Planning Wheels Turn Curriculum Around

Teachers in the Howard County, Maryland, Public School System are using planning wheels to create interdisciplinary curriculums that make learning more meaningful.

JOAN M. PALMER

The Civil War was far more than the battles, the generals, and slavery. The war was the reflection of the moral, social, and intellectual context of an era—a complexity that defies the pigeonholing of information. Seventh grade science is more than an introduction to earth science and biology. It can also help young adolescents understand their bodies and their environments and make a contribution to the greening of the world.

In light of the continuing trend toward specialization and discrete subject areas, educators must try to help students understand the information they are learning in some real context. Unless students are able to recognize the connections between and among various facts they learn in their separate courses, they will not have an understanding of what was, what is, and what may be coming. Cross-curricular (interdisciplinary) teaching adds meaning to learning.

The Howard County, Maryland, Public School System recognizes that students learn more, remember more, and are able to apply their knowledge when teaching and learning is interdisciplinary. However, attempts by school districts to organize interdisciplinary curriculums have often been discouraging and generally unsuccessful.

When we investigated this lack of success, we found that past attempts to write interdisciplinary curriculums focused on structuring the curriculums as units, mainly around a theme, a specific problem, or within the context of a "real-life" project. This approach involved the integration of concepts, skills, and content across curricular areas. For the most part, past attempts required that teachers present material outside of what they considered to be their fields of expertise. Such a structure touched two sensitive areas, which often led to failure:

Teachers in such "core" or interdisciplinary classes often felt threatened because they were asked to teach material with which they were either not familiar or completely comfortable.

The content of teachers' own areas of specialty in integrated courses was often perceived as secondary, undervalued, and necessarily truncated because of the pressures of time-sharing.

Howard County has tried to overcome these obstacles by encouraging teachers and curriculum writers to use a "planning wheel."

FIGURE 1

PLANNING FOR CURRICULUM CONNECTIONS — 7th GRADE SCIENCE

Units	Major Concepts	Connections	
The Human Body System	– identification – comparison – investigation – interpretation – evaluation	**Social Studies** Society's needs Sewage disposal **Language Arts**	**Art** Human figure proportions
Living Organisms Virus Monera Protista Animals	– observation – comparison – interpretation – questioning – evaluation	**Social Studies** Ozone layer-pollution **Language Arts** **Home Economics** Cheese making Bread making	**Art** Models-Drawings
Interrelationships Ecology	– observation – comparison and contrast – modeling – interpretation – questioning – evaluating	**Social Studies** Community problems **Art** Drawings of habitats **Math** Data collection-pollen count	

Using the Planning Wheel

It became clear to us that any model for making curricular connections must meet two major needs: (1) it must keep the teachers' content area central, and (2) it must allow for the integration of logical, natural elements of associated content. Our attempt to meet these needs resulted in the design known simply as the planning wheel.

The design allows the insertion of as many subject areas as needed or desired, and the discipline-designated "pies" change according to specific needs. This graphic planning tool allows teachers and curriculum developers to continue to focus on a specific subject area while identifying appropriate connections with other content. It also addresses the need to have teachers deal with material they know well, while encouraging the teaching of knowledge in its cultural, historical, or associated context. It is "teacher-friendly" because it allows the classroom teacher to determine the appropriate connections for each individual class.

Over several years of trial and error, the planning wheel has become a useful organizer for curriculum development, individual teacher planning, and team planning across daily lessons or at the unit level. An unexpected outcome has been students' increasing use of the wheels as they become aware of the need to integrate for themselves the information they receive from many sources.

Strategies for Making Connections

In *Realms of Meaning*, Phenix writes, "The ideal curriculum is one in which the maximum coherence is achieved, and segmentation is minimized."[1] This is an excellent ideal, but it is difficult to achieve given the limited resources of most school systems in the area of curriculum development. How many systems within the real world have the ultimate opportunity to start over from scratch and design horizontally and vertically coordinated, cross-discipline curriculums, K-12? The planning wheel approach provides a flexible vehicle for addressing the need to "get started" making connections.

With the wheel, planners can "connect" curriculums in the development process through a variety of strategies, including the following:

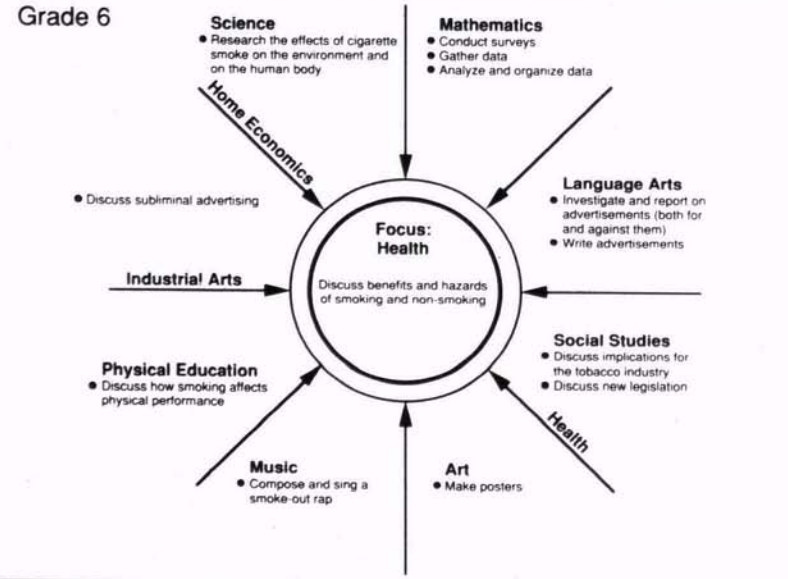
1. Teacher-writers, working with curriculum supervisors, meet in cross-disciplinary groups to identify common goals, objectives, themes, and skills. From that meeting they devise lists of possible/appropriate connections to build into the curriculum guides under development. For example, for the 7th grade science course, students collect data for a pollen count in the math segment, identify parts of the human body in science, and draw the human figure in art (see fig. 1).

2. Planners develop sample planning wheels to illustrate the kinds of connections to be made. These wheels are then incorporated into the countywide curriculum guides as models or suggestions for teacher use. For example, in a health unit on smoking, students collect, study, and write advertisements (both pro and con) as a language arts applicaton. For music they compose and sing a "smoke-out rap"(see fig. 2).

3. Curriculum planners use the wheel as an organizer in planning and developing new curriculums, such as a

FIGURE 2

SAMPLE PLANNING WHEEL 9: SMOKE FREE 2000



recently written music course, Music In Society. In this instance, the wheel served as an overview for each unit, as well as a driver of the overall approach. An example of a unit is Music of the Middle Ages. The planning wheel shows what content areas contribute to an understanding of medieval music: art, religion, philosophy, politics, literature, architecture, and science and industry.

4. Inservice leaders help teachers to implement the new curriculum with a cross-disciplinary approach. Whenever possible, the district provides time for teachers to develop their own wheels and discuss connections.

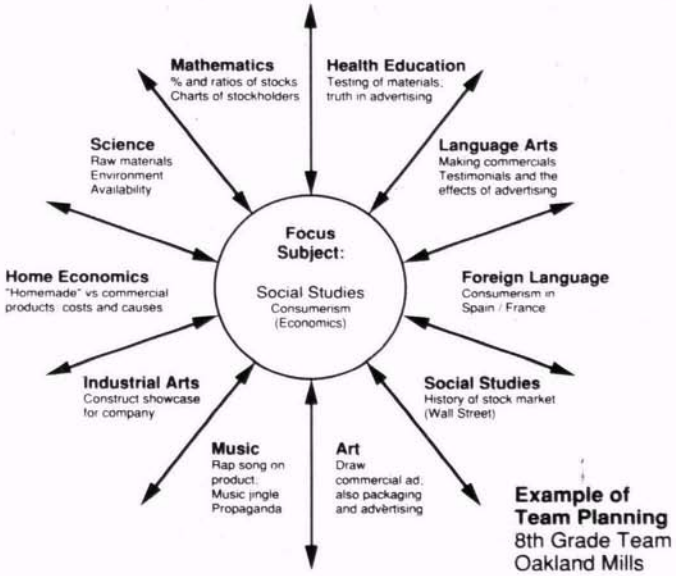
We have found that there is no one "best" way to design and develop a curriculum that lends itself to making connections. The following, however, are some promising practices:

- developing cross-curriculum subobjectives within a given curriculum guide;
- developing model lessons that include cross-curricular activities and assessments;
- developing enrichment or enhancement activities with a cross-curricular focus including suggestions for cross-curricular "contacts" following each objective;
- developing assessment activities that are cross-curricular in nature;
- including sample planning wheels in all curriculum guides.

One 8th grade planning wheel relates an economics topic, consumerism, to science. We study where raw materials come from and the impact of consumerism on the environment.

FIGURE 3

CONNECTING CURRICULUMS TO CONSUMERISM



Example of Team Planning
8th Grade Team
Oakland Mills

Connecting Existing Curriculums

Though developing new curriculums in a cross-curricular format is difficult, it is even more problematic to make connections within existing curriculums that are written completely in a disciplinary mode. Again, the planning wheel has proven to be a catalyst, as well as an organizer. The key is to provide time for grade-level or cross-departmental groups of teachers to plan the connections.

In the spring of 1989, we brought together grade-level teams from four Howard County middle schools that planned to convert from a disciplinary to an interdisciplinary structure. Curriculum supervisors prepared overviews of major unit concepts and objectives from each subject area, and the teachers met for a full day to coordinate their different curriculums. At the end of the session, teachers commented: "It gave the team a good chance to brainstorm ideas and get a feel for how and what can be networked in each of the disciplines," "Very motivating!" and "All ideas made the connections seem very exciting and less difficult than disciplinary teaching."

The group's planning wheels were reproduced and are currently being implemented in the schools. One 8th grade planning wheel, for example,

Brain-Based Connections

A new ASCD book, *Making Connections: Teaching and the Human Brain* (1991), by Renate Nummela Caine and Geoffrey Caine, insists that we must teach the way people learn—that is, the way the brain uses information, emotion, nutrition, perception, and communication to create understanding. The Caines have integrated findings from neuropsychology with sound educational methodologies. They emphasize interdisciplinary education and thematic teaching as ways to immerse students in knowledge, *"to take information off the page and the blackboard and bring it to life in the minds of students"* (p. 107, emphasis in the original). The authors give several reasons for the importance of interdisciplinary teaching:

- The brain searches for common patterns and connections.
- Every experience actually contains within it the seeds of many, and possibly all, disciplines.
- One of the keys to understanding is what is technically called redundancy (pp. 119-120).

Learning about history only from history books just won't do, according to the Caines. Bring music in, plaster the walls with art (and look at it upside down), go on trips, listen to parents, let students teach the teachers, build something useful like a playground, grow some corn, use puppets, care for each other—and have some fun.

These instructions about caring for one another and having fun are particularly important. Many children come to school in what brain researchers call a "downshifted" state: because of the stresses of poverty, drugs, child abuse—and ineffective schools—the brains of many children function at lower levels of cognition. Brain-based learning can help these children find joy and fulfillment in education, which is what we all need.

Among the Caines' recommendations: developmental/experiential education, thematic teaching, interdisciplinary studies, integration of the arts, global education, cooperative learning, early intervention programs, relaxation, reality-based education, time for reflection, and alternate forms of assessment and grading practices. On their hit list: an overemphasis on behaviorism (external rewards and punishments) in all its forms in education, "teacher talk," drill and practice, the "factory" model of education, subject matter taught in isolation, and rote memory. The authors state that "most schools maintain most students in a downshifted state." Students need an atmosphere of "low threat and high challenge." The Caines emphasize that the principles advocated in their book are not meant to be just another divisive, fragmented program, but a way to bring together the best of what already exists in American schools today.

—Carolyn R. Pool

relates an economics topic, cosumerism, to science through a study of where raw materials come from and the impact of consumerism on the environment. For social studies, students study the history of the stock market; for language arts, they make commercials (see fig. 3).

Extending Applications

As curriculum writers, supervisors, staff developers, and administrators team up to implement curriculums, making curricular connections has become a systemwide focus. Teachers and students design their own wheels for units and field trips are designed to enrich, extend, and enhance cross-disciplinary teaching and learning. Perhaps most gratifying of all, students are beginning to understand the need to see the whole picture and are using planning wheels to design research projects and to debrief after a variety of activities and experiences. Blank wheels are emerging on bulletin boards as teachers plan with students to look for connections.

For the Future

As a result of Howard County's focus over the past four years on making curriculum connections, the concept has become a systemwide goal. The achievement of that goal, however, is still in the future. Planners and teachers must pay continuing attention to curriculum design and development, staff development, supervisory leadership and coaching, administrative support, and assessment strategies—and they must have time and patience. Meaningful change is a process that takes three to five years to become institutionalized. We are convinced that the end is worth the effort.

The strategies and steps taken in the Howard County Public School System are only the beginning. The results have been promising and positive, though admittedly anecdotal. Future plans include assessment strategies designed to incorporate cross-disciplinary learning and the development of an evaluation tool to determine whether the approach is, indeed, as beneficial as we believe. □

[1]P.H. Phenix (1964), *Realms of Meaning: A Philosophy of the Curriculum for General Education*, (New York: McGraw-Hill).

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