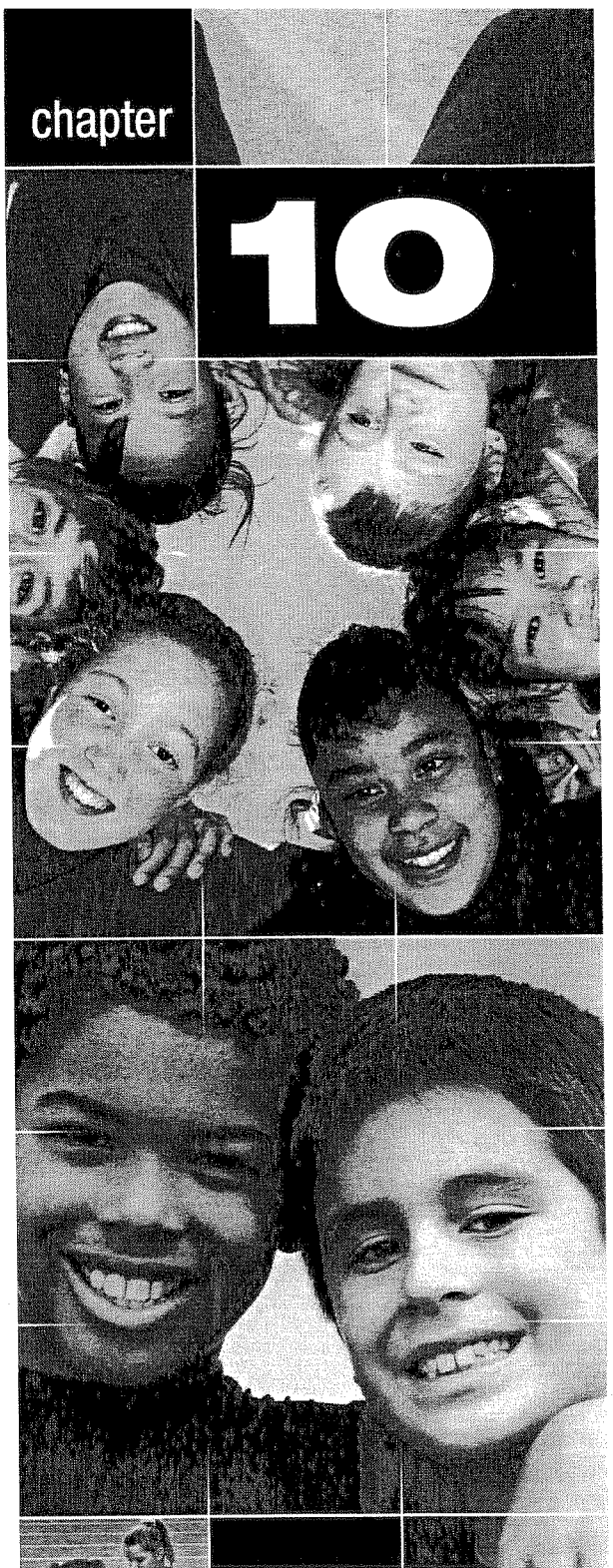


COOPERATIVE LEARNING*Students Learning With,
By, and For Each Other*

One of the major dilemmas all teachers face is how to engage every student in the learning process at the same time, without allowing one or a few to dominate the interaction and reduce the learning opportunities for others. Consider this scenario: Mrs. Prusak asks her fifth-grade class, "Who can show me three important things to do when you are throwing a ball?" Several students who have answers immediately raise their hands. Mrs. Prusak calls on Roberto, who says, "Make sure you step with your opposite foot," and he shows the rest of the class how to do that part of the throw. The teacher then calls on Mara, who says, "You need to follow through to your target," while she demonstrates the proper technique. Finally, Mrs. Prusak calls on Madison, who adds, "You should turn your opposite shoulder toward your target when you start, like this," as she also shows the other students the correct movement. Acknowledging all three as good answers, Mrs. Prusak continues to the next part of her task pre-



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questions. First, it becomes competitive because students who have answers raise their hands to get the teacher's attention and the chance to be "in the spotlight" for a moment. Second, when those students raise their hands, the other students are likely to stop trying to come up with answers of their own, in effect becoming passive learners for the moment. As a result, students who do not have an answer right away do not learn for themselves—they are actually taught by those students who do have answers. Third, this approach does not allow students to interact with each other, promoting a kind of isolation among them even while they are very close to each other. That is not to say this approach is bad—only that it contains some features that open the door to other possible ways to structure the learning environment. One such way is represented by the Cooperative Learning model, developed in the early 1970s and now used in many schools, at all grade levels, and for every subject area in the curriculum, including physical education.

Cooperative Learning is not really a model by itself. It encompasses a set of teaching strategies that share key attributes, the most important being the grouping of students into *learning teams* for set amounts of time or assignments, with the expectation that all students will contribute to the learning process and outcomes. Here the word *team* takes on the same meaning as it does in sport—all members work to achieve a common goal. In this model, that common goal is the completion of a learning task given to the team by the teacher. The task can require them to base their achievement on intra-group performance (trying to be the best team they can be), on inter-group performance (competing with other teams), or shared-group performance (learning content so that they can teach it to the rest of the class).

The Cooperative Learning model was developed and initially researched at Johns Hopkins University in the mid-1970s. Led by Robert Slavin, this development was first reported in a series of research and topical articles in educational journals. It is now one of the most recognized instructional models in education worldwide. Slavin's early label for the model was Student Team Learning (STL). Slavin (1983) stated that STL is based on three concepts: team rewards, individual accountability, and equal opportunities for success.

1. Team rewards. The main building block in STL is a task the teacher gives to each team (made up of 4 to 6 students). All teams can be working on the same task or different but related tasks. Either way, the teacher includes one or more stated performance criteria that teams must meet, along with the reward to be received by those teams who meet the standard. Rewards can be cumulative points, classroom privileges, public recognition, or grades.

2. Individual accountability. Another key part of the learning task is the specification that all team members' performance is included in the team score or

assessment. Therefore, all students must contribute to the team's effort, so it is important that all members learn and achieve to their fullest potential. This requirement leads to regular peer teaching within groups as higher-ability students interact with lower-ability students to enhance the whole team's performance. In turn, peer teaching becomes a large factor in the model's ability to promote high levels of social learning within teams.

3. Equal opportunities for success. The process of selecting student teams is critical in STL. The model calls for groups of 4 to 6 students who are as heterogeneous as possible and for all teams to be equal in their total performance abilities. Student learning teams should be established for a mixture of gender, skill levels, previous experience with the content, cognitive ability, and motivation. This diversity within teams promotes social learning outcomes within the model. Balancing teams on performance ability allows fair competition and increases student motivation. Once that balance is achieved, and with the stipulation that all team members' performances count, there is a greater likelihood that all students will have an equal chance to be successful and that each one's contribution will be valued by other team members.

As more techniques developed under these three main concepts, a more inclusive name was given to the model: Cooperative Learning (Slavin, 1983). The Cooperative Learning label is the one now used most often by Slavin and many other proponents worldwide, so it will be used in this book, even in reference to developments prior to 1983.

It is important to note the difference between Cooperative Learning (the model) and collaborative learning (various group-learning strategies). To live up to its name, the Cooperative Learning model stipulates that all three major design concepts must be present. The model also includes a finite number of recognized learning task structures that adhere to those concepts and have been validated by research. In addition, six procedural elements give the model much of its identity and uniqueness (Cuseo, 1992):

1. Intentional group formation
2. Continuity of group interaction
3. Interdependence among group members
4. Individual accountability
5. Explicit attention to the development of social skills
6. Instructor as facilitator

By contrast, collaborative learning techniques represent a much less formal and less enduring structure. They feature small groups that are together usually for only a short time, most often for reasons related to management, not to social and performance learning. Collaborative structures can be characterized as "students learning alongside or assisting one another," while cooperative techniques can be characterized as "students learning with, by, and for each other."

OVERVIEW

As mentioned, Cooperative Learning is a set of related instructional strategies that share three common attributes: team rewards, individual accountability, and equal opportunities for success for all students. However, given that all the strategies used in Cooperative Learning have those common attributes as well as established procedures for instruction, it is possible to regard them as a formal instructional model, as this book does. Again, it is those attributes and procedures that differentiate Cooperative Learning from other collaborative or small-group instruction.

Eileen Hilke (1990) lists the major instructional goals for Cooperative Learning: (1) to foster academic cooperation among students, (2) to encourage positive group relationships, (3) to develop students' self-esteem, and (4) to enhance academic achievement (p. 8). From those goals it is clear that Cooperative Learning is both achievement-oriented and process-oriented. *Achievement-oriented* means that the model is designed to foster student mastery of the instructional unit's content, whatever it may be. The model places a strong emphasis on student learning. *Process-oriented* means that the way students interact with each other in order to learn the content is equally important and, in fact, facilitates each student's achievement. It is not that "students must learn to cooperate" but that "students must cooperate to learn."

Five essential elements of Cooperative Learning promote the process of learning, according to Johnson, Johnson, and Holubec (1994, pp. 27–34):

1. Positive interdependence among students. Students must understand that all members of the cooperative team help the whole team achieve its goals. Each team member brings to the group unique talents, knowledge, experience, and skills that can aid the team. This array of talent might also lead to intellectual conflict within a group, which then provides even more opportunities for social learning to occur. This model, then, makes it possible to turn a seemingly negative situation into one that gives rise to other kinds of learning.

2. Face-to-face promotive interaction. The team structure can cause students to support, facilitate, and reinforce the work of teammates—to "root them on" as sport team members do for each other. Students soon realize that all members of the team must achieve to their fullest potential for the team to reach its shared goals, so it is best for the group to pull together and take a genuine interest in the achievement of all members.

3. Individual accountability/personal responsibility. Cooperative Learning works best when all students in the group contribute their fair share. That does not mean all students get the same score on assessments. Rather, all students should participate fully in the group process and learn as much as their own abilities allow. In order to make this happen, the teacher must set expectations for students' participation in their groups and find ways to assess each student's contribution. In addition, all performance assessments must include some form of individual student scoring so that every student's learn-

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ing counts. This type of accountability promotes increased levels of personal responsibility in students.

4. Interpersonal and small-group skills. Student achievement in Cooperative Learning is highly valued. Of equal value is the learning of interpersonal skills displayed in the team dynamics. The model emphasizes knowing and trusting team members, good communication, mutual acceptance and support, and conflict resolution. What social learning students don't bring to their team as the process begins must be learned as the cooperative process unfolds.

5. Group processing. To further stress the value of social learning, the teacher must regularly get students to reflect on, or process, their shared team experience. This processing should be a planned part of each lesson, particularly in the early part of a Cooperative Learning unit. At that time, the teacher takes an active role in teaching students how to work well in groups in order to reach their shared goals—both academic and social. The key strategy here is that the teacher should not directly tell students how to behave and interact with teammates. The processing should be more indirect, to foster thoughtful student reflection in this area of learning.

The formal Cooperative Learning model includes a recognized set of instructional strategies that can be used within it—once again, it is not just putting students in small groups to learn next to each other. A strategy can be used for a short learning task (one or two lessons), an extended learning task (three to five lessons), or an entire unit. Due to the time it takes to establish groups and to assign a Cooperative Learning task, using more than one strategy in a lesson is not recommended. Some Cooperative Learning strategies are designed specifically for subject areas other than physical education and will not be mentioned here. Those that would seem most effective for physical education are presented later in this chapter.

According to Johnson, Johnson, and Holubec (1994, pp. 37–48), the teacher who uses Cooperative Learning has six major role functions. As you can see, some teacher control is used to make groups and set the learning task in motion; from there, the students assume much of the control in this model. Here are the teacher's primary jobs:

1. Specify the instructional objectives. The teacher must delineate the academic objective(s) for the assigned task. What content is to be learned, and what are the stated performance criteria? The teacher must also specify the social skills objectives to tell students what it means to have good group interactions and process as they work together in teams.

2. Make pre-instructional decisions. Cooperative Learning teachers must make a number of planning decisions before units and lessons begin, in order to facilitate student interaction on teams. These decisions: allow each team to have a clear understanding of its assignment, inform teams of the performance criteria in place, announce how much time they will have to complete each

assignment, and let them know what instructional resources (equipment, space, and so forth) they will have to work with. The teacher must also decide how teams will be selected, how learning will be assessed, and how social skills will be monitored. Undoubtedly, this model requires a lot of pre-unit planning that eventually allows the teacher to set the cooperative process in motion.

3. Communicate task presentation and task structure. There must be a delicate balance between the amount of information students need to get going on the assigned task and the amount of performance or background information the teacher gives about how to complete the task. Many cooperative tasks will emphasize task structure (space, equipment, time, teams, and criteria) over task presentation. When in doubt about the amount of information to give about task presentation, give less than one might suspect, as a general rule. This encourages teams to be a bit more resourceful and to figure out on their own when they need more information from the teacher—and then ask for it.

4. Set the cooperative assignment in motion. After the teacher has selected teams, informed the class of the upcoming assignment, and provided the task structure, she will simply tell students to “get going” on the assignment. Students should be given only enough information to allow them to understand the assignment, without any indication of how to complete it. When teams are first engaged in the task, it will take some time for them to grasp the problem embedded in the assignment and to get organized for its solution. The teacher needs to monitor this period closely to see that teams begin to move in the right direction.

5. Monitor the cooperative learning groups and intervene as necessary. As teams engage in the assignment, the teacher will monitor to see if the teams are working cooperatively. Note that this does not mean the teacher monitors for progress on the assignment; that will take care of itself if teams are using all of their resources and if all team members are contributing to the best of their ability. Interventions by the teacher should happen only when a team is not working cooperatively. Those instances then become “teaching moments” for the development of social skills and teamwork and provide the topics to be processed at the end of each class.

6. Evaluate learning and processing interaction. Assessment in Cooperative Learning takes place in two areas: (1) the quality and quantity of student learning and (2) the effectiveness of team interactions. The teacher establishes assessments and criteria for both outcomes. The assessment of achievement is likely to be more summative, once teams complete each assignment. The assessment of team interaction must be formative, and quite regular, so that periods of ineffective interaction will be fewer and shorter.

Cooperative Learning has received an enormous amount of attention, both from supporters and critics. That attention has resulted in the discussion of the advantages and disadvantages of Cooperative Learning strategies as they are used in the formal sense of the model described in this chapter. McCaslin and

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Good (1996) summarize both sides of the debate over Cooperative Learning as follows.

ADVANTAGES

1. Cooperative assignments simulate the way most people work outside of school, by sharing work to "get the job done."
2. Subject matter knowledge increases because the sum of a group's abilities is always greater than that of any single member.
3. Students learn dispositions about shared tasks and group challenges.
4. Group members serve as developmentally appropriate models for each other.
5. Students learn to manage and use human resources.
6. Students come to value shared academic work more than working in isolation.
7. Students develop a greater understanding of self and others from the shared work.
8. Students can make choices that regulate the pace and process of learning.

DISADVANTAGES

1. If group members focus too much on the product of the assignment instead of the process, they become too product-oriented and miss the other major point of the model.
2. When more emphasis is placed on process than achievement, students can value "getting along with others" more than "working with others to achieve a stated goal."
3. When all students in a group share misconceptions, there is no way to change those misconceptions, because there is little content interaction with the teacher.
4. There is a danger of one or more students in each group becoming authority figures in place of the teacher.
5. Higher achievers can come to feel pressure to make disproportionately more contributions than other students.
6. There is a risk of some students learning to be "social loafers," either intentionally or unintentionally.
7. Students who try hard but make a lesser contribution to the team's achievement may feel ashamed or become defensive.
8. Some students may limit their own contributions (and learning) to allow other students a greater chance to contribute.

Read over the advantages and disadvantages once again. You will note that the advantages are part of the model's design; the disadvantages occur when the model is not applied correctly, and these can all be avoided or reduced by careful teacher planning and monitoring of the group process. In that sense, Cooperative Learning is no different from any of the other models

in this book: when implemented according to its design, there is a strong likelihood that the model will promote the kinds of student learning it is designed for. If applied incorrectly, the model will not work as intended, but that should not be regarded as a design flaw and cause teachers not to use it when called for. Rather, teachers should be aware of those potential problems and plan accordingly to reduce or eliminate them from the model.

ALIGNMENT WITH NASPE NATIONAL STANDARDS

Exhibit 10.1 shows the alignment of the Cooperative Learning model with the NASPE standards. It should be emphasized that the ability of Cooperative Learning to address each of the national standards will be affected by the way a teacher designs specific learning tasks within a unit of instruction. For example, Cooperative Learning can be strongly aligned with

EXHIBIT 10.1

Alignment of Cooperative Learning with NASPE National Standards.



NASPE STANDARD	ALIGNMENT RATING	COMMENTS
1. Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities	1–3	Depends on the degree to which these outcomes are intended in the assigned team learning tasks
2. Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities	1–3	Depends on the degree to which these outcomes are intended in the assigned team learning tasks
3. Participates regularly in physical activity	3	Moderate-to-vigorous physical activity not common, because many cooperative learning tasks involve team discussion
4. Achieves and maintains a health-enhancing level of physical fitness	3	Moderate-to-vigorous physical activity levels not high enough to promote fitness outcomes, because many cooperative learning tasks involve team discussion
5. Exhibits responsible personal and social behavior that respects self and others in physical activity settings	1	One of the best models for learning personal and social behavior in physical education
6. Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction	1	Strong alignment for all of these outcomes

Ratings categories:

1. Strong alignment
2. Moderate alignment
3. Weak alignment

standards 1 and 2 when the teacher designs team learning tasks that promote skill concepts and performance. This model is weakly aligned with those standards when the teacher designs team learning tasks that involve little or no motor performance or concept learning. However, the Cooperative Learning model is strongly and consistently aligned with standards 5 and 6.

FOUNDATIONS

Theory and Rationale

Deutsch (1949) suggested that there are three main goal structures in education: individualistic, competitive, and cooperative. Models like PSI (Chapter 9) are highly individualistic—students work on their own to achieve learning objectives and have very little interaction with others, including the teacher. Models like Direct Instruction (Chapter 8) are highly competitive because students must assert themselves to gain the teacher's attention and obtain resources needed to learn content, and they are sometimes assessed relative to other students' achievement. Cooperative models are well represented in this book by the one described in this chapter, by the Sport Education model (Chapter 11), and by the Peer Teaching model (Chapter 12). These models intend that students learn with and from each other through a structured interdependent relationship. The achievement of academic learning goals is a high priority but is no more important than social learning processes and skills. Clearly, the Cooperative Learning model has its foundation in Deutsch's third kind of structure.

The Cooperative Learning model's design is based on the convergence of four major sets of theories: motivation, cognition, social learning, and behaviorism. This is a distinguishing feature, because most other models are derived from only one or two theories about learning. However, all four theories play equally key roles in the design and operation of this particular model.

1. *Motivational theory* is used to create structures that get teams to recognize that the only way the team can achieve is for all its members to contribute and achieve. That prompts individual students to give their best and initiates group interactions to meet shared goals.
2. *Cognitive theory* is used to provide students with developmentally appropriate cooperative learning tasks that give teams the right amount of challenge to accomplish team goals. If the task is too easy, the team does not need to use all its resources to achieve the goal. If the task is too difficult, team members will become frustrated, leading to dissent and even withdrawal from the task.
3. *Social learning theories* figure into the model because much of the learning occurs by listening to and watching other team members. The process becomes reciprocal as one student makes progress and then shares that learning with others, most often by showing and explaining to them. Teachers contribute to the social learning agenda of the model when they watch for positive and negative instances of social skills and use them as "teaching moments" to highlight desired and undesired interaction skills.

4. *Behavioral theory* provides a relationship between cooperative processes, student on-task engagement, and the rewards of team achievement. Good cooperative tasks make clear to students the social skills (behaviors) that are needed in that situation, the learning goals, and the consequences for achieving or failing at the assigned task. Note that students are not directly informed about how to complete the task—only the parameters under which that task will be pursued.

The rationale behind the Cooperative Learning model is straightforward, as explained by its principal designer, Robert Slavin (1990):

[C]ooperative structures create a situation in which the only way group members can attain their own personal goals is if the group is successful. Therefore, to meet their personal goals, group members must help their group mates to do what helps the group to succeed, and perhaps more important, encourage their group mates to exert maximum effort. (pp. 13–14)

The careful selection of groups that stay together for a longer period of time and the structuring of group tasks to promote academic and social learning outcomes are the major differences between Cooperative Learning as a model and the strategy of simply placing students in small groups for a single learning task in class. Keep this distinction in mind as you learn more about this model and as you use it to teach physical education.

Assumptions About Teaching and Learning

The Cooperative Learning model assumes certain principles about teaching and learning; these principles are listed separately below.

Assumptions about teaching

1. The teacher's main role is to serve as facilitator of students' academic and social learning.
2. The teacher can take on the role of facilitator only after he directly establishes the setting, structure, and parameters of group tasks. That is, the model begins with directed instruction and then becomes very indirect after teams are engaged in their assigned task.
3. The teacher is the key person to teach students the reflective processes for social learning and monitor for the application of those processes.
4. The teacher must seek a balance between social and academic learning goals. The process of social learning is just as important as the academic product(s) of learning.

Assumptions about learning

1. Cooperative structures promote higher levels of social and academic learning than individualistic or competitive structures.
2. Groups can, will, and *must* work cooperatively to achieve personal and shared objectives.

3. Team learning works best when groups are heterogeneous in all key factors and when the same groups are maintained over several class periods or an entire unit.
4. All group members have something to contribute to the achievement of the group's goals.
5. Learning tasks must specify criteria for individual accountability, and all members' performance must count in the team's assessment score.
6. "Social loafing" can be, but is not automatically, a part of the group process. Parameters must be stated to ensure that all team members contribute to the group's achievement.
7. Groups of students can organize themselves to pursue and complete an assigned task.

The Major Theme of Cooperative Learning: Students Learning With, By, and For Each Other

"Students learning with, by, and for each other" sums up the main design features of the Cooperative Learning model. It acknowledges that students will need to interact *with* each other in positive ways that lead to the achievement of academic and social outcomes in the model. It also recognizes that much of the teaching in the model will be done *by* students, in a peer-based process. Finally, the theme emphasizes that students must pull together *for* the team to succeed in accomplishing its academic and social learning goals.

Learning Domain Priorities and Domain Interactions

Domain priorities

Cooperative Learning is designed to promote increased levels of student achievement mediated by small-group interactions and social skills. The former cannot happen if the latter does not occur, making the acquisition of pro-group social skills a prerequisite to individual and group learning. That makes the *domain priorities* of Cooperative Learning a bit complex, considering that the affective domain will always share the highest priority with the major objective of the assigned learning task. For instance, if the assigned task has a primarily cognitive learning focus, the domain priority would be:

First priority (shared): Affective and cognitive learning

Third priority: Psychomotor learning

If the assigned task has a primarily psychomotor learning focus, then the domain priority would be:

First priority (shared): Affective and psychomotor learning

Third priority: Cognitive learning

To complicate matters even more, a good Cooperative Learning task in physical education will challenge students equally in all three domains, requir-

ing good group interaction and reflection (affective), an appropriate degree of intellectual rigor (cognitive), and the eventual demonstration of skilled movement (psychomotor). When this happens, all three domains receive approximately the same level of emphasis and development. If students or groups cannot learn in all three domains equally well, they will not be successful at the assigned task.

Domain interactions

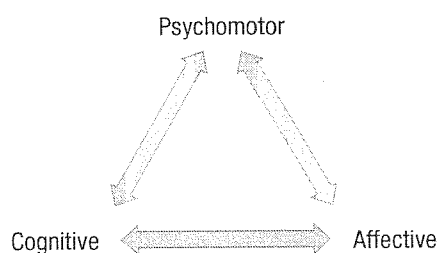
The domain interactions for Cooperative Learning tasks become equally complex when all three domains are shared. The interaction is not linear, with learning in one domain following from the other domains. Rather, all three domains take on a reciprocal relationship: learning in any one domain is dependent on learning in the other two. For instance, in order to achieve in the psychomotor domain, students in each small group must have good interpersonal skills (affective) and good problem-solving abilities (cognitive). This reciprocity must occur at all times within all domains, as Exhibit 10.2 illustrates.

This reciprocal relationship is the basis of the entire model and underscores the need for students to cooperate *not just to get along*, but to learn. It also emphasizes an important design feature in the model: the process of learning is just as important as the products of learning.

Student Developmental Requirements

Student readiness for learning. As the domain interactions indicate, the Cooperative Learning model will engage students in all three domains simultaneously much of the time. Student readiness in this model is then tied to their *potential* to contribute to the team's success by applying themselves to the best of their ability. If a student is not willing to apply herself in that way, then she is not ready to learn via Cooperative Learning. Because the process of selecting heterogeneous teams ensures that students will come to the team with different abilities, the model's most essential prerequisite is simply that each team member is actually ready to learn cooperatively. If too many students cannot or will not accept the shared responsibility for learning, then Cooperative Learning should not be selected for the upcoming unit in physical education.

EXHIBIT 10.2 Reciprocal domain interaction in Cooperative Learning.



Student receptivity to the model. Using the Reichmann and Grasha (1974) profile for student learning preferences, Cooperative Learning will most often work best for those students who are classified as participant, collaborative, competitive, and independent. The model requires that all students participate to the extent of their abilities as members of a learning team. Students who cannot participate effectively will not be receptive to this model. Collaboration is the key process needed for each team to succeed, so students who do not like to share work with others will be less open to Cooperative Learning. Competitive students will be receptive to this model and accept the challenge of completing sometimes difficult learning tasks and occasionally competing against other teams in class. The independent student will welcome Cooperative Learning because the model relies little on teacher direction. In this model, independence characterizes the team's relationship with the teacher.

Validation of the Model

Research validation

If you will recall, the Cooperative Learning model actually comprises a set of learning strategies that share some common attributes with, and a set of procedures that distinguish it from, simpler group-based learning activities. The Cooperative Learning strategies recognized as part of the model also share one other feature: they all started as experimental learning designs and were developed from systematic research in schools and school-simulation settings. With most other models presented in this book, the model was first designed and then researched. For Cooperative Learning, the strategies were shaped and developed from research findings until those findings began to validate each of the strategies over time. This is a very powerful way to validate an instructional model, because the research actually leads the development of the model, rather than being used to see how the model works after it has been designed "on paper."

Cooperative Learning has been the focus of an enormous number of research studies in the past two decades. In his review of more than 100 studies, Slavin (1995) summarized the major research findings about Cooperative Learning:

1. In 64 percent of the studies, the Cooperative Learning groups had significantly better achievement gains than counterparts who had some other form of instruction.
2. Students in Cooperative Learning groups improved cross-racial relationships significantly more often than students in control groups with traditional methods.
3. Students in Cooperative Learning groups improved cross-ability relationships significantly more often than students in control groups with traditional methods.
4. Cooperative Learning can be successful with students at every grade level and in all subject areas.

There is a wealth of research on Cooperative Learning in many subjects, including a growing amount of studies in physical education settings (see Dyson, Linehan & Hastie, 2010). The early results are generally supportive of Cooperative Learning's ability to promote fitness improvement and positive social interactions in young children and to reduce negative social interactions. An interesting study (Yoder, 1993) found that Cooperative Learning in a dance unit improved both social learning and achievement.

In a review of research on Cooperative Learning in physical education, Dyson (2005) cites a number of benefits for students in this model, despite the relatively little research available as yet:

1. Improved social reasoning
2. Increased interpersonal skills
3. Higher rates of active participation
4. Improved motor skills and game strategies
5. Increased tendency to help others improve their skills
6. Increased self-responsibility for learning
7. Increased willingness to hold each student accountable (in teams)

The effectiveness of the Cooperative Learning model has been validated in hundreds of studies in almost every school subject area. The fact that only a few studies have been completed in physical education probably reflects the newness of formal Cooperative Learning in our subject, and it should not call into question the model's potential in our field. In fact, the strong similarities between Cooperative Learning and the Sport Education model, which has its own early impressive research record, predict additional supportive findings on Cooperative Learning in physical education.

Craft knowledge validation

The record of craft knowledge validation for Cooperative Learning resembles that of its research validation. That is, the model has an extensive and impressive record of use in many school subject areas in every grade level from elementary to college. Thousands of teachers have used the model and refined its instructional strategies for many situationally specific applications (Slavin, 1995). This history validates not only the model's effectiveness but also its adaptability for many settings and subject areas. A study by Stevens and Slavin (1995) focused on five entire elementary schools that used Cooperative Learning in several subject areas for two years, with positive results for many types of students. The key point here is that the teachers at each of those schools voted unanimously to be trained in Cooperative Learning and to implement the model for two full school years. That is strong evidence that those teachers were familiar enough with Cooperative Learning before the study began to commit to its use for an extended period of time.

Craft knowledge validation for Cooperative Learning in physical education has started to grow. Grineski (1996) stated that very few physical education

teachers use the formal Cooperative Learning model; they instead use some form of small group-based learning activity that they might misconstrue as Cooperative Learning. However, since the publication of Grineski's book, the use of faithful versions of Cooperative Learning has increased rapidly in physical education (Dyson, Linehan & Hastie, 2010; Hannon & Ratliffe, 2004). More teachers have become familiar with the kinds of learning tasks used in this model, in part attributable to the online sharing of lesson and unit plans on sites such as PECentral (www.pecentral.org/) and PELINKS4U (www.pelinks4u.org/).

Intuitive validation

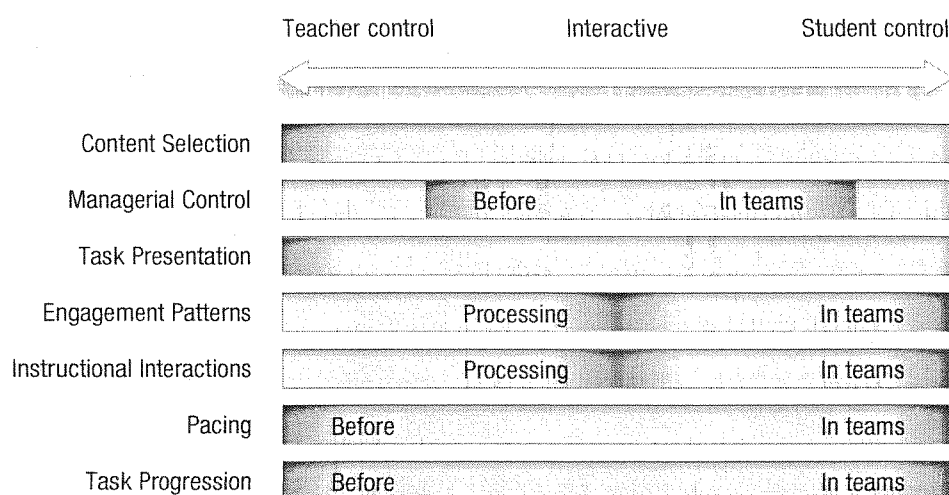
Considering the team-sport background of so many physical education teachers, this model makes sense for physical education. Nearly all of us have experienced and recognized the role of team effort in the achievement of shared and individual goals in sport settings. We have all rooted on teammates, let our own success hinge on the success of others, and pulled together for the common good of the team. We also know that the team is only as strong as its weakest player—so we all try to help every other member perform to his fullest potential. If those reasons explain why sport-team members need to work together in assigned group tasks in physical education, it is easy to come up with a strong rationale for the Cooperative Learning model. It makes sense that any group of students will achieve more when they work together than when they work individually and that their social development is greatly enhanced by that process—giving strong intuitive validation for the use of Cooperative Learning in physical education.

TEACHING AND LEARNING FEATURES

Control

The control profile for Cooperative Learning is based on three different patterns that occur during lessons. The teacher controls decisions about the assigned task, team selection, and determining the parameters for completing the task (e.g., available time and other resources), and the criteria for performance and social skill behaviors. After that, students control how they will go about completing the task. It then becomes highly interactive as the teacher processes the learning of social skills with students during class and at the end of class. These three major structures in a cooperative lesson determine the control profile for Cooperative Learning. Exhibit 10.3 indicates how each component of the profile can change according to the different structures. More complete explanations of the profile's components follow.

1. **Content selection.** This component of the Cooperative Learning model is very much under teacher control. The teacher determines the series of tasks that teams will pursue in the unit and communicates them to students. A formal content listing is difficult to determine ahead of time because the teacher cannot often predict the needed social learning skills in advance. Those needs

EXHIBIT 10.3 Control profile for Cooperative Learning.

will become apparent as teams work on the assigned tasks. The academic content is also difficult to list ahead of time because each task will probably be large enough to contain many outcomes within it. Given that, the content listing is usually represented by the series of learning tasks the teacher will assign to groups as the unit progresses. That process is almost always teacher-controlled.

2. Managerial control. Teachers maintain strong managerial control before the teams start to engage their learning tasks. The teacher selects the teams, decides what resources will be available, determines the amount of time to be allocated for each task, and decides the parameters within which teams must remain. Once the teams begin to pursue the task, this control shifts quickly to the students within each cooperative group. They make decisions about how to organize themselves, how to divide the work to be done, and how to use their available time and resources.

3. Task presentations. There are no task presentations by the teacher in Cooperative Learning. However, the teacher “frames a problem” by explaining the assigned task and the ground rules teams must follow in their pursuit of it. After that, it is up to students, in their groups, to explain to each other what needs to be done and how to do it. It is expected that students will use peer teaching as their main mode of instructing.

4. Engagement patterns. There are two primary engagement patterns in this model. One of the patterns is strongly student-controlled, occurring among students in each of the cooperative teams. They decide who takes the lead at any given time, and they establish their own engagement plans for completing

the task. The other pattern is interactive: the teacher uses questions to develop students' social skills when problems occur and in the post-lesson review. To be most effective, this processing should allow students time to reflect on their current behavior patterns and to come up with their own solutions when they are not working cooperatively in groups.

5. Instructional interactions. As with the two distinct engagement patterns, there will be two types of instructional interactions with Cooperative Learning. The interactions will be the same two types as the engagement patterns: almost totally student-controlled as teams work on the assigned tasks; interactive when the teacher is attempting to develop students' social skills. While students work in their teams, the teacher takes on the roles of facilitator and primary resource person. The teacher facilitates the cooperative processes, getting teams to work to their fullest capacity; the teacher also serves as the "resident expert" when teams need advice or want someone to listen to their ideas. The most effective Cooperative Learning teachers are those who can facilitate the learning process without providing teams with too much information or assistance.

6. Pacing. The pacing of class is controlled by the teacher as teams are selected and the learning problem is framed. After the teacher has introduced the learning task and informed teams about how long they will have to complete the task, the pacing of instruction becomes strongly student-controlled. In their teams, the students decide how much work needs to be done and how long they plan to spend on each part of the task. The teacher intervenes only when a team's plan will obviously not allow that team to finish on time.

7. Task progression. The teacher decides when a new task will be assigned and how long students will have to work on it. As with pacing, once the teams are working together, each team determines the steps needed to complete the task and when to consider each part of the task finished. Having a work plan and evaluating it regularly is a key part of student participation in the Cooperative Learning process.

Inclusiveness

The Cooperative Learning model is designed to include every student in the team process. This inclusion is achieved in three ways. First, the team selection process ensures that all teams are heterogeneous, comprised of students with diverse abilities, motivation, and personalities. That diversity promotes interaction among all types of students. Second, all members are accountable for making a contribution to the team's success, so there is strong motivation for students to support, encourage, and teach each other to meet the team's goal. This promotes fuller participation by all team members. Third, the team's success is more likely when it recognizes and uses the full range of talent among its members, promoting an appreciation for any contribution that helps the team achieve its goal. Therefore, it is in the team's best interest to find ways to include, not exclude or isolate, students with unique abilities and talents.

Slavin (1995) cites several studies that support the potential for Cooperative Learning to promote greater awareness, appreciation, and inclusion for diverse student groups: "Cooperative Learning increases contact between students, gives them a shared basis of similarity (group membership), engages them in pleasant activities together, and has them work toward common goals" (p. 66). This statement highlights one of the strengths of the Cooperative Learning model—it is specifically designed to be inclusive and to make every student's contribution count. The teacher's group-processing procedures can teach students how to include all team members, taking inclusion one large step beyond just "learning next to one another" to "learning with, by, and for each other."

Learning Tasks

As previously explained, the Cooperative Learning model constitutes a group of related teaching strategies that share a common purpose, procedures, and student engagement patterns. This section will describe the major learning strategies and explain how each one can be structured for physical education instruction.

Framing the task (Task presentation)

Cooperative Learning involves no task presentation in which the teacher shows students how to set up and perform learning tasks. Instead, it is up to each team of students to organize themselves for the assigned task and to determine their own solutions to the learning challenges present in the task. In that way, this model is very different from nearly all other models in this book. The teacher does take time to *frame* the learning task in a manner that allows students to understand what the task is without informing them how to complete the task (that is, without teaching them). When framing the task, the teacher should do a number of things:

1. Announce membership for all teams and explain how teams were selected
2. Announce how long teams will have to complete the task
3. Announce which Cooperative Learning strategy will be used for the task (e.g., "We are going to be using the 'Jigsaw' approach for the next five classes. Each group will learn one tennis skill and then teach it to the rest of the class when it's their turn.")
4. Inform teams of any ground rules to be in effect
5. Let teams know what resources will be available to them and how shared resources will be divided among teams
6. Explain the learning objectives and how they will be assessed
7. Explain objectives for social learning and how they will be assessed
8. Explain the teacher's role as facilitator
9. Inform teams of any products that should be generated in the task (e.g., posters, portfolios, team records)
10. Explain the rules for team competitions when used with some strategies

After the teacher has framed the task, she should provide students with an opportunity to ask her to clarify the directions and parameters for completing the task. When students have no more questions, the teacher simply says, "OK, go to it," and the Cooperative Learning process is set in motion.

Task structure

There are many recognized organizing strategies that can be considered part of the formal Cooperative Learning model. Five of these strategies can be adopted for the kinds of content and outcomes typically taught in physical education. Each strategy has its own unique task structure that teachers should explain to students as part of the task presentation.

1. Student Teams–Achievement Divisions (STAD). First developed by Robert Slavin (1980), this strategy requires students in a class to be placed in noncompeting teams. All teams are given the same assigned learning task and needed resources for it. The teacher allocates a set time period for teams to learn and practice initially, typically 15 to 20 minutes. The teacher is available during this time to clarify the task or to serve as another resource for teams. At the end of the time period, all members of each team complete an assessment task on the knowledge or skill just learned. That assessment could take the form of a short quiz, a skills test, or any type of performance test that covers the content just practiced. The scores for all team members are added together to get a team score. Team scores are announced, and the teacher interacts with the class to discuss the cooperative process and make suggestions for improved group interactions. Teams are then directed to return to practicing the same task again, with an added emphasis on cooperation, peer teaching, and improving the scores of every team member. A second time period is allocated, after which all team members complete the assessment task again. Two goals are stated for the second practice period: all individual members and the team as a whole should beat their first score. Obviously, succeeding at the first goal as individuals automatically achieves the second goal for the team. The teacher assigns team grades based on the amount of improvement in the total team score from the first to second assessment. Only a "team grade" is given, so that students who improve between assessments will be motivated to help (teach) other students do the same. (See the Cooperative Learning unit plan on the IMPE website.)



Orlick (1982) uses two variations of STAD in physical education, called Collective Score. Scores can be totaled for entire classes or for entire schools. Both variations expand the scope of Cooperative Learning so that more students are working for and supporting each other.

2. Team Games Tournament (TGT). The initial structure of TGT resembles that of STAD. Students are placed in teams, presented with the assigned learning task, and given a set period for the initial practice or knowledge acquisition. All members of every team complete an assessment at the end of the practice period. At this point, TGT departs from STAD. In TGT, scores of individuals



on each team are compared with the corresponding ranked scores from all other teams—first against first, second against second, and so on. Each winning score earns the team a predetermined number of points, which allows all students to contribute to their team's success, regardless of ranking. A second round of practice takes place, which usually results in increased interaction and support on each team. The assessment is given again, and ranked scores are compared again with points awarded in the same way. The team with the most points at the end of the game wins the TGT. (See the unit plan for Cooperative Learning on the IMPE website for a scoring example.) It is possible to keep teams intact for many assigned tasks and to make the tasks progressively more difficult over time. It is not necessary to keep students on the same task for more than two practice and assessment periods.

3. Team-Assisted Instruction (TAI). This strategy combines the Cooperative Learning and PSI (Chapter 9) approaches. After teams are selected, a list of learning tasks with performance criteria is given to all students. The list contains a progression for one or more skills and knowledge areas, going from easy to more difficult. Team members may practice the tasks individually or with assistance from other members. When a student has completed a task to its criterion performance level, another team member checks that off, and the first student moves to the next task. Team performance can be assessed in one of two ways: (1) the teacher can give points for the number of tasks each team completes each class or week or (2) a final assessment task can be given to all team members independently, with the totaled scores used to award points and derive the team grade.

4. Jigsaw. Students are placed in teams and assigned to learn one part of a skill, knowledge area, or game. For instance, in a tennis unit, one team can be assigned to learn the components and cues for the forehand drive, another team can be assigned to learn the backhand drive, another team can be assigned to learn game rules and scoring, and so on. All teams are given a set period of time to learn their component and then take the role of teacher when the whole class moves to that segment of the unit. Teachers base their assessment on the quality of a team's instruction to the class, which is determined by how well the whole class learns that part of the jigsaw.



In a variation of the Jigsaw strategy, members of each team can be assigned to learn different components, so that each member becomes an "expert" on a particular topic or skill. "Expert groups" are formed by having students from different teams who learned the same topic/skill meet to share what they have learned individually. After the meeting, each "expert" goes back to his original group to teach his own teammates what he has learned. (See the Cooperative Learning unit plan on the IMPE website.) The Jigsaw strategy and its variations share one key feature: at some point in time students will instruct other students through peer teaching.

5. Group Investigation. This strategy asks teams to cooperate to produce and share the results of their learning. Teams are selected, and the task is assigned. The time

period for Group Investigation is typically longer, perhaps as long as three weeks, with the expectation that students will work on the task in class and outside of class. The teacher presents the task as a group project, part of which requires each team to share what they learned via some form of media: posters, collages, a video, computer-generated graphics, a website page, or a written report. The media production serves two purposes: it represents the self-contained evidence of each team's learning, and it is shared with other teams to help them learn. Assessment is completed from a scoring rubric presented to students before the Group Investigation begins, and it results in a single grade for each team.

Content progression

Because most learning tasks in Cooperative Learning are larger and longer than those used in other models, content progression is different in this model. The Cooperative Learning unit consists of a series of learning problems, or tasks, which progress from simple to more difficult as the unit goes along. The time given to each task reflects this progression, with shorter tasks in the beginning and longer tasks toward the middle and end. This structure allows students to practice their interaction and teamwork skills early with tasks they are likely to have much success on. As the teams get used to working together, they are able to take on longer and more difficult tasks.

Engagement Patterns for Learning

Except when the teacher is introducing a learning task or processing for social skill development, the Cooperative Learning model uses only one engagement pattern: groups of four to six students working in teams for an extended period of time. All the strategies used in Cooperative Learning are initially based on that configuration; at times two or more groups will merge—but only temporarily.

Selecting team members. Placing students into teams is one of the most important functions for the teacher in the Cooperative Learning model. Notice that I labeled it as a teacher function, not to be delegated to students. That is because the team-selection process must serve several key purposes in the model in order to promote the most effective academic and social learning possible. The primary considerations are to promote diversity within teams and fairness between competing teams (when teams compete with each other). Having diversity within a team not only fosters the awareness of others' talents, personalities, and perspectives but also provides students with a wider range of resources with which to work on the assigned task. The major criteria for achieving diversity should include previous experience in the content area, gender, skill ability, cognitive ability, learning style, race, ethnicity, tendency to lead or to follow, and student behavior. Each teacher might have other criteria that influence decisions.

The process of assigning students to teams should be done privately by the teacher and then announced in class or posted. Because some students might misunderstand the larger purposes being served by the selection process, it is

not a good idea to make team selection a public event or to liken it in any way to picking sides for a game. We are all aware of the potential harm that can occur with that type of selection process. Once the teams are formed, the teacher should inform students of the human resources and talent on their team and not allow students to focus on perceived shortcomings of team members or to over-analyze the composition of other teams. Therefore, it is helpful for the teacher to begin the cooperative process right away by explaining how and why teams were selected and by getting teams working together as soon as possible.

Teacher and Student Roles and Responsibilities

Each instructional model will have certain operations that need to be completed to allow the model to function according to its design. Some of the operations are carried out by the teacher; others are carried out by one or more students. Exhibit 10.4 shows the major operations within the Cooperative Learning model and indicates who is responsible for completing them during each lesson.

EXHIBIT 10.4 Teacher and student roles and responsibilities in Cooperative Learning.

OPERATION OR RESPONSIBILITY	PERSON/PEOPLE RESPONSIBLE IN COOPERATIVE LEARNING
Content listing	The teacher decides what is to be learned, in the form of assigned tasks given to student teams.
Team selection	The teacher selects teams to ensure the maximum amount of diversity and heterogeneity on all teams.
Task "framing" and problem setting	The teacher explains the assigned task to all teams, based on the formulation of a problem that student teams will need to pursue or solve.
Bringing equipment to class	The teacher brings to class what each team states it needs for the assigned task.
Task structure	The teacher decides the task structure, in the form of a defined Cooperative Learning strategy that provides the ground rules for student engagement.
Engagement patterns	Students on each team decide how they will organize themselves to complete the assigned task.
Problem mediation	Initially, problems are mediated within teams by students . If that is not successful, the teacher mediates through a reflective process.
Assessment of performance	The teacher designs all performance assessments, typically in the form of a scoring rubric. Students on each team decide how their team will work to achieve the best possible score on each assessment.
Social skill assessment	The teacher decides the criteria for group interactions and monitors students as they work in their teams.
Instructional processes	Students on each team decide and implement their own peer-teaching plan as they pursue the assigned learning task.

Verification of Instructional Processes

Teachers who use Cooperative Learning should learn the benchmarks for their own and student behavior patterns (see Exhibits 10.5 and 10.6). These benchmarks verify that the unit has been planned and implemented as closely as possible to the model's design, increasing the likelihood that the stated student learning outcomes will be achieved.

Cooperative Learning teacher benchmarks.



EXHIBIT

10.5

BENCHMARK	HOW TO VERIFY
Teacher selects heterogeneous and equitable teams.	1. The teacher lists the criteria used for making selections. 2. The teacher shows a plan for how each student was assigned. 3. The teacher asks students for their feedback on selections.
Teacher selects an appropriate assigned learning task.	1. The task has stated time limits and procedures. 2. The task can be completed by all teams in the allocated time. 3. The task requires a contribution by all team members. 4. The task challenges teams in all three domains.
Teacher selects an appropriate Cooperative Learning strategy.	1. The task is one of the recognized Cooperative Learning strategies, and not simply "grouped learning." 2. The task challenges students to learn in all three domains.
Teacher frames the assigned learning tasks.	1. The teacher provides sufficient information about the task without giving clues for completing the task. 2. Teams become engaged right away, indicating that they understand the task and its structure.
Teacher serves as a facilitator during tasks.	1. The teacher monitors the number and types of interactions he or she initiates. 2. The teacher should use indirect statements and questions—and only when interaction is initiated by students.
Teacher monitors and processes for social learning outcomes.	1. The teacher includes a planned segment to process for social learning outcomes. 2. The teacher uses few, if any, direct statements in this segment.
Teacher designs assessments for performance and social learning.	1. Check the teacher's plan for these components. 2. Assessments should be designed for team achievement, with each team member having individual accountability. 3. Assessment should include specific social learning goals.

EXHIBIT 10.6 Cooperative Learning student benchmarks.

BENCHMARK	HOW TO VERIFY
Students view teams as being fair.	Students are asked for their comments on the selection process and indicate no objections.
Students understand the assigned task.	1. Teams begin right away to work on the task. 2. Teams ask few clarification questions of the teacher.
Students understand the cooperative strategy in place.	1. Teams begin right away to allocate time and other resources for the task. 2. Teams quickly formulate a "plan of attack." 3. Teams follow the procedures given for completing the task.
Teams share the work and the accountability of all members.	1. Teams assign individual members to specific "jobs." 2. Teams chart the contributions of each member. 3. Teams complete peer evaluations of other members.
Teams use peer teaching to improve performance and publicly support each member's efforts.	Monitor the type and frequency of interactions within teams.
Teams show improvement on performance assessments.	Compare assessment scores over time.
Teams show evidence of social learning.	Teacher or peers use critical incident reports or checklists to identify instances of positive and negative social behaviors.

Assessment of Learning

Because the learning domain priorities in the Cooperative Learning model are typically shared among all three major domains, the teacher should assess student learning in ways that give equal attention to all those kinds of outcomes. The authenticity of assessments in the Cooperative Learning model will reflect the nature of the assigned learning task given to students. If the task is designed to develop rather standard kinds of psychomotor skills and content knowledge, then the assessment can be mostly traditional (e.g., a skills test or a written test). If the assigned task strives for more complex and applied outcomes, then the assessment should be more authentic and alternative. Either way, the assessment is likely to be "homemade" by the teacher because the assigned learning task will be that way as well—designed by the teacher to match the specific student abilities, content, and context of the unit.

Assessing learning in the psychomotor domain

The Cooperative Learning teacher has several options for assessing outcomes in the psychomotor domain:

1. Short skills tests that require students to complete a certain number of trials to a stated criterion (e.g., the number of successful shots to a target, the number of made foul shots, the number of completed passes)
2. Timed completion of an event or task (e.g., elapsed time for the 200-meter run, time taken to complete an obstacle course, time needed to achieve a certain number of successful trials)
3. Accuracy tests (e.g., score on an end of arrows, percent of made shots, distance from a target)
4. Consistency (e.g., number of made shots in a row)
5. Standardized skills tests (e.g., tennis serving test, racquetball wall volley test, basketball shooting test)

Recall that strategies like STAD and TGT require teams to practice for a set amount of time and then complete an assessment of that learning. Those assessments should be directly related to the task just practiced, and they are to be completed very quickly. Most often the teacher can simply ask each member of all teams to make a certain number of attempts (shots, kicks, throws) and to record the number of successful attempts. Each team score is the sum of all members' scores. These little tests can be used to monitor each student's progress (remember that the model calls for individual student accountability) and to assess the effectiveness of teams' peer teaching.

Assessing learning in the cognitive domain

Assessment in the cognitive domain is similar to that in the psychomotor domain when the assigned task focuses on a relatively simple outcome such as recall knowledge. The teacher can use homemade quizzes to assess students' knowledge on such things as game rules, procedures, and strategy. Such assessments are most likely to be used in STAD and TGT. Again, the quiz should focus on the content just studied, and students should be able to complete it in a few minutes. Quizzes can consist of several kinds of questions and items:

1. Multiple-choice
2. Fill-in-the-blanks
3. "What if . . ." questions
4. Definitions and terminology

Teachers will need to use more sophisticated assessment techniques when the cooperative strategy is more complex and strives for higher-order learning outcomes. Such strategies include Jigsaw and Group Investigation, in which student learning is multidimensional, representing several types of knowledge. Because these strategies are more likely to lead to authentic learning experiences, they should then be assessed with alternative and more authentic techniques. This typically leads the teacher to develop a scoring rubric that he gives to the teams at the same time he assigns the learning task. The scoring rubric should include:

1. Parameters for what the learning should produce (a portfolio, video, collage, or lesson to be taught to other students)
2. A delineation of each level of quality for the completed work, and a clear description of the features that make up each level (for example, a Group Investigation on the history of the Olympic Games will be assessed at four levels: Olympian [lowest], Bronze Medalist, Silver Medalist, and Gold Medalist [highest]. The teacher then describes the characteristics of each category so that teams can know what it will take to reach each level of quality in the product they generate.) (See the Cooperative Learning unit plan on the IMPE website.)
3. A scoring sheet and written report that the teacher completes for each team's work and gives to them for their review



Assessing learning in the affective domain

The Cooperative Learning model also calls for assessing student learning in the affective domain, represented by intra-team interactions such as peer teaching, verbal support for teammates' efforts, cooperation, leadership/"followership," and problem solving. Assessing those kinds of processes can be a bit tricky, but it is possible for the teacher to use several strategies to get a handle on the development of students' social skills:

1. Regularly monitor each team as it works together, making notes on positive and negative instances of social interactions. This is called *critical incident reporting*. For example, a peer observer (not on the team) could write down every time she hears a team member support a player on that team or another team. She could also write down every time she hears a player scold, taunt, or reprimand a player on that team or another team. At the end of class, the teacher can use these statements to ask the whole class, "What would you have done in that situation?"
2. Use a checklist of positive and negative social interaction items to monitor the frequency and patterns of those interactions. Similar to the first example, a simple checklist can be made to tally "good sport" and "bad sport" behaviors seen or heard from each team in class. Points can then be added or subtracted to game scores based on those tallies.
3. Instruct each team to compile a log of its work, listing who did which part(s). The log for a task to make a multimedia report on the Negro Baseball Leagues might include:

Whole team	Met to make a work plan
José	Did the initial online search
Diane	Contacted local baseball historians
Paul	Interviewed two former Negro League players
LaTanya	Scanned pictures for the collage
Janice	Collated Randy's, Diane's, and Paul's notes

Whole team	Met to discuss content and format for the presentation
Paul, LaTanya	Wrote first draft of presentation
Whole team	Reviewed draft and recommended changes
José	Put the multimedia presentation together
LaTanya, Diane	Made the multimedia presentation to the class

4. Instruct each team to complete a daily journal of its group work, noting positive and negative instances of group process. This would be similar to the process in number 1, except the instances would be recorded by each team member.

5. Use the end-of-class processing time to allow students to make comments on the group process.

Teachers who use the Cooperative Learning model will need to keep in mind that, because the process of team learning is just as important as the academic outcomes of team learning, social learning skills must always be monitored in some way, either formally or informally.

IMPLEMENTATION NEEDS AND MODIFICATIONS

Teacher Expertise

Cooperative Learning teachers need to possess several particular areas of expertise to use the model to its fullest capacity.

Learners. One of this model's key functions is the selection of heterogeneous teams that are mixed in several ways: by skill level, previous experience, gender, race/ethnicity, communication skills, leadership abilities, and willingness to contribute to the team's efforts. As a result, the teacher will have to know each student in all these ways and be able to select teams that reflect diversity in talent and team dynamics. It is not possible to balance all teams in every way, but the goal is to provide all teams with an equitable chance of succeeding at the assigned task.

Learning theories. The Cooperative Learning model combines four major learning theories: cognitive (during team problem solving), behavioral (in meeting performance criteria), motivational (in mutual support among teammates), and social (learning by observing and interacting with team members). The teacher will need to recognize which theory is most prominently at work within each part of the model and to facilitate that kind of learning at the appropriate time.

Task analysis and content progression. The task analysis in Cooperative Learning must represent a learning progression in all three domains. Therefore, the teacher must be able to plan progressions for not only motor skill performance and cognitive learning but also the social/affective domain. The teacher will need to consider the progression from simple to complex learning in the affective domain just as she does for the other two domains. For example, the

teacher should plan simple beginning tasks for each team—allowing teams to become acquainted, to succeed, and to practice working together. STAD tasks are good starters in a unit. After the teams are working well, longer and more challenging tasks, like Jigsaws and Group Investigations, can be assigned.

Developmentally appropriate instruction. It is possible that teams of students can be ready for the academic challenges of an assigned task in the psychomotor and cognitive domains but not be ready for the types of social and cooperative interactions necessary to make the team work successfully. As the teacher determines the task analysis and progression through assigned tasks, he must ask himself, “Are the students ready for the types of cooperative interactions needed to work well together on these tasks?” To design developmentally appropriate Cooperative Learning, the teacher must be quite certain that students can make good choices and assume the kinds of responsibilities needed to be contributing team members. Another key question to ask is, “What might happen if teams experience frustration, conflict, and failure?” Those experiences can and will happen in challenging Cooperative Learning tasks, so the teacher must be ready to turn them into positive “teaching moments.”

Assessment. All assigned Cooperative Learning tasks are assessed for performance and cooperative team processes. Performance assessments occur regularly during and after assigned tasks. Teachers must know how to design interim assessments during tasks that directly target the key performance outcomes and that can be completed and scored quickly to determine team points and new objectives. Performance assessments must also be designed for the end of assigned tasks, to determine team points and grades. Even though cognitive and psychomotor performance are assessed, the cooperative model relies on alternative, authentic assessment techniques.

Teachers must also know how to design assessments for social skills observed within and between teams during cooperative tasks. The teacher should explain her expectations to students for team interactions and monitor (assess) those interactions during assigned tasks. This can be done by using checklists and critical incident reports, described earlier, that represent the types of social learning outcomes the teacher seeks.

Establishing and maintaining a positive social climate on teams. The effectiveness of the Cooperative Learning model depends largely on the regularity and quality of student interactions on teams as they pursue assigned tasks. This requires teacher expertise in three related areas: establishing a positive environment, detecting ineffective patterns that lead to a negative environment, and teaching students how to change a negative climate into one that is positive. The tricky part is that the teacher should not dictate to students how they should act toward each other and thus influence students to behave well just to avoid being punished by the teacher. The teacher should establish some ground rules and select teams in a way that will set the cooperative process in motion—then allow students to discover how they can best work in their teams to meet their goals. The teacher monitors as teams work on tasks, noting interactions

that lead toward a positive or negative climate in class. Positive interactions are noted and reinforced through public recognition at the end of class (e.g., "Today's Honor Roll," applause from the class, points for rewards). Negative interactions are *processed* at the end of class through a reflective analysis led by the teacher. The purpose of processing is to locate the source of the problems ("What happens when teammates criticize each other?") and to get students to reach solutions on their own in their respective teams ("If a teammate says something negative to you, what should you do?").

Physical education content. The indirect, facilitative type of instruction used for Cooperative Learning tasks calls for a knowledge of physical education content that differs from the knowledge required in more direct kinds of instruction. In direct instruction, the teacher demonstrates content expertise by modeling proper techniques (during task presentations) and analyzing students' practice attempts. In the Cooperative Learning model, the teacher demonstrates expertise by framing appropriate, challenging, and creative assigned learning tasks and by recognizing diverse ways in which teams can reach solutions to the problems embedded in those tasks. "Knowing your stuff" takes on a unique meaning in Cooperative Learning and other models that use facilitative approaches to student learning.

Equity in the gym. One of the founding principles of Cooperative Learning is to promote equal opportunities for success by all students (Slavin, 1995). The model assumes that all members of a team can contribute to the team's success if each one is allowed to let his or her unique talents be used in the team effort. The teacher's expertise is needed to select teams and design tasks in which individual students are held accountable in group work and on assessments, both for performance achievement and social learning outcomes. There is no expectation that all team members will contribute equal amounts of skill and knowledge, but there is every expectation that all team members will contribute their full effort to the team's success.

Key Teaching Skills

A teacher will need to develop a unique repertoire of effective teaching skills for use in the Cooperative Learning model.

Planning. Much of the planning in Cooperative Learning happens at the unit level, in determining the tasks given to teams and classes. The teacher will have to make several decisions ahead of time for each task:

1. What are the "problems" posed within each task? What cognitive, psychomotor, and social learning challenges will the task include?
2. Which Cooperative Learning strategy will work best for this task?
3. How will teams be selected? What factors will determine the size and heterogeneous mix of each team?
4. How long will teams have to complete the task?

5. What resources will be made available to teams for the task?
6. What performance outcomes or products will be produced by each team?
7. How will each team's performance and social learning be assessed?
8. What role will the teacher play as teams work on the task?

After all of those questions are answered, the teacher can select teams and present the learning task to them. At that time, planning becomes an interactive process as the teacher looks for things that need to be adjusted as teams work on the assigned task. When an assigned task will last for more than one class period, the teacher can plan a short briefing each day to give students feedback on their teamwork and to assess progress to that point.

Time and classroom management. The teacher's major time-management decision concerns how long to allocate for each assigned task. Some tasks will be brief, perhaps 10 to 15 minutes. Other tasks, such as those using Group Investigation, can last for several lessons, including time outside of the physical education period (library research, online research, writing reports).

Classroom management in Cooperative Learning is largely the responsibility of students once they are in teams and working on tasks. Each team can decide how to assign the needed work on the task, how to pace itself, and how to apportion the allocated time. The teacher does play a key, if indirect, role by monitoring student interactions within teams and by using the reflective process to help teams be more efficient and effective. The Cooperative Learning teacher will need to be skilled in recognizing poor team interactions and in knowing how to help teams become more productive without making direct interventions or taking punitive action.

Task framing and task structure. There is no task presentation, such as is used in many other models, whereby the teacher shows students how to perform the skill correctly. Instead, the teacher selects teams, frames the assigned task, and directs teams to start. The needed skill here involves giving teams enough information to start working on the task, without giving them clues on how to complete it.

Task structure in Cooperative Learning depends on which strategy is selected for each assigned task. All the strategies presented earlier in this chapter promote certain types of interactions and performance outcomes. The Cooperative Learning teacher should know the design and procedures for each strategy and then select the best strategy for each situation.

Communication. The Cooperative Learning teacher will need to give clear and specific information to teams when framing a task and explaining the strategy to be used for it. It will be helpful to check for understanding often during the explanation as well as in the first few minutes of team engagement.

Instructional information. The Cooperative Learning teacher must be skilled in providing two types of instructional information: explanations as tasks are framed,

and questioning during reflective processing. As just mentioned, it is important that students (in teams) get a clear and detailed explanation of the assigned task and the cooperative strategy to be used for it. The better they understand the task, the more likely they are to become appropriately engaged right away.

Use of questions. The teacher's use of questions during times of reflection on the cooperative process is an essential skill. When the teacher observes that one or more teams are not working well together, she should not use directive statements to correct the situation. Instead, the teacher engages teams in a reflective exercise to get them to understand the nature of the problem and to devise their course of action. For example, the teacher could ask a series of questions such as these:

- What is the specific problem your group is having?
- Why do you think you are having this problem?
- Can you give me three possible options for solving the problem?
- Which option is best, and why?
- What will it take to get going on this option?
- If this works, what will I see in, say, 30 minutes?
- How can your group keep this problem from happening again?

Use of questions is part of the social learning process, and fostering students' ability to make each team function to its maximum potential is one of the model's main goals.

Review and closure. Cooperative Learning lessons should end with the teacher leading an interactive reflection process to let teams know how well they worked together that day. The teacher prepares for this session by monitoring teams while they are engaged, noting instances of positive and negative interactions. Again, remember that the reflective process is indirect and interactive, with the teacher using questions rather than direct statements to get students to think about how well they worked as teams.

Contextual Requirements

Cooperative Learning can be used in any physical education setting in which students have the ability to learn how to work cooperatively. Notice that I did not say that students must *already* have good social learning skills. Since those skills are a major outcome in the model, it is necessary only that students are *ready to learn how* to contribute to a group's success. Once that condition is satisfied, Cooperative Learning can be used for its designed purposes in almost any physical education setting at any grade level. Equipment and facility needs are determined by the nature of the assigned task, so teachers can easily plan tasks that can be accomplished with existing resources. Perhaps the single greatest contextual requirement is having enough allocated time for groups to complete assigned tasks, especially when using strategies like Group Investigation. However, when that amount of time is not available, any of the other strategies can be used.

Selecting and Modifying Cooperative Learning

Because the Cooperative Learning model promotes outcomes in all three domains, it can work for a wide variety of goals and content in physical education. This model will be effective in many content areas of physical education:

1. Team sports
2. Dual- and small-team recreational activities
3. Dance (especially social dance)
4. Personal fitness
5. Personal fitness concepts
6. Sport history
7. Current trends and issues in sport and physical education
8. Group initiatives and Project Adventure
9. New games

Grade-level adaptations

Developmentally appropriate versions of Cooperative Learning can be used in many grade levels in physical education. Exhibit 10.7 shows possible ways to adapt this model for different grade levels.

EXHIBIT 10.7 Grade-level adaptations for Cooperative Learning in physical education.		
GRADE LEVELS	SELECT COOPERATIVE LEARNING?	POSSIBLE ADAPTATIONS
Preschool	No	
Early elementary	Yes	1. Use teams of no more than three. 2. Do not use inter-team competitions. 3. Make tasks short and simple. 4. Do not use explicit performance assessments. Use simple checklists.
Upper elementary	Yes	1. Do not use inter-team competitions. 2. Make tasks short. 3. Use simple scoring rubrics for performance assessment.
Middle school/junior high	Yes	None needed if assigned tasks are developmentally appropriate.
High school	Yes	None needed if assigned tasks are developmentally appropriate.
College/adult	Yes	None needed.

Adaptations to accommodate diverse groups of learners

Cooperative Learning can be a highly inclusive model for physical education if the teacher makes the learning teams as diverse and fair as possible and if he stresses to students that *how* they learn is as important as *what* they learn. Exhibit 10.8 lists some strategies that address a variety of special learning needs found in many schools today.

Strategies to adapt Cooperative Learning for diverse groups of learners.

EXHIBIT 10.8

FOR STUDENTS WITH HEARING IMPAIRMENTS:

1. Use written and verbal directions to frame the learning task, and allow everyone in class enough time to read the directions.
2. Move students closer during any whole-class discussions.
3. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all members of the team equally.

FOR STUDENTS WITH SIGHT IMPAIRMENTS:

1. Use larger font for written directions.
2. Encourage physically active student engagement—not engagement that requires a lot of reading, using the computer, or other visual activity.
3. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all team members.

FOR STUDENTS WITH PHYSICAL DISABILITIES:

1. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all team members.

FOR STUDENTS WHO DO NOT SPEAK ENGLISH:

1. Use student translators, when available.
2. Provide task presentations in the appropriate language, or use translated closed-caption media when possible.
3. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all team members.

FOR LOWER-SKILLED STUDENTS:

1. Use assessment rubrics that allow students of all skill levels to contribute to the team's success.
2. Provide extra encouragement and praise.
3. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all team members.

FOR STUDENTS WITH BEHAVIOR DISABILITIES:

1. Provide such students with extra encouragement for their participation.
2. Allow extra team points when everyone participates in a positive way.
3. Focus on the contribution to be made by such students, not their potential misbehavior.
4. Encourage teams (and the class) to think about and experiment with solutions to the task that involve all team members.

PLANNING TIPS FOR COOPERATIVE LEARNING

Teachers who choose to use the Cooperative Learning model can benefit by following a few additional planning tips:

1. Be sure to assign teams that are as mixed as possible in the key grouping factors: skill level, gender, race/ethnicity, cognitive development, creativity, leadership/followership, mastery of English, and so forth. When students view the teams as being fair, they will concentrate more on their own team's progress and be less concerned with other teams.
2. Once teams have been assigned, do not allow students to focus on what their team *lacks*; get them to focus on the unique abilities of each team member and to work with those to achieve the team's goals.
3. Carefully select the Cooperative Learning strategy (e.g., Team Games Tournament, Jigsaw) that is most likely to promote the kinds of development you seek in that unit. Remember, how students engage determines how and what they will learn.
4. Design learning tasks/problems that provide a high degree of challenge and that require a wide variety of student abilities (on each team) to achieve. Do not be afraid to adjust the task if you see that it is not promoting a high level of challenge and participation—with a reasonable chance of team success.
5. Frame the learning task/problem clearly, and offer ample opportunities for students to request clarification.
6. Include the rubric or other assessment strategy in the framing of the task/problem. Students and teams will become engaged faster and stay engaged longer when they know the teacher's expectations.
7. The rubric or assessment strategy must include a way to monitor student and team cooperation as well as performance.
8. A key "trick" is to provide teams with just enough information and directions to get them going, without letting them know how to complete the task/problem.
9. Be sure to look for good examples of student and team cooperation, and highlight those as part of the lesson closure and review.

UNIT AND LESSON PLAN EXAMPLES FOR COOPERATIVE LEARNING INSTRUCTION



You will find several complete unit plans with lesson plans for Cooperative Learning on the IMPE website. It is not recommended that you follow these examples exactly as they are presented. The context, specific learning objectives, and content of your own unit will require you to make changes in these examples to allow the Cooperative Learning model to lead to the most effective instruction in your situation.

SUMMARY

Although the field of physical education has been a bit slower than some others to adopt the theory and practice of Cooperative Learning, it would appear that this model can be invaluable in the process of promoting the multidimensional outcomes expressed in the NASPE (2004) standards for P-12 programs. It strives for a true balance among outcomes in all three major learning domains and, when implemented correctly, can accomplish that very well. The key is that physical education teachers must recognize the difference between "students learning alongside each other" (i.e., grouped learning) and "students learning with, by, and for each other" (Cooperative Learning). The Cooperative Learning model begins with an emphasis on teacher-centered decisions in the planning stage and the presentation of assigned learning tasks. However, once a task is framed and assigned, the model becomes very much student-centered as they negotiate the dynamics of team learning and pursue their common goals. The model changes to an interactive mode at the end of each lesson, as the teacher guides students toward a better understanding of the group process. Cooperative Learning, perhaps more than any other model in this book, requires a teacher to use a broad range of real-time communication, observation, and decision-making skills to promote the types of learning intended in the model.

As more physical education teachers at all levels adopt the broad learning goals reflected in the NASPE (2004) standards, Cooperative Learning is becoming one of the most widely used instructional models in physical education. That is due to Cooperative Learning's expanding record of promoting social and cognitive learning outcomes in physical education. It seems to be very much a model for the times.

LEARNING ACTIVITIES

1. Make a list of five activity units (e.g., movement skills, fitness, softball, tennis, golf) that might be taught in a physical education program. Next, determine an appropriate grade level (P, K-2, 3-5, 6-8, 9-12) for teaching each of those activity units. Now, write two major learning outcomes for those units. Then, go through the process of selecting an instructional model, shown in Chapter 2, to determine if Cooperative Learning would be an appropriate model for teaching that activity to children at that grade level.
2. If Cooperative Learning is appropriate for that activity, grade, and goals, mention three things that make it appropriate. If Cooperative Learning is not appropriate for that activity, grade, and goals, mention three things that make it inappropriate.
3. Write an annotated plan for one complete learning task/problem in this unit. Be sure to include all of the directions to be given to students, the parameters for their engagement (time, resources, and so forth), and your assessment plan.

TOPICS FOR REFLECTION & SMALL-GROUP DISCUSSION

1. I have suggested in this chapter how the Cooperative Learning model is aligned to achieve one or more of the NASPE standards. Take a moment to review those alignments (refer to Exhibit 10.1). After that, make some notes about whether you agree with those alignments and then share them in your small group. After you have arrived at your final thoughts, please share them on the IMPE website Forum for others to review, and check back for replies.
2. Mention three ways Cooperative Learning is similar to Direct Instruction and three ways it is different.
3. In general, which types of students are placed at an advantage in this model, and which students are placed at a disadvantage?
4. Why is it so important to have heterogeneous teams?
5. Why is it important to give equal attention to process (how teams work together) *and* outcomes (what teams produce or accomplish)?

**SUGGESTED READINGS FOR COOPERATIVE LEARNING**

- Dyson, B. (2005). Integrating cooperative learning and tactical games models: Focusing on social interactions and decision-making. In J. Butler and L. Griffin, eds. *Introduction to teaching games for understanding* (pp. 149–168). Champaign, IL: Human Kinetics.
- Dyson, B. P., Linehan, N. R., & Hastie, P. A. (2010). The ecology of cooperative learning in physical education. *Journal of Teaching in Physical Education*, 29, 113–130.
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