



# Curriculum Integration

In recent years, education leaders have become increasingly concerned that the traditional, separate-subject approach to curriculum and instruction cannot raise student achievement to the higher standards demanded in today's society. These concerns are fueled by a growing body of cognitive research, which suggests that the human brain is deeply motivated to search for meaning, rejecting information that is fragmented or unconnected (Educational Research Service 1998).

In response to these growing concerns, more and more schools have explored ways to integrate the different subjects of the curriculum. Proponents of curriculum integration argue that, when well implemented, this approach enhances student learning and promotes teacher collaboration. Other educators and researchers, however, express concern that too much integration could negatively affect students' ability to meet content-area standards and perform well on high-stakes tests.

This *Informed Educator* is designed to help education leaders examine the options available to them in integrating the curriculum, and make effective decisions about how this approach can work in their school. This summary describes various degrees of curriculum integration, outlines potential benefits and problems of this approach, shares experts' guidelines for implementation, and highlights the ingredients of success.

## Curriculum Integration: A Continuum of Practice

Burns writes that curriculum integration is a tool for building bridges instead of boundaries between specific bodies of knowledge. Contrary to traditional discipline-based curriculum that focuses on content objectives, integrated curriculum is concept driven and focuses on performance expectations that describe the generic knowledge, skills, and habits of mind that students are expected to attain (1995, 3).

A review of the literature makes it clear that curriculum integration can occur in many different ways. Educators have proposed a number of models that vary along a continuum in terms of the scope of integration. At one end is the traditional presentation of knowledge broken into separate and distinct disciplines. At the other end is a learning environment in which students direct their own exploration of concepts that are connected to several different disciplines.

Fogarty (1991) describes 10 models of integration that fall along this continuum. A slightly integrated curriculum may occur within a single discipline, as a teacher attempts to relate ideas within the discipline rather than assuming students will automatically understand the connections. Further along the continuum, teachers begin to integrate instruction across disciplines—for example, by realigning topics so that they correspond to the topics of a separately taught class, by weaving one theme through different subjects, or by threading a skill such as prediction throughout all disciplines. One specific

approach that falls in the middle of the continuum is known as parallel discipline design; teachers in different subjects re-sequence lessons so that all classes cover similar or complimentary subject matter at the same time (Jacobs 1997).

The more fully integrated end of the continuum is characterized by: 1) finding the overlapping skills and concepts in each discipline, and then tying different disciplines together with those shared skills and concepts; 2) enabling students to integrate information within themselves, through immersion in the curriculum and making connections to their own interests and expertise; and 3) helping students get to know the intricacies of a field and then allowing them to find the necessary interdisciplinary resources to further explore the field.

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—Beane 1995

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Approaches that maximize curriculum integration go far beyond realigning subject-area lesson plans— they are based on the idea that “the sources of curriculum ought to be problems, issues, and concerns posed by life itself,” and that the focus of curriculum integration is the search for self-knowledge and social meaning through the use of different “disciplines of knowledge” (Beane 1995). At this end of the continuum, the process involves engaging students in identifying questions and concerns about themselves and their world, grouping those into themes, and locating resources from different disciplines to address the theme (Burns 1995; Martin-Kniep et al. 1995; Jacobs 1997).

## Potential Benefits

A wide body of literature on curriculum integration suggests that it can offer significant benefits for students and teachers:

- **Emphasis on relevance and meaning.** A separate-subject approach emphasizes the accumulation of specific pieces of knowledge. Many cognitive researchers warn that this fragmented approach to learning works against the human brain’s natural urge to find connections and to construct meaning (Parnell 1996; Walker 1995; Jensen 1998). In contrast, well-implemented curriculum integration encourages students to think about real-life questions, bases instruction on the brain’s search for meaning and connection, and promotes higher-order thinking and long-term understanding (Jacobs et al. 1989; Beane 1991; Pickard et al. 1994; Ackermann 1998).
- **Student engagement and active learning.** Under an integrated curriculum, students can take on a more active role in directing their own learning by developing themes, questions, and theories related to the integrated curriculum. At the same time, teachers move away from the expert role and engage in more listening and learning, as the unit includes curricular areas that are less familiar to them. They serve as facilitators, helping to provide the structure of the unit and ensuring the cultivation of higher-level thought processes such as analysis and inference (Muir 1998; Nelson and Frederick 1994; Simmons and El-Hindi 1998).
- **Opportunities to meet the needs of diverse learners.** Proponents of curriculum integration assert that the needs of diverse learners can be addressed through this approach. Struggling learners can focus on essential information that has rich context and meaning; advanced learners can extend their study to areas beyond what they already know (Tomlinson 1998).
- **Teacher professional growth.** Under curriculum integration, teachers gain opportunities for collaboration and sharing of ideas and resources, as they learn a portion of one another’s subjects in order to create an interdisciplinary program (Aschbacher 1991; Martinello and Cook 1992).
- **Parent involvement.** Curriculum integration provides ways to involve parents and the community as resources in the learning process. Parents

can share knowledge in their areas of interest and expertise. Local businesses can participate by helping to fund a field trip, inviting students to visit them, and sending visiting experts to classrooms (Martinello and Cook 1992).

Educators should note that despite the many benefits reported, there is little hard evidence that integrating the curriculum increases student achievement. Most studies have focused on teachers' and students' attitudes toward interdisciplinary curriculum and have not examined student test scores.

A study by Aschbacher (1991), however, suggests that curriculum integration can positively affect student achievement. This report documented significant gains in the content knowledge of high school students enrolled in an interdisciplinary "Humanitas" program (connecting English, social studies, and art) compared to the achievement of a control group. Another recent review of the research on interdisciplinary education found no detrimental effects on learning when students were involved in an integrated curriculum (Lake 1999).

### Concerns About Integrating the Curriculum

Some educators, in taking a closer look at curriculum integration, have voiced concerns that it is not always appropriate or educationally sound. These critics caution that interdisciplinary education can be counterproductive if it is implemented simply as an exercise in tying disciplines together, rather than as a means for increasing understanding and meeting specific educational goals. Brophy and Alleman (1991) warn that poorly implemented programs may result in pointless busywork or distortion of content within particular subjects.

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—George 1996

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George (1996) argues that many benefits attributed to curriculum integration can also be achieved by good teaching in non-integrated settings. For ex-

ample, good teachers in non-integrated classrooms may pose real-world problems for students to solve, invite students' involvement in planning the curriculum, learn about students' concerns and address them within the curriculum, and help students to apply their learning.

George also points out that an integrated curriculum may have negative effects on teachers: the unfamiliarity of the content may be threatening; the approach does not take full advantage of teachers' years of study in a single subject; it requires planning time that some teachers do not have; and it usually does not give teachers the opportunity to improve what they teach from year to year, because integrated curriculum requires teachers to constantly plan new instructional experiences. George maintains, however, that curriculum integration has the potential to be a valuable approach if educators think carefully about how it could be implemented to the benefit of teachers and students in their school, instead of simply accepting it at face value.

Another potential problem with moving away from a subject-centered focus is that learning or depth of understanding of individual content areas may suffer. Even though curriculum integration draws on different disciplines, it may not be the best approach for helping students meet subject-area standards and prepare for high-stakes tests. What is taught in the integrated curriculum may not be what is tested by standardized instruments; therefore, educators should consider whether test scores might go down or students might be at a disadvantage when compared with others (George 1996). Some advocates of integrated curriculum—including authors of the national curriculum standards—propose that interdisciplinary teaching should occur only after students have been thoroughly grounded in knowledge within disciplines (Gatewood 1998).

### Planning for Curriculum Integration

The task of designing an integrated curriculum presents school staff with practical and conceptual problems. By developing an action plan, a school or district can address these problems and move toward an integrated model. Jacobs (1991) proposes a four-phased plan:

1. **Conduct internal and external research.** Teachers can discover when students are studying various units in their subjects, align subjects when beneficial, eliminate repetition,

and identify possible inter-disciplinary units. Also, they can take a look at external research that suggests best practices and options for reform.

2. **Develop a proposal for a pilot program.** For their first plan, most schools decide to upgrade an existing unit by bringing other disciplines into the unit.
3. **Implement and monitor the pilot.** The group meets regularly to assess decision-making procedures, relationships between team members, the adequacy of the implementation timeline and material resources, and the impact of the pilot on students. The pilot usually runs from two to six weeks.
4. **Adopt the program.** Staff members discuss and implement revisions to the program, based on the information collected in the pilot phase. They then determine which units will be replaced by the new program, and adopt the program as a permanent part of the curriculum.

### Creating Integrated Curriculum Units

When the implementation plan has been formulated and school staff are ready to roll out an interdisciplinary program, teachers begin the work of developing curriculum units that draw on various disciplines. The first step is to examine curricular topics, concepts, or skills, and “begin to sift out curricular priorities within their own content areas” (Fogarty 1991, 61).

When planning an interdisciplinary unit, an important issue to consider is which types of concepts are effective for study. Researchers suggest that a concept is effective if it:

- applies broadly or pervasively across disciplines;
- is legitimate for the disciplines in which it will be used;

### Critical Steps for Effective Implementation of Curriculum Integration:

- **Careful planning.** A school team might organize a one- to two-day workshop to discuss issues such as: the rationale for integrating the curriculum, different integration models, choosing a model that fits the school’s needs and strengths, whether the school is ready, and a preliminary action plan (Sattes and Burns 1995).
- **Opportunities for teachers to discuss how the roles of teachers and students may change.** Students should take on a more active role in directing their own learning (Lapp and Flood 1994; Muir 1998; Simmons and El-Hindi 1998), while the role of the teacher changes from that of “director” to “mentor” (Burns 1995).
- **Discussion of how student/teacher teams are to be organized.** In middle and high schools, teams can be structured so that they include one teacher from each of the four core subjects. The four classes are scheduled back-to-back so that teachers can adjust their time frames. At times, two or more teachers team up to provide multidisciplinary lessons (Clark and Clark 1997).
- **Procedures and guidelines for teacher teams.** These procedures and guidelines address areas like: compatible classroom management procedures, policies for flexible grouping, activities that are appropriate for large group instruction, how subject matter can be integrated, and evaluation of student work (Clark and Clark 1997).
- **Structures to facilitate teamed instruction.** Facilitative structures include common planning time for teachers; instructional space that is flexible enough to accommodate large and small groups; and adequate budget for extra costs such as teacher release days to develop integrated curriculum, professional development workshops, less traditional instructional materials, and possible alterations in facilities to increase flexibility (Burns 1995).
- **Preparation of students.** When teachers prepare to implement curriculum integration, they should discuss with students their ability to direct their own learning and take ownership of the program. This will facilitate the necessary changes in teachers’ and students’ roles (Simmons and El-Hindi 1998).

- reveals similarities and differences;
- is perceived as important by learners;
- is likely to connect with students’ experiences;
- promotes creative and critical thinking;
- applies to the real world;
- is complex enough to accommodate a wide range of activities;
- is age-appropriate; and
- accommodates learners of diverse cultural backgrounds and learning styles (Barab and Landa 1997; Tomlinson 1998; Willis 1992).

Effective curriculum units are dynamic in nature; they arouse interest and encourage critical thinking about questions that are important to teachers and students (Shanahan et al. 1995). Although themes should be broad, they should not be so broad that they lose their focus and become meaningless. Also, teachers should avoid choosing themes that children will like but that will not yield much learning because they lack depth (Willis 1992).

Carol Ann Tomlinson (1998) advocates integrating instruction around concepts—categories of things with shared commonalities. Concepts that cut across many disciplines include interdependence, change, power, freedom and responsibility, and conflict. For example, a seventh-grade team might be working on an integrated unit planned around the concepts of systems, interdependence, and change. In history class, students look at parts of the culture of the Middle Ages and how changes in one part of society affected all others. In literature, they discuss how the parts of a novel affect the whole; they examine how the authors portrayed the interdependence of cultural elements during the Middle Ages, and how changes in those elements affected the lives of the people in the novels. In science, they compare how interdependence among elements of the ecosystems that they are studying is like interdependence among elements of the feudal system.

Heidi Hayes Jacobs recommends using “essential questions” to connect the disciplines. For example, English, science, and social studies teachers might work together on an interdisciplinary unit called “Origins of the Species: Comparative Views,” which might address questions such as: What are differing views of the origin of human beings? and How have these views reflected contemporary values and events over time? Students investigate the theme through relevant literature, critical court cases, and scientific writings (Jacobs 1997).

To evaluate proposed units, teachers can ask the question, “Will the unit provide a diversity of learners opportunities to try difficult tasks and learn new skills in a motivating and rewarding context?” (Barab and Landa 1997, 54). Another way of evaluating units is to look at three criteria: significance, coherence, and relevance (Martin-Kniep et al. 1995).

### Assessment Issues

New approaches to teaching and learning require new ways to assess student achievement. Assessment

should measure how well the core concepts and strategies of the integrated curriculum have been learned; ideally, it should focus on process as well as product. For example, a group of educators in Oregon assessed knowledge acquired through an interdisciplinary unit on Columbus by asking students to write an original piece of historical fiction about the arrival of Columbus, and then evaluating the stories according to the degree of in-depth understanding, integration of factual information, and inclusion of key concepts. They also assessed students’ learning processes by observing students at work, looking at written drafts, and reading reflective journal entries (Shoemaker and Lewin 1993).

Other appropriate assessment tools include portfolios, group projects, and peer evaluation (Martinello and Cook 1992). Also, it can be beneficial to involve students in determining how their learning will be assessed, and then work with them to identify their strengths and weaknesses.

Assessment should focus on students’ abilities to process information and solve problems rather than on whether they have learned isolated pieces of knowledge (Simmons and El-Hindi 1998). When reporting progress to parents, schools might restructure their report cards so that they include the following components: 1) a description of classroom activities for the marking period; 2) benchmarks that were addressed in each subject area; and 3) a narrative describing student achievement of the benchmarks, as well as student effort, work habits, and social development. This might be coupled with a student self-assessment and portfolio (Travis et al. 1999).

### Ingredients for Success

Even the most enthusiastic advocate of curriculum integration will not claim that this is an easy reform. Implementation requires hard work from both administrators and teachers, as well as the right school conditions for success. The research on curriculum integration identifies some major elements that are necessary to successful implementation:

- **Talented and committed teachers who are supported by a collaborative school culture.** Traditionally, teaching has been an isolated profession, and classroom learning has emphasized competition for grades. In an integrated school, cooperation is valued—teachers and students are encouraged to reap the benefits of learning from their peers (Panaritis 1995; Burns 1995).

- **Opportunities for teachers to reflect on their teaching and collaborate with their colleagues,** both before and during implementation. To make time for reflection and collaboration, staff members may need to reorganize the school schedule and possibly put together a group of volunteers to help with students while teachers meet together. This is particularly important at the high school level, where the subject areas are traditionally isolated with different teachers (Castaños 1997).
- **Gradual movement through the stages of design and implementation.** Successful curriculum integration takes time. A good start might be to plan a two- or three-day curriculum unit around a focused question or theme, and then to discuss, revise, and reflect on the pilot's success before planning other units (Panaritis 1995). Also, planners should take teacher readiness into account. The teaching style associated with integrated curriculum is more comfortable for some teachers than for others; time, flexibility, support, and respect for teacher autonomy is critical (Martinello and Cook 1992).
- **Careful selection of team members.** Whether team members have experience with an interdisciplinary approach is far less important than whether they are convinced that change is necessary and possible. Also, teacher participation should be voluntary, especially at first (Panaritis 1995).
- **Adequate staff development.** Training should address the steps in developing an integrated curriculum, as well as related issues such as collaboration skills.
- **Leadership and support by the principal and central office.** For example, the central office could give teachers release time for curriculum

planning or create incentives for teacher participation. Administrators should also communicate support by providing material resources, considering flexible scheduling to facilitate integrated instructional practices, expressing support for the program to students and parents, or meeting with teacher teams on a regular basis (Burns 1995; Castaños 1997; Panaritis 1995).

- **An understanding that efforts to change the approaches to teaching and learning will take time.** For example, considering school subjects in relation to one another may entail a significant conceptual shift for many teachers and administrators (Bullough 1999).

### Summary

Curriculum integration is not simply an add-on that can be easily accommodated by the culture of any school. On the contrary, “interdisciplinary education is nothing less than to profoundly reconstruct what schools teach (curriculum) and how it gets taught (pedagogy)” (Panaritis 1995, 624). Therefore, planning and implementing the integrated curriculum is a complex and gradual process. If poorly implemented, integration plans can result in a curriculum that brings disciplines together merely for a token experience and lacks substance, relevance, or meaningful connections across disciplines.

To guard against this possibility, educators should keep in mind that “curriculum integration is not an end in itself but a means for accomplishing basic educational goals” (Brophy and Alleman 1991, 66). Integrating the curriculum is a task that demands significant time, resources, creativity, and collaboration, yet it has the potential to pay off by facilitating more engaged learning and deeper understanding.

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