Tying It All Together

Integrating Physical Education and Other Subject Areas

More and more physical educators are engaging in integrative activities with teachers of other subjects. This article explores the advantages of subject integration and provides guidelines for planning activities.

JAMES RAUSCHENBACH

Integrative activities are a current strategy for increasing teacher collaboration and student motivation. At their best, integrative activities enhance learning in all subject areas involved and uncover relationships that exist among diverse subject areas. Many school district improvement programs have initiated integrative activities. Elementary administrators are asking classroom teachers and subject area specialists to look for ways to explore topics in different subject areas, while middle school and high school administrators are arranging teachers of various subjects into collaborative teams.

What Are Integrative Activities?
To produce worthwhile integrative activities, physical educators need to understand the purpose and process of integration. First, integrative activities are not limited to the word scrambles and connect-the-dots worksheets that have lately become so popular. There is a place for these types of activities in the curriculum, but they do not accomplish objectives that call for higher order thinking skills.

The key to successful integration is that student learning be maximized in all the integrated areas. An integrative activity should be seen as a process of "topic sharing" among different subjects. At their best, integrative activities highlight the most worthwhile and unique aspects of each subject area and blend them, so that they reveal relationships among the subject areas that would not have been understood had each subject been studied in isolation.

For example, students could identify different classes of levers in the human body in science class, and then, in the same week, explore the advantages and disadvantages of each class of lever in a physical education tumbling and apparatus unit. These students would gain an increased understanding of levers by studying them in an applied setting. This new understanding would enable them to improve their performance in tumbling and apparatus activities.

At the very least, an integrative activity should enhance the effectiveness of all teachers involved and improve student performance in each of the integrated subject areas. For example, in a typical fitness game,
students work in pairs on fitness tasks at various stations. Each pair receives a list of questions that lead them on a jogging path around the United States. The names of all 50 states are placed on the gym floor in proper geographical alignment. The answer to each question leads the pair to a particular state, where they perform exercises and receive a new question to answer. As they improve their fitness levels by completing the 50-state par course, students come to understand the orientation of the 50 states actively, instead of just studying a map in a textbook.

**Advantages of Integration**
Integration can help the physical education program in several ways. Collaborating with teachers of other subjects may bring fresh insights into the physical education program. Furthermore, as part of a worthwhile integrative program, physical education can become more widely recognized as integral to the school curriculum. Physical education specialists, other subject area specialists, and classroom teachers may gain new respect for and interest in one another’s subject areas.

Integrative activities also offer advantages to different types of students. Students who are normally unenthusiastic about physical education might be motivated by integrative activities that allow them a measure of cognitive as well as physical success. Students who shine in physical education class but experience frustration in other subject areas might understand a concept, memorize a series of labels, or master a series of basic processes if they encounter these challenges in a physical activity context.

We have known for a long time that students learn best through active learning experiences, and physical education can be a vehicle for generating these types of experiences. Many abstract and complex concepts can be clearly understood when they are experienced in a physical setting. We also know that students learn best through repeti-

**Setting Up Integrative Activities**
As with any new strategy, there are advantages as well as pitfalls to consider when undertaking an integrative project. The physical education specialist should adopt and communicate the belief that integration works in all directions; i.e., topics in other subjects can be integrated into physical education, while physical education topics can be integrated into other subjects.

For example, the math teacher might be teaching geometry or percentages, topics which lend themselves to exploration in the physical education setting. On the other hand, the physical education program might be currently involved in aerobic conditioning, striking with long-handled implements, or learning the concept of absorbing force—topics that could easily be explored in other subject areas. The physical educator should stay abreast of topics covered by classroom teachers and other subject specialists. The physical educator might consider distributing a list of possible integrative physical education topics to the other teachers.

Simple integrative activities that consume less than one class period require only the imagination of the teachers involved. Extensive integrative projects, however, demand some planning. The teachers involved must determine whose class period will be devoted to the project, how students will be assessed, who will do the assessment, and how the assignment will figure into the grades for each integrated course. Teachers should also be aware of how the project will affect their current work schedules.

Integration is a new concept for students as well. Students must be made aware of the new responsibilities that go with participating in integrative activities. Working with more than one teacher on a project might interest some students but discourage others.

**Three Types of Integrative Activities**
Integrative activities can be categorized as embedded tasks, practice tasks, and discovery tasks.

**Embedded tasks** incorporate other subject matters into routine physical education tasks. Their goal is simply to enrich and add a sense of challenge to routine tasks. For example, a teacher may challenge students to count repetitions of exercises in multiples of five or in Spanish. Another teacher might use sign language to signal the next warm-up exercise.

**Practice tasks** challenge students to interact with other subject areas as they engage in motor skill practice.

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At their best, integrative activities highlight the most unique aspects of each subject area and blend them, so that they reveal relationships among the subject areas that would not have been understood had each subject been studied in isolation.
Their purpose is to reinforce knowledge of other subject areas by engaging in physical activity. These tasks are most effective when the integrated topics include basic facts, simple processes, and fundamental skills.

Kirchner and Fishburne (1995) offer several suggestions for practice tasks. Students might travel on the floor through a 16-cell grid of letters and attempt to spell out a word from the week’s spelling list. Grids can be fashioned on a piece of old carpeting, chaled on outside surfaces, or composed of numbered or lettered floor spots.

Students solving math problems can demonstrate answers by throwing beanbags at cells in a number grid. If the number grid includes math symbols, one student can call out a number and challenge his or her partner to make five jumps that add up to the number. If the first student calls out “24,” for example, the partner can make five jumps to produce “8 x 2 + 8.”

Discovery tasks, the purest and most valuable integrative tasks, are designed to fulfill objectives that require higher order thinking skills. These activities allow students to recognize the relationships among different subject areas. Identifying levers in the body and exploring their use in tumbling and apparatus stunts is one example of a discovery task. In another discovery task, students identify different examples of Newton’s laws of motion in physical education activities and then create their own list of “Laws of Physical Activity.”

A Large-Scale Integrative Activity
In a typical middle school, the following scenario might occur. The middle school will conduct an all-school bowling trip. Teachers of several subjects get involved in the activity. Physical educators teach skills technique. The math department teaches scoring and handicapping. Some students compose an informational flyer, while other students report on the results of the tournament in the school newsletter. All students write about their experiences in their journals for language arts classes.

In their science courses students study the effect of swinging a bowling ball on a bowler’s center of gravity, and they learn what to do to counteract its effect. Groups of students try to predict the effect of different types of spin on the bowling ball. They investigate the reasons behind the effectiveness of hitting the 1-3 strike pocket, and they discover why a bowling pin is shaped the way it is and where its center of gravity is.

As part of their vocational education classes, students look at the materials that compose bowling balls and pins. In social studies, students learn about the history of bowling, its origins, and the extent of its current popularity throughout the world.

Art classes look at the unique artistic style that has become associated with bowling shirts and bowling paraphernalia. They design their own bowling T-shirts to reflect this style. Some art classes also design posters to advertise the event.

These activities all lead up to a two-day bowling field trip, with half of the school participating on the first day and half participating on the second day. With the cooperation of several teachers and administrators, such an activity provides students with a special and integrative learning experience.

Reference

James Rauschenbach is an assistant professor in the Department of Physical Education at Iowa State University, Ames, IA 50011.