Chapter 10) and Tactical Games (Chapter 14). Like the Inquiry Teaching model, those models use problem-solving teaching strategies. However, there are many differences that make the Inquiry Teaching model unique. Cooperative Learning is based on the team structure for learning activities. Inquiry Teaching uses many kinds of structures, but most often it relies on individual student thinking. Because of the scoring rubrics used by the teacher and communicated to students in the Cooperative Learning model and the situation-based activities in the Tactical Games model, those models typically lead to a narrower range of answers and movements. Inquiry Teaching can allow students to explore a wide range of answers (both cognitive and psychomotor), especially creative ones that are "not obvious."

All physical educators use questions in their teaching. Question-asking is a basic pedagogical skill. However, just using questions from time to time does not constitute teaching by the Inquiry Teaching model. It becomes Inquiry Teaching when entire units of instruction are based on questioning strategies and when question-asking is used nearly exclusively as the way to develop students' intellectual, physical, and emotional abilities in physical education. As with all other models in this book, using something "a bit" or "from time to time" does not qualify as model-based instruction. As you will see in this chapter, Inquiry Teaching is much more than asking students a question and "letting them go at it." When applied according to the model outlined here, Inquiry Teaching requires specific kinds of planning and pedagogical skills that are quite different from other models and that are just as engaging for the teacher as for students.

OVERVIEW

As stated in the introduction to this chapter, there is no formally designed Inquiry Teaching model for physical education. The model presented here is derived from a number of inquiry and problem-solving strategies that physical educators have been using for many years under many different names:

1. Student-centered teaching
2. Problem solving
3. Exploration teaching (Barrett, 1970)
4. Guided discovery (Mosston & Ashworth, 2002)

Because each of those terms describes one or more strategies that are used for short periods of class time, they do not comprise a teaching model in and of themselves. In order to form them into an actual model of teaching, their most common characteristic—using questions to guide learning—will be used

as the foundation. The design of the Inquiry Teaching model owes a large debt to those strategies, but as you will see, the Inquiry Teaching model encompasses much more than any one of them.

Perhaps the most important feature of Inquiry Teaching is that student learning occurs in the cognitive domain first—and at times, exclusively. Students are asked questions that get them to think for themselves or, perhaps, along with one or more peers. Cognitive learning is sometimes the only type of learning sought by the teacher. More typically, however, the cognitive engagement is used as the prerequisite or stimulus for answers expressed in the psychomotor domain: students think first, then express their answer through some type of movement. The interaction between the cognitive and psychomotor domains will depend on the kind of student learning the teacher desires.

There are a number of ways to classify the development of student learning, and thus the kinds of questions used, in the Inquiry Teaching model. As discussed in Chapter 5, one of the most common schemes is the taxonomy devised by Bloom et al. (1956), which has six levels of cognitive knowledge. Based on the kind of knowledge sought with the learning activity, the teacher emphasizes questions at one level more than others, to make sure that students have the prerequisite knowledge for that task. Bloom's taxonomy can be used to differentiate between lower-order and higher-order knowledge, based on the position in the taxonomy. Lower-order learning includes *knowledge* (recognition and recall), *comprehension* (translation, interpretation, and extrapolation), and *application* (using previous knowledge to solve problems). Higher-order learning includes *analysis* (explanation of parts and function), *synthesis* (creativity used to make something new), and *evaluation* (judging the worth or merit of something). A teacher targets the level of knowledge intended in a given learning activity and uses questions that promote verbal and movement answers at that level. Higher-order questions are not necessarily better than lower-order ones; the appropriateness of a question depends on the degree to which it matches the targeted knowledge level and promotes that kind of student learning.

Some entire physical education curriculums are strongly based on Inquiry Teaching. Movement education, educational games, and skill themes (Graham, Holt/Hale, & Parker, 2009) all promote the development of intellectual abilities, which then work to help students be expressive, creative, and skillful in the psychomotor domain. These curriculums are used in many schools in the United States and abroad, most often at the elementary grades. The roles of teacher-as-question-asker and student-as-problem-solver are central in these programs, making Inquiry Teaching an effective model for them. But, as you will see in this chapter, the Inquiry Teaching model can also be effective with a wider range of content and in all grade levels.

ALIGNMENT WITH NASPE NATIONAL STANDARDS

Exhibit 13.1 shows the alignment of the Inquiry Teaching model with the NASPE standards. As you can see, Inquiry Teaching is consistently and strongly aligned with all standards except standard 4. Because the Inquiry