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Implementing Cooperative Learning in Elementary Physical Education

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Cooperative learning is an instructional format in which students work together in small, structured, heterogeneous groups to master the content of the lesson. Students are responsible not only for learning the material, but also for helping their group-mates learn. With cooperative learning, students can improve motor skills, develop social skills, work together as a team, help others improve skills, take responsibility for their own learning, learn to give and receive feedback, and develop responsibility (Dyson, 2001).

For the last four years, Allison Rubin, an elementary school teacher, has implemented cooperative learning in her physical education program at Moharimet Elementary School in Madbury, New Hampshire. Ben Dyson, a university professor, has aided this process with the assistance of student-teacher interns. The intention of this article is to present physical educators with ideas on how to implement cooperative learning. The article offers a brief background of cooperative-learning elements, discusses the implementation of cooperative learning, provides an example of a cooperative-learning unit, and highlights struggles and concerns associated with changes in the curriculum and instruction that result from using cooperative learning.

Background to Cooperative Learning

Johnson, Johnson, and Johnson-Houbec (1998) set forth five main elements that are necessary for successful cooperative learning: interpersonal and small-group skills, promotive face-to-face interaction, positive interdependence, individual accountability, and group processing. Interpersonal

and small-group skills—listening, shared decision-making, taking responsibility, giving and receiving feedback, and mutual encouragement—are developed through tasks in which students work together. The next element, promotive face-to-face interaction, is head-to-head discussion among the group members while they are working on a task in close proximity to one another. Positive interdependence is achieved when group members learn to depend on the rest of the group while working together to complete the task. Individual accountability refers to the “answerability” of the task, such as the teacher finding out whether the student has completed it. Group processing—essentially a debriefing after the learning task—is the time allocated to discussing how well group members are achieving their goals and maintaining effective working relationships. Leading proponents of cooperative learning further recommend the following considerations for establishing a successful cooperative learning environment: careful grouping of students, appropriate social interactions, consistency of individual accountability, and frequent monitoring of students to check for total team involvement (Cohen, 1994; Dyson & Grineski, 2001; Johnson et al., 1998; Kagan, 1992; Slavin, 1996).

Implementing Cooperative Learning

Cooperative learning challenges students to work closely with one another to accomplish tasks. Before implementing cooperative learning, it may be helpful to spend time engaging the students in activities that promote positive social interactions. When implementing cooperative learning, it is best

to start gradually with one task at a time and to begin with a class that is likely to cooperate (Sapon-Shevin, 1994). Organization and planning are essential when adopting any innovation. The successful use of cooperative learning may require a large amount of planning before class. The authors chose to include the following elements when they implemented cooperative learning: teaching interpersonal skills, positive interdependence, individual accountability, and group processing.

Teaching Interpersonal Skills

Interpersonal skills and small-group skills are an integral part of every physical education lesson because students need to learn how to communicate effectively with one another. Therefore, lessons may go more smoothly if the first several weeks of the school year are spent engaging the students in activities that promote positive interactions (promotive face-to-face interaction). In addition, students need to learn how to give directions, listen to one another, solve problems, and give and receive feedback. Activities that we believe encourage these skills include Project Adventure activities (Rohnke, 1984), team-building activities (Glover & Midura, 1992), and cooperative activities (Grineski, 1996). Many teachers are already familiar with some of these activities, so using them makes it easier to get started.

The ability to communicate effectively with peers is problematic for many students. Our experience has taught us that merely placing students in groups does not automatically result in cooperation, therefore students need to be taught social skills. Learn-

Table 1. T-Chart for Encouraging Positive Reinforcement

<i>Looks like</i>	<i>Sounds like</i>
a thumbs up	"good job"
a high five	"nice pass"
a pat on the shoulder	"excellent extension of your arm"

ing interpersonal skills has been advocated specifically by national standards five, six, and seven (National Association for Sport and Physical Education [NASPE], 1995). Johnson et al. (1998) suggested the use of T-charts to enhance social skills. Table 1 presents a T-chart created after students were asked to write down what a certain behavior "sounds like" and what a certain behavior "looks like." The T-chart can help students visualize what appropriate behavior looks and sounds like, and it lists several ways that positive reinforcement can be communicated. The T-chart can be included on the task sheet or used as a starting point for group processing on a problem or issue.

Cooperative games can also be used to promote the students' ability to listen, make eye contact, and learn to provide specific feedback to one another. For example, one activity the authors used at the beginning of a semester was "machine cards," in which a group of students create a machine (e.g., a washing-machine or a backhoe) using individual body parts. Everyone must be involved and contribute to their working machine. Usually one student at a time acts as leader, providing directions such as "Let's be a mountain train—remember we need to bend in the middle."

Positive Interdependence

To develop positive interdependence, teachers need to create tasks that encourage students to rely on one another to complete them. The success of one student should be positively related to the success of the other students. Positive interdependence can be accomplished through common goals, shared resources, commu-

nication, and assigned roles. As the students rely on one another to achieve the task, they are learning not only the skill but also how to be part of a team or group.

To encourage positive interdependence, Johnson et al. (1998) and Cohen (1994) suggested assigning complementary and interconnected roles to students, such as reader, recorder, coach, facilitator, encourager of participation, and checker for understanding. Working with students to develop roles takes time and patience. However, when students understand their roles, they are able to make decisions and solve problems on their own. Students will often need help to understand and become familiar with their roles. Teachers should choose roles that will best fit their lesson. We suggest that they start with only two roles—coach and performer. This strategy is easy to organize, and it gives each student a chance to try both roles. This arrangement resembles Mosston's (1981) reciprocal style of teaching, in which students are assigned to work in pairs with each student serving as either an observer or performer. In this case, however, the coach is responsible for providing specific performance-related feedback to a partner, and the performer is given many opportunities to practice. For example, in a kicking lesson, cues could be provided on student task sheets, the wall, or a dry erase board. The teacher reviews these cues with the students before sending them off to perform the task. Learning cues for the kick could include (1) "eye on ball," (2) "step with opposition," (3) "foot beside ball," and (4) "follow through." The teacher should observe the students for evidence of good

form, appropriate peer feedback, and successful improvement adjustments.

We suggest that teachers start off with groups of two and increase the size of the group and the number of roles to three or four as the students become more comfortable and competent. The teacher can assign roles for the students at first and eventually allow the students to choose their own roles. Roles will vary depending on the lesson content. We have found the following roles to be useful: coach, equipment manager, demonstrator, reader, recorder, checker, and encourager.

By trying each role, students will gain an appreciation for the other roles being used in the group. In a group of three, the roles could be coach, encourager, and recorder. Initially, the coach watches for good form, the encourager provides feedback about the skill, and the recorder writes the appropriate information on the task sheet. For example, in a throwing-and-catching lesson, the coach's role is to watch that the performers are passing a ball using good form (learning cues: "keep eyes on ball," "reach for ball," "use a leading pass," "give feedback," "receive feedback"). Figure 1 contains a sample task sheet for passing.

An example of a four-person activity we used successfully was orienteering. Each student held one of four roles: organizer, coach, recorder, or encourager. The organizer read the task to the group, the coach made sure that the group stayed together, the recorder wrote the control (a location marker) in the correct place on the map, and the encourager provided encouraging words to motivate the group. Each group of students was given a map that contained various controls with specific symbols on them. When a control was located, the students recorded the symbol and answered a specific question at that control. The task sheets documented student performance during the activity. In order to succeed, the whole group needed to make sure that the recorder was placing the control in the correct place on the map. This is an example



Students work on a cooperative-learning task sheet.

of positive interdependence.

To achieve positive interdependence, students must be able to take responsibility for themselves and depend on their group. As students become familiar with their roles, use of the cues, and working in small groups, the next goal should be to get the students to enter the gymnasium, go to their area, find their task sheet or folder, and prepare to begin the lesson. One advantage of cooperative learning is an improvement in management and organization. We found that management time at the beginning and end of class decreased when each group had a folder containing all of its materials.

Individual Accountability

Accountability takes many forms in teaching: verbal praise, recognition, monitoring students' behavior, public acknowledgment, or grades and tests (Lund, 1992). In cooperative learning, students can be held accountable in several additional ways: by the group checker, by the teacher monitoring their roles, by specific skill feedback, and by students monitoring one another's skills (Dyson, 2001). One of the ways students are held individually accountable is through the use of roles such as coach, encourager, and recorder. These roles hold the stu-

dents accountable for achieving specific tasks. Another way to hold students individually accountable is to provide task sheets for specific skill feedback (for example, see figure 2). The students are required to answer questions about the skills and write their final observations of other students (skill analysis) on their task sheets. These sheets can be modified to include an individual checklist of learning cues so that the teacher can determine what the students have learned for a specific movement, behavior, or skill.

In addition to using task sheets, students can hold one another accountable by providing verbal feedback. When the students learn to give and receive feedback, they develop a sense of respect for their classmates and help one another learn the required skills. We have found that students also demonstrate a greater understanding of the motor skills and tactics. Students can be taught to use phrases such as "I like the way you follow through" or "That is great, next time try to bend your knees." Students may need constant reinforcement to give more specific feedback and encouraging words. To assist the encouragers in using supportive words, the teacher may wish to brainstorm with the students about the types of feed-

back they can give, then place these words or phrases on cards, task sheets, or the wall for encouragers to use as a reference. To hold the encourager accountable, the students can write the comments made by their encourager on the task sheet. The task sheet might also include a section for the encourager to write comments to his or her peers.

Once the students are able to provide their peers with feedback, they need to learn how to use this skill in a game situation. During a game, students tend to become very focused on the goal of the activity and sometimes forget to provide their teammates with feedback. One solution is to provide students with time to strategize as a team during the activity. Stop the students five minutes into the game, or after one round, and ask the groups to discuss what their team is doing well and what needs work. This is an example of group processing.

Group Processing

Group processing is a verbal reflection that serves as an opportunity for the students to express themselves and for the teacher to provide feedback to the students. This valuable teaching tool is often overlooked or neglected due to time considerations. Because of time constraints, it should be kept brief; we recommend five minutes. The teacher facilitates the discussion by asking questions like "Give me an example of how your group was successful," "How did you solve problems that arose?" "What did your team or partner do well?" or "What is something you need to work on?" The students then take turns responding to the questions and providing the class with feedback.

Group processing is an effective tool for several reasons. Teachers can use it to gain information and feedback from the students. Students are able to develop solutions to problems, obtain feedback on their performance, and share successes with the class. The teacher and students can use information obtained during these sessions when planning and participating in

Figure 1. Passing Task Sheet

ACTIVITY 1: Task—Choose roles

Coach's name: _____

- Demonstrates to the group the skill to be learned
- Reads the tasks on the sheet and makes sure all understand

Recorder's name: _____

- Writes down information on task sheet
- Responsible for folder and pencil

Equipment Manager's name: _____

- Gets equipment ready for group
- Makes sure equipment is cleaned up at the end of class

Encourager's name: _____

- Watches for good form
- Provides the group with positive feedback

ACTIVITY 2: Task—Triangle Ball

Set-up and Rules

1. Three players on offense and one player on defense compete in a square defined by four cones.
2. On offense, one player has a rugby ball and the other two players support the ball carrier on either side. This forms a triangle, hence the name of the game.
3. The offensive players can only pass and run along the perimeter lines of the square.
4. No diagonal passes.
5. Once a player receives a pass, that player cannot move until after passing to another player.
6. The defensive player, in the middle area of the square, tries to intercept the ball as the other three pass it.
7. The game starts with a pass from an offensive player. Once the ball is intercepted, players switch positions.

Objectives

1. Motor: Students will be able to support the ball carrier on both sides.
2. Cognitive: Students will be able to explain how they have supported their teammate.
3. Affective: Students will be able to give and receive appropriate feedback.

Learning Cues

1. Call name and make eye contact
2. Reach for ball—show a target
3. Use a leading pass (to signal player to move onto ball)
4. Give appropriate feedback
5. Accept feedback appropriately from others

Assessment

When you all feel that you are ready, complete the form below:

1. Awesome: uses the cues every time
2. Good: uses the cues most of the time
3. Needs Work: rarely uses the cues

Names	Eye contact	Reaches for ball	Uses a leading pass	Gives feedback	Accepts feedback

Group Processing

1. Name something that your group did very well during this lesson.
2. Name one thing that your group needs to work on.

Figure 2. Task Sheet for Dribbling with a Soccer Ball

Team Name: _____

Coach's name: _____

- Reads the activities to the group
- Helps the group learn the skill

Recorder's name: _____

- Writes down information on task sheet
- Responsible for folder and pencil

Equipment Manager's name: _____

- Gets equipment ready for group
- Makes sure equipment is cleaned up at the end of class

Encourager's name: _____

- Watches for good form
- Provides the group with positive feedback

Objectives

Motor: Students will be able to dribble the ball using three of the four learning cues.

Cognitive: Students will be able to recall three of the four learning cues.

Affective: Students will be able to work with their group to achieve the task.

Dribbling Activities

Learning Cues:

1. Crouched position—bent knees
2. Keep the ball close to the body
3. Keep eyes forward
4. Tap the ball with the inside, outside, and laces

Tasks: You may choose any of these tasks after you have completed the above task. You may complete as many as time will allow. But I'm looking for "good form" = learning cues.

Remember: After each task ask Ms. Rubin to check your form to make sure your group is ready to move on to the next task.

- _____ a. Set up some domes or cones to dribble around.
- _____ b. Dribble the ball from one cone to another.
- _____ c. Dribble the ball around the outside of your square.
- _____ d. Dribble the ball around the inside of your square.
- _____ e. Dribble the ball around the inside of your square and stop the ball when the coach says stop.
- _____ f. Create your own task (please describe/ draw).

Group Processing

How well did each group member do their job today?

Coach	Awesome	Good	Ok	Needs Improvement
Recorder	Awesome	Good	Ok	Needs Improvement
Equipment Manager	Awesome	Good	Ok	Needs Improvement
Encourager	Awesome	Good	Ok	Needs Improvement

What did you hear your encourager say?

future lessons. The fact that it is hard to find time to fit group processing into the lessons is a major limitation. Therefore, it should be preplanned to occur after a specific task or at the end of the lesson.

Planning a Unit

Before teaching, it may be helpful to decide on student outcomes, create a block plan, and develop task sheets that guide lesson planning. The block plan—a day-to-day outline of the expected progress toward the unit objectives—will help determine the scope and sequence of the unit. Skills or concepts to be taught each day must be outlined, along with the skills or strategies that will be introduced or reviewed. In addition, it is necessary to note tests, handout distribution, assignments, or other appropriate materials. The block plan in figure 3 is a one-page visual representation of the throwing-and-catching unit. Since it is a working diagram, items may be added to or deleted from the block plan as needed.

Implementation Concerns

When attempting to implement cooperative learning, teachers should be aware of struggles and concerns that may arise regarding issues such as the following:

Teaching Social Skills. In most schools, there is a wide variety of students attending classes, and they often lack appropriate social skills. Today's students need to be taught interpersonal skills in order to achieve standards five, six, and seven of our national standards, which relate directly to social skill development (NASPE, 1995). We often assume that if we teach a cooperative activity or cooperative game that students automatically learn how to listen, take responsibility, work together, share ideas, and respect one another. The reality is that it requires a concentrated effort to help students learn appropriate social skills.

Activity Time Versus Cognitive Time. Physical educators experience a constant struggle between keeping the

students active and ensuring that they have an understanding of the content. Students need to process a great deal of information in a 30- to 45-minute period. Allocating more time for cognitive tasks, when first introducing cooperative learning, will allow more activity time for subsequent classes. We found that it was better to have more structured lessons in the early units, then to increase flexibility and choice once students became more proficient with cooperative learning.

Shifting Responsibility to the Student. Cooperative learning involves moving from a traditional approach to teaching, which relies heavily on direct instruction—where the teacher is in complete control—to a structure that gives more responsibility to the students. The teacher's role now is to facilitate learning (Cohen, 1994; Johnson et al., 1998; Kagan, 1992; Slavin 1996). We struggled to find a balance between a more traditional, direct instructional approach and a more student-centered approach to teaching. In order for students to take additional responsibility, a teacher needs to take time explaining the roles, tasks, and activities involved in the lesson. We found that when groups were given folders containing their work they took more ownership as a group for successfully completing their tasks.

Performing Roles. It is easier for students to know and to understand their roles than it is to apply them. Once divided into groups, the readers might be good at reading the task, but they may not have everyone's attention when they read. The organizers may not know how to go about getting the group organized or simply may not feel confident enough to do it. Being able to communicate effectively with peers is difficult for many students, which is why it is important to start cooperative learning by using only two familiar roles and activities. We discovered that even though the students were not always proficient at fulfilling their roles, they showed enthusiasm and were excited about their roles.

Lesson Planning. We realize that any change in a program is difficult, so

teachers should not worry about a few mistakes—good and bad lessons should be expected. With time and practice using cooperative learning, teachers will develop an approach that suits them and the lesson's situation and context. Having all the equipment, task sheets, and groups ready when the students enter the room is key to the success of any lesson. The teacher's enthusiasm will help increase the students' willingness to buy into this innovative method of instruction.

Conclusion

Initially, the implementation of cooperative learning is labor-intensive and can cause frustration. Professional development in the form of workshops, literature, and classes will help teachers increase their understanding and expertise. The process of designing lessons, creating task sheets, and reflecting on this innovation is invaluable. We have found that the rewards can be substantial. Using cooperative learning, students can improve motor skills, develop social skills, work together as a team, help others improve their skills, take responsibility for their own learning, learn to give and receive feedback, develop responsibility, and have fun in their physical education classes. Furthermore, the implementation of cooperative learning can enable teachers to achieve the seven national standards.

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Figure 3. Throwing-and-Catching Unit Outline for Grade 3

Student Outcomes

1. Students will be able to throw overhand a variety of objects at a target.
2. Students will be able to throw overhand using varied speed and force.
3. Students will be able to catch a ball tossed by themselves or others at different levels.
4. Students will be able to create a game using throwing and catching. The rule is that everyone must throw and catch the ball or object before scoring.

Block Plan

Learning Activities	Assessment	National Standards
Introduction to throwing and catching		1
Review of throwing	Task sheet 1	1,2
Throw at targets	Task sheet 2	1,2,6
Throw at targets with varying force and speed		1,2,5,7
Catch a ball thrown by self/partner	Task sheet 3	1,2,7
Catch a ball thrown by partner with varying force and speed		1,2,5,7
Series of stations on throwing and catching	Task sheet 4	1,2,5,6,7
Create a game using throwing and catching	Task sheet 5	1,2,5,6,7
Teach your game to the other groups		1,2,5,6,7

Catching Task Sheet

Team Name: _____

Checker's name: _____

Teacher: _____

•Checks that everyone completes the task

•Watches the coach

Coach's name: _____

•Encourages the group

•Reads the activities to the group

Recorder's name: _____

•Provides feedback to the group to improve their skill

•Records each student's performance

•Responsible for folder and clipboard

Objectives

Motor: Students will be able to catch the ball demonstrating two of the four learning cues.

Cognitive: Students will be able to recall two of the four learning cues.

Affective: Students will perform their role so that all group members can complete the task.

Assessment

The recorder should make sure that each team member's name appears on the grid. Each person should have plenty of tries practicing the throw. When you are ready, have your coach check your performance. The coach will tell the recorder what boxes to check off. Each performer should be watched at least 3 times. The coach should give the performer feedback. The checker should be responsible for watching the coach.

Names	Reaches for ball	Eye on ball	Catches with fingertips	Brings ball in to body

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