

Balanced Instruction Through an Integrated Curriculum

Primary teachers in Jefferson County, Colorado, teach science, social studies, health, environmental education, and career education in a unified program.

MARGE MELLE AND FERN WILSON

Suppose that you could lift the roof off an elementary school in Jefferson County, Colorado, and watch the activities of four 1st- and 2nd-grade classrooms. One class is drawing flowcharts on posterboard; another is floating shells, erasers, and paperclips in water, salt water, and orangeade. The third class is staging puppet plays of famous fairy tales; and the fourth is pasting up a giant winter mural.

Looking closer, you find striking similarities. Everywhere, children are working in groups. Everywhere, everyone is doing something. No one is running to the teacher for help. And nowhere is the teacher taking center stage.

What subjects are these students learning? The flowchart activity could be math, but now the groups are dramatizing the sequence. The sink and float activity could be science, but now everyone is singing a water song. The puppet fairy tales could be primary liter-

ature, but tomorrow during this time period, the students will prepare homes for salamanders. And the mural-makers aren't just doing cut-and-paste; they seem to be practicing looking at each other, talking, and listening.

The "subject" being taught in these classrooms is Jefferson County's Primary Integrated Curriculum. The program was developed after the school administration discovered a big discrepancy between what was taking place in the 1st and 2nd grades and what they felt *should* be taking place.

Marge Melle is Coordinator, Early Childhood Education and Primary Integrated Curriculum, Jefferson County Public Schools, Lakewood, Colorado; and Fern Wilson is an Editorial Consultant in Littleton, Colorado.

The Need for an Interdisciplinary Curriculum

Teachers in Jefferson County, as elsewhere, were increasingly pressured by parents and the press to intensify classroom emphasis on the basic skills. At the same time, they were also expected to give children balanced instruction in social studies, health, science, environmental education, and career education, as well as encouraging creativity and aesthetic appreciation along the way. Teachers couldn't find enough hours in the school day for this delicate balancing act.

The district's needs assessment study found that 15 percent of the 1st-grade teachers were spending 15 minutes or less per day on subjects other than the basics; 48 percent were spending 16 to 30 minutes on them; 31 percent spent 31 to 45 minutes; and only 5 percent spent from 46 minutes to one hour on non-basics. The study showed that

teachers pressed for time usually chose to teach pieces of subjects that interested them most and which they felt most comfortable teaching.

The Primary Integrated Curriculum is now being implemented by approximately 320 1st- and 2nd-grade teachers in Jefferson County's 73 elementary schools. It combines all 1st- and 2nd-grade academic subjects (except reading, math, and some portions of language arts) in a unified program taught for approximately 45 minutes, or 13 percent of the instructional day. Seventy-four percent of the day is devoted to the basics, and the remaining 13 percent to physical education, art, and music.

A common set of learning outcomes and activities satisfies the content and process requirements for science, social studies, health, environmental education, and career education, and at the same time reinforces the listening and speaking skills of language arts. The action-centered units require students to blend concepts and skills from all the disciplines to solve realistic problems and challenges, which are *not* neatly labeled "science", "social studies", or "language arts."

This amalgam was not mixed quickly or without pain. Its completion took six years and required the resolution of some intricate problems. The project began in 1975 when coordinators from

seven curriculum areas formed a committee to respond to the problems of time pressures and curriculum imbalance.

A crisis emerged at the outset. Although the committee agreed in principle on the need for an integrated curriculum, each member was a specialist interested in protecting his or her own domain and did not relish relinquishing time or emphasis to other disciplines. In addition, a semantics problem existed. Committee members used some of the same words, but their definitions were different.

The solution: First, they discussed the question, "What are the educational needs of a child in 1st- or 2nd-grade?" Next, they reviewed and shared basic principles of education, going back to Bloom's Taxonomy (1954). This return to the roots resulted in a unanimous decision: henceforth, although the committee members represented various disciplines, they would meet together not as *specialists* but as *educators*, with the common purpose of providing an interdisciplinary curriculum.

Defining Goals and Formalizing Plans

Although time pressures triggered the Primary Integrated Curriculum, the program developers had other, more educative purposes in mind. They set as their developmental aims a curriculum that would:

1. Respect the priority of basic skills at the 1st- and 2nd-grade levels and not tamper with the district's successful system of continuous progress in each basic skill area.

2. Deliver the content of social studies, health, science, environmental education, and career education in a holistic fashion. The program developers took as a maxim Goodlad's words, "Successful education is that which promotes problem solving, sensitive human relations, self-understanding, and the effective integration of one's total life experience" (1978). They believed that the logical place to start this effective integration was in 1st- and 2nd-grade.

3. Be composed of experiential units based on activities of interest to and appropriate for children aged six through eight, who are entering the



Marge Melle

“Although time pressures triggered the Primary Integrated Curriculum, program developers had other, more educative purposes in mind.”



Marge Melle

concrete operational stage of cognitive development (Inhelder and Piaget, 1958).

4. Include detailed strategies to introduce and systematically reinforce the cooperative learning skills advocated in *Learning Alone and Together* (D. Johnson and R. Johnson, 1974).

5. Purposefully use the special events, parties, and holiday handicrafts emphasized in primary grades to transmit an appreciation of our natural and cultural heritages and to introduce the skills of cooperative group interaction, to be reinforced in subsequent units.

6. Introduce and give practice in the skills of problem solving and critical thinking.

7. Use three basic teaching techniques: the *informative* approach (presentation of facts), the *discovery* approach (students “discover” the predetermined answers/results of problems or experiments), and the *experiential* (students learn by directly experiencing the problems or experiments when the answers or results are unknown at the outset).

Working from the common ground of these developmental aims, the Pri-

mary Integrated Curriculum committee reached agreement on the general program goals. Students will:

- Explore and manipulate materials and objects
- Develop the skills of observing, describing, identifying, ordering, classifying, and determining differences and similarities
- Ask questions, find answers in a variety of ways, and develop the ability to solve problems that are a part of their immediate world of home, school, and neighborhood
- Be aware of how their immediate actions affect their environment, themselves, and other people, and how the environment affects them; act with a sense of responsibility toward themselves, peers, family, friends, neighbors, and their natural environment
- Begin developing the skills and attitudes needed to interact constructively with other individuals and groups
- Begin developing their unique talents and sense of worth through a variety of experiences from their immediate world
- Begin developing and understanding the ability to maintain good physical health and safety

- Be able to express their feelings and tell how their feelings and the feelings of others affect behavior

- Recognize that there are recurring social and natural events in their immediate environment

- Understand and use societal conventions and practices appropriate for primary students.

With students' goals defined, the committee followed the prescribed school district curriculum development process, which for Primary Integrated Curriculum included these precise steps:

1. Identify needs—to be done by an educator-citizen task force
2. Search for commercial curricula and identify segments appropriate for an integrated curriculum
3. Write ten learning units for each grade—to be completed by teachers and committee members (central administration coordinators), working with a professional writer/editor
4. Conduct pilot tests by 27 selected teachers in 11 schools
5. Evaluate the pilot
6. Revise all units based on the pilot evaluation
7. Field test revised units by 80 teachers in 20 randomly selected schools
8. Evaluate the field test
9. Present a final report to elementary curriculum council, district accountability committee (both citizen and educator groups), and the board of education
10. Approve the new curriculum as a permanent part of the school district education program
11. Make a final revision of all units based on field test evaluation
12. Implement the new curriculum districtwide.

Problems with Solutions: An Evaluation

During this rigorous process, three major problems were identified and solved.

The foremost difficulty: Teachers were unprepared for a change as revolutionary as replacing traditional disciplines with an integrated curriculum, and they were unfamiliar with the new teaching techniques required. To meet this problem all teachers were given extensive

Primary Integrated Curriculum Learning Units

First Grade

First Things First. Students become acquainted with classmates and school. After sorting classmates by physical characteristics, they describe and classify material objects.

Special Times Together—I. Students celebrate holidays and special events on 15 occasions throughout the year, each time learning or practicing a specific cooperative skill.

Dragons, Dinosaurs, and Tiny Creatures. Students read famous legends and create fanciful puppets; identify and compare happy, secure, and fearful feelings; and observe and describe prehistoric creatures found in pictures and in museums. They then apply their observation, data-collecting, and care-taking skills to studying the tiny, living relatives of the dinosaurs: chameleons and salamanders.

Sidewalk Safaris. Students take five sidewalk excursions to become acquainted with the school neighborhood. They meet the school neighbors both by chance and appointment and interview them on the jobs they do. Students observe and study the neighborhood environment.

Radishes and Rutabagas. Students grow bean sprouts and salad gardens, planning, working, and practicing observation and recording skills. They are introduced to good nutritional habits, and finally enjoy their crop at a harvest celebration meal.

Family Ties. Students observe and compare different kinds of families: their own, classmates', families in books and films, gerbil families in the classroom, and animal families at the zoo. They explore the privileges and responsibilities of being a family member.

Walking Out to Wonder. Students experience five nonconsecutive days of outdoor activities,

seeking out wonder spots, hunting for objects and happenings in nature that arouse their curiosity, thereby developing "seeing eyes" and "listening ears."

Rolling the Distance. Students roll and race different kinds of balls as they develop skills of observing, comparing, recording, and predicting. While competing, they develop an understanding of the need for and the function of rules. After investigating wheels and machinery, students roll on the wheels of the RTD, Denver's Regional Transportation District, and investigate the public transportation and distribution systems.

Classroom Construction. Students are given pieces of a 6' x 4' structure and the tools to put it together. Cooperative group effort is required to assemble it, modify it, and put it to use in a creative way.

Manufacturing/Soft Drink Design. Students complete a problem-solving, decision-making unit as they meet one of two challenges:

- Find the best way to produce in quantity a needed item, or
- Invent a new, healthy soft drink that can be produced and served at low cost.

These challenges are based on USMES (Educational Development Center, 1977).

Second Grade

Person-to-Person. Second graders get acquainted as they identify and celebrate both their likenesses and their differences in appearance, tastes, and feelings. In a set of *Like Me, Like You* activities (Preda and More, 1980), students consider individuals who are different because of disabilities. Their attention is drawn to what the disabled can do and to their many similarities to everyone else.

Special Times Together—II. Students celebrate holidays and special events throughout the year while learning and practicing a higher level of cooperative learning skills.

Good Humor. Students laugh a lot, explore different sources of humor, and on a simple level, compare types of laughter. They

are asked to distinguish between laughing *with* and laughing *at*, and to suggest more positive ways to react to other's misfortunes.

Approach to Patterns. Students search for patterns in the human-made and natural environments and identify three of the most common pattern types: repeating, mirror, and round. They create and experience each type in movement, sound, and visual arts.

Minibeasts and Butterflies. Students watch and wait as the butterfly lifecycle unfolds in their "butterfly gardens." While waiting, they create homes for "minibeasts," small insect creatures found on the playground. They move their minibeasts into temporary homes for close observation and data collection in the classroom.

Kids and Computers. Students gain an early entry into their technological world with hands-on experience at the computer. They sequence simple tasks, draw the sequence on a flow chart, and role play the computer process.

Pools, Pipes, and Puddles. A tub of water is the laboratory as students do sink-and-float and waterflow investigations. They investigate home, school, and personal water use and conservation, and finally explore and enjoy the aesthetics of water.

Nutritious! Delicious! Students experience preparing and tasting a variety of foods while gaining the basic concept that they need many different kinds of food for growth, for health, and for energy. They develop and follow their own recipes, measure ingredients, and observe property changes.

Nature Trails/Using Free Time. Students develop problem-solving, decision-making skills as they meet one of two challenges:

- Develop a temporary outdoor trail and help others appreciate nature, or
- Design, create, and use something that is fun and worthwhile to do during free time.

These challenges are also based on USMES (Education Development Center 1977).

inservice training that outlined unit content and presented strategies for cooperative learning and instructional practices to promote critical thinking and problem solving. Total implementation and inservice strategies followed the *Concerns-Based Adoption Model* by Hall and others (1973), a program that focuses on components necessary for change. Outside consultants were employed for additional inservice help.

Another problem: The integrated curriculum units use many unconventional learning materials, from carrot graters to water tubs, from potting soil to butterflies. Seeking out these unusual items would put an unwelcome burden on teachers. This difficulty was eased by providing unit kits containing all non-standard supplies.

The third complication: The pilot disclosed that understanding and support from principals and parents were essential for success. To give the program this necessary boost, explanatory meetings and abbreviated inservices were held for principals, and letters were sent to parents explaining the new curriculum and requesting their help and encouragement.

Resolution of these problems during the development process resulted in the

"survival of the fittest," a revised program of ten interdisciplinary units for 1st grade and ten for 2nd grade. Each unit emphasizes three or four of the student goals and three or four disciplines; however, most units include activities that involve some aspect of all disciplines and goals. Students are expected to meet specific content and process objectives within each unit.

It is too soon to adequately judge the success of the Primary Integrated Curriculum. The long-range results of primary children learning to think, to cooperate, and to identify and solve complex problems in a holistic manner will come much later. Meanwhile, the program has proven to be highly motivating, relevant to the interests and needs of children, and effective in providing opportunities for movement, interaction, and problem solving. Its content establishes relationships and connections. However, for many teachers, the biggest selling point may be that it provides a reasonable solution to the balancing act. Although teachers will always face problems in primary classrooms, trying to crowd five or six subjects into a small amount of time doesn't have to be one of them. □

References

Bloom, Benjamin. *Taxonomy of Educational Objectives*. New York: Longman, Inc., 1954.

Education Development Center. *Unified Sciences and Mathematics for Elementary Schools: Mathematics and the Natural, Social and Communications Sciences in Real Problem Solving*. Newton, Mass.: Educational Development Center, Inc., 1977.

Goodlad, John I. *What Schools Are For*. Bloomington, Ind.: Phi Delta Kappan Educational Foundation, 1978.

Goodlad, John I.; Klein, M. Frances; and associates. *Behind the Classroom Door*. Worthington, Ohio: Charles A. Jones, 1970.

Hall, Gene, and others. *Concerns-Based Adoption Model (CBAM): A Developmental Conceptualization of the Adoption Process Within Educational Institutions*. Austin: Research and Development Center for Teacher Education, University of Texas, 1973.

Inhelder, Barbel, and Piaget, Jean. *The Growth of Logical Thinking from Childhood to Adolescence*. New York: Basic Books, 1958.

Johnson, David W., and Johnson, Roger T. *Learning Together and Alone*. Englewood Cliffs, N.J.: Prentice Hall, 1974.

Preda, Theresa, and More, Gale. *Like Me, Like You. A Disability Awareness Curriculum*. Denver: Children's Museum of Denver, 1980.

Another CTB area of expertise: Customized Testing

Customized test development provides testing instruments based upon your curricula.

The Challenge: For the past several years we at CTB/McGraw-Hill have been studying and building prototypes of test instruments that will be used in the classrooms of the future. Our research demonstrates that there is an increasing demand for tests customized to fit school or school district demands for test instruments that serve a variety of purposes. Tests required to perform numerous functions present both economic and psychometric challenges.

The Result: The Objectives-Referenced Bank of Items and Tests (ORBIT) meets the challenge of providing tests appropriate for today's curricula as well as future curricula. Customers now may order tests from the ORBIT system that are both criterion-referenced and norm-referenced.

To learn more about this dynamic customized testing system designed to fit your curriculum, please write or call.



For additional information write or call Dept. AP, CTB/McGraw-Hill, 2500 Garden Road, Monterey, CA 93940—800 538-9547 (in California 800 682-9222).

INFORMATION AND SERVICES FOR MORE EFFECTIVE SCHOOL ACHIEVEMENT AND ATTITUDE TESTS, PROGRAM ASSESSMENT, AND EVALUATION, INSTRUCTIONAL MANAGEMENT SYSTEMS, INSTRUCTIONAL SUPPORT MATERIALS, CUSTOMIZED TESTING, TESTS FOR SPECIAL NEEDS.

CTB/MCGRAW-HILL

Copyright © 1984 by the Association for Supervision and Curriculum Development. All rights reserved.