

HORACE

Developing Curriculum in Essential Schools

If curriculum is to reflect the goals of a school and the needs of its students, it makes sense for teachers to develop it themselves. But how might they do it, and when? And is it better to adopt or adapt materials 'off the shelf' or should students and teachers be creating curriculum together?

FIVE MATH AND SCIENCE teachers are sitting around a table piled high with books, papers, software packages, and empty coffee cups. They have a two-hour planning period; the halls ring with the noise of students who will show up in class next term with varying degrees of interest, skill, experience, and maturity. The school has promised a project-based curriculum that integrates mathematics, science, and technology around Essential Questions; and everyone is eager to see it work.

But despite months of wrestling with what they want kids to know and be able to do, this staff still feels overwhelmed by the task before it: to plan a thoughtful, deep, well-organized curriculum that draws forth those desired outcomes from every student. Shouldn't they just pick one of these fine new textbooks and follow it? Why should they reinvent the wheel for this particular group of kids, in this particular community, with these particular teachers? What are they trying to prove—and when the state tests arrive in the spring, will their brave new ideas serve their students well?

This scene took place at a new Essential school, the Francis W. Parker Charter School in Fort Devens, Massachusetts, but it reflects the dilemmas felt by many Essential schools in other situations and circumstances. Though most faculties need not create an entire

curriculum from scratch, many do aim to replace outdated coursework with new experiences that better match their goals for students. All schools now face increased pressure to meet the new standards flooding in from national and state professional groups and education boards. In state after state, new performance-based standardized assessments fit poorly with old curricula, and schools must decide whether to adopt new textbooks or create their own plans from a variety of sources.

Yet all other reasons to develop curriculum pale beside the bald reality that every school is different. When Essential schools commit to knowing their students well and to deepening their understanding by exploring less material in more depth, they must at once confront decisions about what and how to teach. Schools like this often recognize, moreover, that curriculum comprises not just content knowledge but *every* encounter among teachers, students, and community—everything that makes up understanding, and everything that demonstrates it. Seen in this light, the daily decisions that affect a school's organization and culture, both in and out of the classroom, are already defining the curriculum as surely as the choice of what books to use.

Developing curriculum together also gives teachers the important chance to have ongoing, meaningful

Using a 'Project Design Template' to Develop Curriculum

Teachers in all Gorham, Maine schools now prepare at least one project using the design template that follows (which is still in draft form). "It's meant to help teachers organize their classroom practice in ways we hope will result in increased understanding," says John Newlin, a social studies teacher at Gorham High School who serves as a district coach to other teachers. The template uses the terms (such as "Enduring Issues" and Essential Questions) that Gorham teachers have been using for some time in their conversation about teaching and learning. It takes advantage of Maine's newly drafted "Learning Results," or content standards. And it asks teachers to construct ongoing and final assessments that include at least one of the "compulsory performances" of writing, speaking, and visual representation that Gorham requires of all its students from kindergarten through high school.

A teacher has filled out the template below to reflect a biography project on Martin Luther King, Jr.

Gorham Outcome Goals:	Authentic Activity Goals:	Compulsory Performance Goals:	Understanding Goals (Knowledge and Skills):
Includes Quality Producer Complex Thinker Self-directed Learner Collaborative Worker Community Contributor	(optional) Complex activities related to Outcome Goals that all graduates should be able to do.	Includes Writing Oral Presentation Visual Representation	Project addresses one or more Essential Questions or Enduring Issues (#1-16):
<i>Community Contributor</i>	<i>Effective participation in public policy decisions and community service</i>	<i>Writing Oral Presentation Visual Representation (costume and set)</i>	<i>10. racial and cultural conflict or cooperation 16. violent or non-violent methods of solving complex problems</i> Project addresses one or more Content Standards, Content Standard Descriptors, and Performance Indicators (which incorporate higher order thinking skills) from the State Learning Results document:
			<i>(Social Studies)</i> <i>1. Understands and applies the roles and principles of responsibility, power, [etc.]</i>
Product(s) to be created or performed within the project, beginning with the culminating product or final draft/version	Assessment experiences, tools, and resources	Instructional experiences, tools, and resources	Intelligences exercised
<i>Background paper Written Monologue Theatrical Performance (in character)</i>	<i>Comment & Grading Sheet rubric Rehearsals (videotaped) Peer critiques Performance rubric</i>	<i>Selecting person/group Trust exercises Modeling and analyzing exemplars Acting and stage techniques Individual conferences Library research and bibliography Interviews Videotapes</i>	Includes Linguistic Logical-Mathematical Spatial Musical Bodily-Kinesthetic Interpersonal Intrapersonal <i>Linguistic Spatial Bodily-Kinesthetic Intrapersonal</i>
<i>see assignment sheet for full description</i>			

development. Rather than focusing on "teacher-proof" curriculum, they suggested, professional development opportunities should model how teachers can turn the given into something owned by both teacher and students.

Such ownership does not depend on having created the piece of curriculum, but has to do with "adjusting curriculum to our timing, our group of students, our school culture, our community culture, our classroom, our own personal strengths," these teachers reported. Good teachers, they said, know "what to emphasize, what to stretch out, what to deepen."

"To teach well, teachers must have a relationship with what they teach, as well as with the people they teach it to," Joe McDonald agrees. "They must interact with both, not just deliver one to the other." Instead, he urges, "Imagine curriculum as the set of learning opportunities available to both teachers and students as a result of their connectedness to each other and to outside experience and expertise."

Even curriculum she has developed herself becomes stale, notes Eileen Barton of Chicago's Sullivan High School, if she does not continually work at opening it to redirection, evolution, and change. "Rather than getting richer over time, it can grow unwieldy and diffuse," she says. "Even techniques like Socratic seminars, cooperative learning, and class projects can be dead if one doesn't think them through again. Unless I reinvest myself in them, even my 'best' curriculums are sometimes better suited for show-and-tell with colleagues than for use with kids."

Teachers often create innovative curriculum by borrowing from each other, from innovative textbooks and computer software, from education research organizations, and from public service agencies that produce educational materials. Scanning the catalogs of book and software publishers can yield rich

supplements to a curriculum plan, and in an hour of Web browsing on the Internet, a teacher or information specialist with her ear to the ground can connect with hundreds of organizations eager to share resources. The Coalition and many other reform networks sponsor active on-line discussion groups in which school people regularly trade their experiences and suggestions. And in curriculum institutes at the growing number of regional centers for Essential schools, teachers can develop and share their questions, approaches, materials, and insights.

But with the wealth of ready-to-

wear curriculum materials on the educational racks, does it make sense to go to the trouble and expense of a custom design? You'll know by the fit, experienced teachers answer. An off-the-shelf package can look fine in the box; but does it move when you move, or does it pinch? Does it trip you up at just the wrong moment? Take the time to find out, they advise. With a tuck here and a tweak there, with a few idiosyncratic accessories and adjustments, you might just make someone else's curriculum fit. If that doesn't work, why not get together with a few friends and sew your own? □

What Makes a Curriculum Team Succeed?

The way a group goes about developing curriculum together has a great deal to do with its eventual success, according to ethnographer John Watkins, who has evaluated several lengthy curriculum development projects involving teams of teachers. Watkins describes several factors he says typically influence their progress, or lack of it:

- the way teams use outside resources, learn the content of their field, and do research;
- the way they organize their work together, and the appropriateness of the leadership process they use;
- the tacit or explicit assumptions they bring with them about school structures, students, and how learning happens.

Teachers come to the task of developing curriculum, Watkins observes, laden with the baggage of their district's history—its politics, its culture, and its organizational structure. To develop new curriculum, they must often challenge all that, setting into place an entirely new culture of inquiry and professional growth. Where they begin, and how explicit they make their assumptions and their process, can dramatically affect whether anything ultimately changes in their schools and districts. Some of the most important practices in developing curriculum, he believes, fall into the following categories:

- Developing new working methods and new definitions of professional relations, including team building, team work, team structures, new definitions of professional exchange, and tools for that work. Teachers must be able to deal with open-ended tasks, challenge each other's assumptions, ask good questions, and strategically seek out and decide how to use information and resources.
- Recognizing, building on, and overcoming the effects of district histories, organizational and political momentum, prior relations, and ideologies about education.
- Developing relations with outside resources and organizations (consultants, funders, summer institutes, experts in education and content areas, etc.).
- Developing patterns of using resources that support their work.
- Learning about learning.
- Learning and exploring in the content areas the curriculum addresses.
- Carrying out good research.
- Learning and using new technologies for planning, inquiry, and communication.
- Figuring out what a curriculum model is, and building one.

Resources for Curriculum Development

Technological Resources

To subscribe to CESNEWS, a list of general interest and readership among the Coalition community, send an e-mail message to CESNEWS-REQUEST @ brownvm.brown.edu. The body of the message should say: "Subscribe CESNEWS Your Name" (substitute your name). On the Web, go to <http://home.aisr.brown.edu>

The Homework Page. Information of value in researching school projects is at <http://www.tpoint.net/Users/jewels/homework.html>

Global Education Resources. Contact <http://www.clark.net/pub/peace/OED1.html>

Kid Lists. Anchors to 82 sites children and their parents might enjoy. Contact <http://www.clark.net/pub/journalism/kid.html>

Awesome Lists. Innovative sites with practical value and professional expertise. Contact <http://www.clark.net/pub/journalism/awe-ie.html>

Educational Resources. Online resources and projects for students and educators. Contact <http://quest.arc.nasa.gov/OER/>

Science Learning Network links museums of science like Philadelphia's Franklin Institute to innovative schools.

Contact <http://www.scils.rutgers.edu>

Educational Hotlists. A great resource at <http://sln.fi.edu/tfi/hotlists.html>

Curriculum Designer, software for curriculum developers. Tudor Publishing, San Diego, CA; tel. 800-998-4531.

Organizations and Resources

ATLAS Communities' curriculum design tool and planning framework can be obtained through Michael DeAngelo, EDC, 55 Chapel St., Newton, MA 02169; tel. 617-969-7100.

Foxfire, P.O. Box 541, Mountain City, GA 30562; tel. 706-746-5318.

Wisconsin Center for Education Research, 1025 W. Johnson St., Madison, WI 53707; tel. 608-263-4214.

The Mid-Continent Education Research Laboratory (McREL), 2550 S. Parker Rd., Suite 500, Aurora, CO 80014; access its database on the Internet at <http://www.mcrel.org>

California Foreign Language Project; Curriculum Organization for Active Communication and Heterogeneity (COACH); tel. 714-824-3523

Readings

Robert Felner, A. Jackson, D. Kasak, P. Mulhall, S. Brand, and N. Flowers (in press), "The Impact of School Reform in the Middle Years: A Longitudinal Study of a Network Engaged in Turning Points-Based Comprehensive School Transformation." In R. Takanishi and D. Hamburg (eds.), *Preparing Young Adolescents for the 21st Century*. NY: Cambridge University Press.

Robert J. Marzano and John Kendall, "The McREL Database: A Tool for Constructing Local Standards," *Educational Leadership* (March 1995).

Joseph McDonald, "Dilemmas of Planning Backwards: Rescuing a Good Idea" and "Steps in Planning Backwards"; Joseph McDonald, Bethany Rogers, and Theodore Sizer, "Standards and School Reform: Asking the Essential Questions." \$4 each from CES Publications, Box 1969 Brown University, Providence RI 02912.

McLaughlin, M. and Talbert, J. (1993). "Contexts that Matter for Teaching and Learning." Stanford, CA: Center for Research on Context of Secondary School Teaching.



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conversation with each other—about interesting ideas in their fields, about how children learn, and about ways to improve their classroom practice. The professional community this engenders, recent research by both Milbrey McLaughlin and Robert Felner has shown, has a direct link to higher student achievement. And this holds true whether such collegial conversation takes place in department meetings, in summer institutes, or by electronic mail with distant colleagues.

Still, developing curriculum takes more time and resources than most schools provide to teachers. Even in the best of circumstances it goes slowly, because the work takes place on many levels at once, from the most deeply personal to the most broadly systemic. ("It is easier to move a cemetery," said Woodrow Wilson, "than to effect a change in curriculum.") Examples of how to sustain the process are as different as the contexts from which they come, but in examining a number of Essential schools' efforts, some broad outlines do emerge.

What Drives Curriculum?

Common sense and etymology tell us that a curriculum is a dynamic event, not an object—a river of experience that "courses" through student and teacher over the years of school, altering them both in myriad ways. Joe McDonald, a senior researcher at the Annenberg Institute, describes it as "one point of a triangular relationship, of which the other two points are the teacher and the students," who each increase in understanding as they work through subject matter.

Seen this way, the first step to constructing a curriculum cannot be to decide what tidy package of facts a school will pass on to its student-clients. Rather, a school must decide the direction in which the course of events will flow—the place where, if the journey goes well, the students should emerge ready for another. Though the word "outcomes" has

emerged from the past decade dirtied from the political fray, schools must still use it when they ask about curriculum, "Where and how do we want students to come out?"

But who has the authority to decide that? Even outwardly similar reform-minded schools display deep differences in how they answer, observes researcher Bethany Rogers in a study for the ATLAS consortium to which the Coalition belongs. For some, the driving force may be national and state curriculum standards. James Comer's School Development Project, chiefly concerned that students achieve equity in a system that privileges conventional curriculum, may emphasize standardized tests. A group like Foxfire gives student interest a larger role in shaping curriculum. And TheodoreSizer asserts that each local community must set its own expectations to reflect its particular needs and situation.

These philosophical differences about authority, says Rogers, underlie other conflicting, fundamental beliefs: "what good curriculum is, how it is developed, how it is related to whole-school reform, and how it accommodates kids and their diversity." Getting clear on them from the start, then, will lend coherence and purpose to a school's subsequent decisions and actions.

But the school that decides to plan its curriculum around standards has a big job to do at the start, whether it draws up those standards for itself or adopts them from national or state recommendations. Among other things, all kinds of "outcomes" and "standards" are strewn about the educational landscape these days. Some are linked to *content*, spelling out what students should know and be able to do within (and sometimes across) various disciplines. Some are linked to *performance*, defining what it looks like when students do something "well enough" for a particular level of accomplishment in a particular community. Some are linked to

opportunity, describing the teaching and resources that children need to learn well. In 1995, when the federal Mid-continent Regional Educational Laboratory (MCREL) in Colorado compiled into one database the leading published standards and their subcomponent "benchmarks" at various developmental levels, then edited out redundancies, they ended up with well over 1,500 benchmarks embedded within 157 standards.

Skills, Habits, and 'Content'

Teachers who have attempted writing their own content standards, benchmarks, and performance tasks may well appreciate the help from such a database, if only in testing their ideas and words against those of others. But many Essential school teachers involved in curriculum development do not start with content at all. Instead they describe a vision of what they want students to "be" rather than to "do," using terms such as "complex thinker," "problem solver," and "community contributor." Such broad (and less



HORACE

HORACE is published five times yearly at Brown University by the Coalition of Essential Schools. Individual subscriptions are \$20 a year (payable to Brown University); back issues are \$2.50 each. To subscribe or to get more information, write Brown University, Attn: CES Subscriptions, PO Box 910, Oxon Hill, MD 20750-0910 or call 1-800-62-HORACE.

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measurable) outcome goals often show up in the form of a state's "common core of learning."

This often moves into a discussion of what skills students should acquire throughout their school years. "For several years our district has been focusing primarily on writing, reading, oral presentation, visual representation, and data analysis," says John Newlin, a high school social studies teacher in Gorham, Maine who serves as a district-wide "teacher leader" in curriculum, assessment, and instruction.

To get at those outcomes, Gorham has been urging teachers to develop "main course [as opposed to dessert] projects"—nutritious, academically rigorous projects that could lead students toward "understanding goals." Task forces of teachers identified "essential questions" or themes they dubbed "enduring issues" (like "racial and cultural conflict or cooperation"). They called for "compulsory performances" that would demonstrate proficiency in the most important skills. In doing all this they came up with a useful template for designing a project-based curriculum. (See sidebar, page 10.)

Still, for most subjects Gorham had not yet codified any required content their curriculum would cover. "We started all this before the national standards came out, but we realized we would have to pay attention to content-area knowledge," Newlin says. So it helped, he says, when the state recently drafted the "learning results" it expects in various content areas, which will ultimately be reflected in Maine's new performance assessments.

In states that do not issue such content standards, teachers may face the daunting task of doing it themselves. "We headed down that path in social studies several years ago, because we wanted a more coherent program across grade levels," Newlin says. Though the results mesh well with the state's requirements, he says, "It entailed a huge expenditure of our time and energy

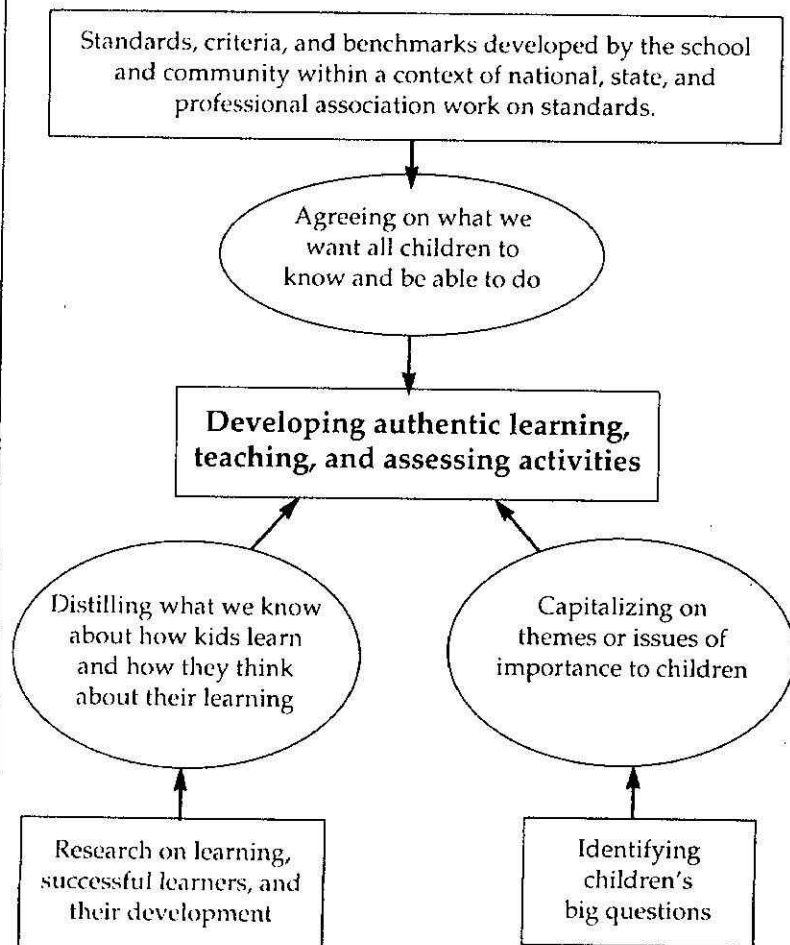
over several years. It's so hard to get agreement on what to include, and on how specific to make content standards." Schools in this situation, Newlin suggests, might instead send away for good models from elsewhere, and then take a few months to study and adapt them.

For example, Parker School teachers scrutinized a set of "performance standards" and assessments just released by New Stand-

ards, a collaboration of the Learning Research and Development Center at the University of Pittsburgh and the National Center on Education and the Economy. "You don't want to set up a situation where people don't have to think. But you can save them a good deal of labor," says Ann Borthwick, New Standards' director of standards, development and applied learning. By providing standards on one end and assess-

Widening the Conversation about Curriculum

Developing new ways to approach learning, teaching, and assessing can be a joint effort among educators, students, and community members. How that negotiation happens is represented here as a system at whose center is a dynamic and living curriculum.



Reprinted with permission from *Genuine Reward: Community Inquiry into Connecting*, by Jill Mirman Owen, Pat Cox, and John Watkins (Andover, MA: The Northeast Regional Laboratory for Educational Improvement, 1994).

How the ATLAS Communities Structure a Curriculum

The ATLAS Communities project has put together a design tool (forthcoming) that suggests using the following categories in planning curriculum:

Generative topics . . .

- Are developmentally appropriate.
- Are broad and complex.
- Are interesting to students and teachers.
- Are important for understanding responsible citizenship and the disciplines.

These criteria can help you make decisions about what generative topics you may want to explore, but don't get too caught up in trying to nail down the "right" generative topic. Teachers approach the idea of generative topics differently and there is no hard and fast "right" or "wrong" way to approach them. The questions students explore and the performances they develop are the most important aspect in this curriculum framework.

Essential Understandings . . .

- Are developmentally appropriate.
- Are the concepts, principles and lesson most important to productive citizenship and for understanding the disciplines.

Issues, Problems and Challenges

- Provide a context for developing the essential understandings.
- Go to the heart of the discipline(s) and are important to responsible citizenship.
- Require students to examine multiple perspectives.
- Require intellectual work—thinking.

Essential Questions . . .

- Are developmentally appropriate.
- Raise the level of debate and discourse.
- Require analysis and judgment.
- Are open-ended.
- Have importance to both the community and the disciplines.

The Skills of Inquiry

Reading: Students will read, understand, and use the ideas and arguments presented in a variety of challenging materials written at grade-level.

Listening: Students will identify the central ideas in oral presentations and explain how these ideas were developed by the speaker. They'll take effective notes and employ them in their work.

Data Analysis: Students will gather, analyze, manipulate, and employ quantitative and qualitative data (presented in a variety of formats); understand its use in real-world situations; and use it to solve and express their answers to real-world problems.

Questioning: Students will identify essential questions of disciplinary, personal, and social significance, as a regular part of their learning process.

Research: Students will collect, organize, process, and utilize information, using a variety of resources (e.g., libraries, computers, community members; books, videos, CD-ROM, periodicals), as a regular part of the learning process.

Reasoning/Problem Solving: Students will investigate and answer essential questions. They'll identify and formulate problems, propose and evaluate solutions. They'll draw reasonable conclusions from information found in a variety of sources, and defend their conclusions. They'll recognize fallacies in others' reasoning. They'll comprehend, develop, and use concepts and generalizations, and they'll distinguish between fact and opinion.

The Skills of Expression

Writing: Students will express themselves clearly, through well organized paragraphs and papers, using appropriately mature vocabulary, employing proper conventions, and varying style for different readers and purposes; they'll also write good word problems.

Speaking: Students will express themselves clearly, from notes and extemporaneously, using language the audience can understand, and a tone and style appropriate to the audience and situation.

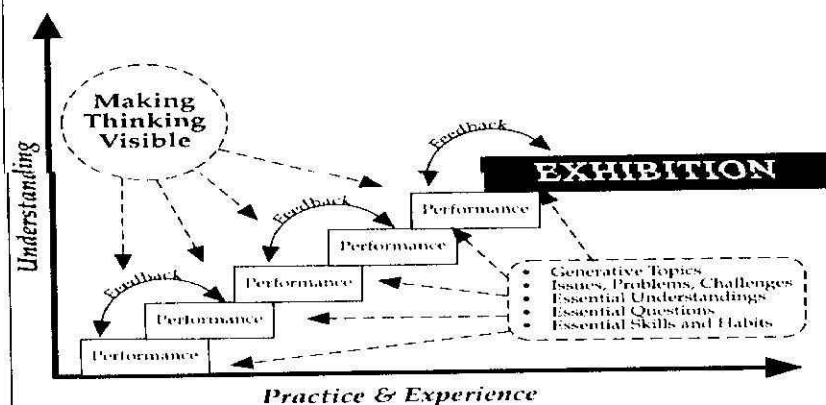
Visual Expression: Students will employ additional mediums to communicate ideas. They'll use these mediums to make presentations that are clear, easily understood, effective, and persuasive.

Technology: Students will understand and employ technology for a variety of purposes, including communications, information gathering, and the creation of documents and presentations.

The Habits of an Effective Learner

- Creative and curious
- Analytical and critical
- Purposeful and strategic
- Thorough and precise
- Reflective
- Collaborative
- Respectful and honest
- Supportive and responsible

Building and Assessing Understanding ATLAS Communities



ments on the other, she says, "we hope to help schools as they fill in the middle for themselves with a large, rich curriculum that leads students toward common standards. We hope schools will use our work to ask, 'What would have to be different to make these standards work for us?'"

Building a Framework

Gorham's task force of social studies teachers spent much of its time thinking about how to frame its work so that the curriculum would hang together across grade levels without prescribing coursework too closely. "We had to create a filter system to identify what information students really needed in order to participate in the public issues of the day," Newlin says. "If we couldn't reduce the total quantity of terms and concepts we wanted students to understand, we wouldn't have time for the projects through which they could practice the skills and activities we wanted them to be able to do."

In the end the group wrote over 80 pages of text, a menu from which teachers could draw to design projects at various grade levels. "Each grade level had its historical time period or geographic focus," Newlin says. "We used 'enduring issues' as through-lines students revisited again and again."

The Gorham district drew help and resources from its relationship with the ATLAS Communities Project, a consortium funded by the New American Schools Development Corporation (NASDC) and jointly developed by the Coalition of Essential Schools, Harvard University's Project Zero, Yale's School Development Program, and Education Development Center. In fact, the ATLAS Curriculum Planning Framework (some of which is condensed on page 4) echoes the structure that Gorham used in identifying its curricular purpose and strategies.

"The framework is a way to pull out the most interesting topics, issues and questions of existing curricula and reframe them in a way that pro-

motes critical inquiry, discourse, and intellectual work," says its author, Michael DeAngelo. "But it maintains academic integrity by focusing on the concepts, principles, and lessons important for students to understand." To do this, the framework uses four "content" components (generative topics; issues, problems, and challenges; essential questions; and "essential understandings") and four that focus on building and assessing understanding (essential skills and habits, performances and exhibitions, ongoing assessment strategies, and performance standards and scoring rubrics).

The best curriculum frameworks are designed so that students revisit and connect content areas, deepening their understanding over the years from kindergarten through high school. In McFarland, Wisconsin, Deb Larson was one of 25 educators chosen by Project 2061 to develop a K-12 curriculum based on the concepts expressed in *Science for All Americans*, the manifesto of the American Association for the Advancement of Sciences (AAAS). "We soon realized it couldn't just be a science curriculum," Larson says. "We'd be fixing one part of the system at the expense of the rest of the system."

Instead, the McFarland team spent four years crafting 52 cross-disciplinary "vistas"—a series of "engaging experiences," Larson explains, "crafted so they connect with one another, and organized into twelve areas of continuing human concern—food, water, energy, communication, shelter and architecture, and so forth." Students would revisit each of these areas in depth at least four times from kindergarten through high school, as they worked through progressively more complex projects.

Too bold for the McFarland schools, the framework belongs now to Project 2061, and Larson does not know if anyone has ever used it; but a more fully integrated and extensive approach would be hard to find.

Students at the Center

Working out the framework of a curriculum can be so absorbing, some teachers caution, that it overshadows the living students at its center. Though few schools would risk going into a year without lesson plans in hand, many educators argue that involving students in developing curriculum is crucial. "The question of what should be at the center of the curriculum should be at the center of the curriculum," declared Deborah Meier, Jay Featherstone, and Bill Ayers at a 1991 meeting of their North Dakota Study Group.

"Every decision we make about what kids will do takes a learning experience away from the child," agrees David Ruff, who works with the Coalition, Foxfire, and other reform efforts at the Southern Maine Partnership. "The danger is that teachers start to think of curriculum as activities for kids to do, rather than knowledge they should gain or skills to develop. As long as you have a clear picture of your outcomes, I believe that kids themselves should be creating the activities that will get them there."

That doesn't mean abdicating the teacher's guiding role in curriculum, he observes. Starting students out with more structure helps them work up gradually to more independent choices. "I tell kids that some things are givens—the skills and content they need to end up with," Ruff says. "As long as they can demonstrate they have them, I don't care how we learn them."

When he taught fiction to high school English students in Saco, Maine, for example, Ruff's students wanted to hang out at the local mall for a day in order to study the elements of fiction in their lives. "I asked them to show me clearly how that would deepen their understanding," he says, "and they ended up choosing another activity."

Many Essential school teachers use the student-centered Foxfire approach as a way to work toward agreed-on goals while drawing on

Balancing Content with Thinking Goals: One Picture of Curriculum

Teachers at the Parker School in Fort Devens, Massachusetts created their own curriculum template, juxtaposing "texts and resources" that describe content area knowledge with "tasks and activities" that elicit key skills they want students to practice: responding to text, creating new work, and performing or demonstrating their understanding. All the year's projects in every content area reflect the school's Essential Question, "What is community?"; each ends with an exhibition. The template proved useful, Parker teachers observe, in communicating the goals and strategies of a project-based inquiry curriculum to a community concerned about content coverage. Deb Merriam, a Harvard graduate student and teaching intern at Parker, created this project:

The Year's Essential Question: What Is Community?

Project: FOOD, POPULATION, AND COMMUNITY

Goal: Using content and practicing skills from all three Domains, students will research, understand and present the question: "What is the relation between food and population in a human community?"

Exhibition: Students host a "Hunger Banquet" for the Parker community illustrating the world's distribution of food resources, and present systems models of their own research on a particular community.

Texts and Resources

Students will become familiar with the vocabulary and key concepts with which social scientists address issues of population and resource allocation, using the following texts and resources among others:

Reports on developing countries from the Peace Corps, Oxfam, and the CIA World Factbook

United Nations Food and Agriculture Organization database

Statesman's Yearbook

Maps describing geography and natural resources

STELLA systems modeling software

Selected passages from literature, including:

Nisa, by Marjorie Shostak

Rachel and Her Children, by

Jonathan Kozol

Inside Nicaragua, by Rita Gelman

Tasks and Activities

Students will *respond*, in writing and in group seminars or discussions, to the research and mathematical modeling methods through which social scientists describe:

- A community's population and birth/death rate
- A community's food resources.
- The geographic constraints on food production.
- The economic production of a community.
- The political structure that governs resource distribution in a community.

Students will also discuss and compare the methods of population control used by different communities, studying how different cultural factors influence these decisions.

Students will *create new work* that relates to a community of their choice through the following tasks:

- Create an artistic representation that visually presents the accurate proportional distribution of a particular food crop in five countries.
- Using a particular community's food resources, design a weekly diet for a typical family.
- Research how the population of that community alters with two different birth/death rates, and create a computer model that illustrates how one factor influences the other.
- Write a story, poem, or play, or create a piece of visual art, from the point of view of a young person in a community where food is scarce.

Students will *perform* their work by presenting the Project's *Final Exhibition*:

- Students host a "Hunger Banquet" for the Parker community illustrating the world's distribution of food resources, and present systems models of their own research on a particular community.

students' authentic concerns and interests. "For me Foxfire holds the most important keys to success in planning curriculum for the heterogeneous classroom—the student voice and choice," says Edorah Fraser, who teaches at Souhegan High School in Amherst, New Hampshire. "Giving students choices is the only thing that I've found that works—choices among readings around a common theme, among research topics, and so forth."

Carol Lacerenza-Bjork and her ninth-grade English students at West Hill High School in Stamford, Connecticut decide together on a theme for their course and choose a few central texts. Then students branch out through a variety of seminars and other performance tasks based on their own choices. (See *HORACE*, Vol. 11, No. 2, November 1994.) And at Rochester, New York's School Without Walls, teachers and students routinely design curricular projects together, using guidelines principal Dan Drmacich has devised. (See sidebar, page 7.)

Grounding the curriculum in questions and activities that students choose raises their commitment and achievement level, say teachers who have tried it. As part of their foreign language classes, for example, many California students choose "cultural participation and research" activities in the community, from learning to dance the *merengue* to shopping at a Spanish market or exchanging dollars for *pesetas*. The approach, developed by Suzanne Charlton and Cynthia Leathers at the University of California at Irvine, asks students to document and reflect on their projects in portfolios, and it awards points for activities based on their degree of challenge.

"It's easy for a language curriculum to neglect the very rich culture of students themselves," says Charlton. "When kids go out and use another language to explore things they are really interested in, whether it's cooking or watching a movie, they start to develop proficiency in ways that reflect their own particu-

Teachers and Students Making Curriculum Together

Dan Drmacich at Rochester's School Without Walls developed the following guidelines for his staff to use in constructing learning experiences.

1. Brainstorm. Teachers and administrators, students, and small groups should list all topics, issues, themes, and problems that students would like to learn about (depending on course flexibility). Don't limit your brainstorming by eliminating what normally are regarded as irrelevant topics to your subject areas. For example, football has a direct relationship with math; so does knitting.

2. Select the topic. Develop criteria for choosing the topic. Is the topic a burning issue? Does it really concern or interest students? Will it help students develop better insights about themselves, their values or goals? Will it help make them "better people"? Will the topic help students develop a better understanding of the world they live in? Will it help them become more effective? Will it help students develop skills in reading, writing, thinking, and problem solving? Can we get enough information on this topic?

3. Develop a chart. Using "the spider" [or concept map], brainstorm all the issues, ideas, problems, feelings, and subtopics related to the topic. Discover the range of possibilities and interdisciplinary relationships.

4. Construct a question census. Brainstorm a list of questions that would be important for gaining an understanding of the topic. Include perceived needs from students and teachers. Organize questions on three levels: *Factual* (who? where? when?); for example, "What is solar energy?" *Conceptual* (how? why? what if? compare); for example, "What would happen if our community did not have petroleum?" *Value* (should? would? choose); for example, "Should the U.S. invade other countries to obtain oil?"

5. Identify available resources. Readings (books, magazines, articles, poems, etc.); audiovisuals (movies, filmstrips, TV programs, video or audio tapes, records, etc.); field trips (museums, parks, agencies, organizations, displays, businesses, libraries, etc.); people (parents, students, community leaders, business people, otherteachers, etc.); manipulative devices (learning games, science apparatus, plants, animals, tools, art supplies, junk, etc.).

6. Develop activities from the question census. Have teachers or students work in pairs or as individuals, each selecting the question from the census that they are most interested in, then developing an activity. Some suggested activities to motivate students: personal experiences, value judgments, moral dilemmas, sense activities, interviews, surveys, role playing, team competition, computers, creating books, plays or skits, videotaping.

7. "Purpose" the unit. As teachers or with students determine the unit's objectives. Make a grid and record the objectives (creative writing; critical thinking; using community resources, etc.) vertically and the activities (field trip, discussion, art, etc.) horizontally.

8. Make revisions. Examine the grid for patterns. If it reflects too heavy an emphasis on certain types of objectives (value, cognitive skill or knowledge, affective, etc.), add activities that emphasize other objectives.

9. Sequence the unit. Use teacher guidance, group decisions, and individual decisions. All students may not have to accomplish all activities and objectives.

10. Structure the unit to facilitate teaching and learning. What classroom organization and structure (learning centers, individual study centers, conventional seating, room dividers, project areas, storage, etc.) will work best? What activities or objectives should be required for all, or for some? What methods of evaluation (learning contracts, self-evaluation, peer evaluation, conferences, feedback forms, rating scales, conventional grades, pass/fail, credit/no credit, portfolios, etc.) will work best?

lar intelligences." Such experiences lead naturally into other subject areas, she notes, and teachers who use this approach often find their curriculum becoming "interdisciplinary" despite themselves.

Teams Building Curriculum

Typically, teachers develop curriculum one unit at a time, often in teams that attend workshops or summer institutes. When Steve Cantrell taught at Rancho San Joaquin Middle School in Irvine, California, most teachers worked on

curriculum units for a week in the summer. "We shared a lot of the same resources, but each of us was paid to create one new performance assessment," says Cantrell, who now coaches a Critical Friends Group at Whittier High School, near Los Angeles. "With several such weeks a year, a faculty could transform its curriculum over four or five years."

If teachers see developing and trying out curriculum together as part of strengthening their own teaching practice, they are less likely to leave it to outsiders, Cantrell believes. "Imagine a team of teach-

ers sharing their results, then giving each other steady feedback during the year as they tested out ideas in their classrooms," he says. "When you've helped to shape other people's work, you understand their train of thought better and are more able to draw on it. That's why people who develop curriculum in central offices often don't see it used by teachers."

But developing curriculum in a team involves a complex mix of attitudes and assumptions that can make or break the effort. Kellogg's educational foundation gave

A Teacher's Reflections on Creating Curriculum

by Eileen Barton, Sullivan High School, Chicago

A big issue for me is maintaining a focus while leaving room for the serendipitous. Much of the good teaching I have done has involved seizing the moment and running with it. For example, a student will have had experiences or an insight that I did not anticipate when planning the unit. Something impacting the curriculum will happen in the building or in the news. Or an unexpected opportunity for a tangential experience presents itself, such as when an arts company performed *Romeo and Juliet* in the middle of my *Julius Caesar* unit.

Another consideration has been finding the hook for engaging the kids. Often the issues I have defined for a unit have little to do with the kids' issues. Our students at Sullivan are such a diverse lot that this is true from class to class as well as from year to year. Each class seems to have its own dynamic; what plays well with one often falls flat with another. The most carefully constructed curriculum has little value when "so what?" is the dominant class reaction. A good indication of this is when all the ideas "generated" are my own.

The converse of this arises from the kids' expectations. Whether it is a piece of literature, an instructional process, or a project, they often want to do what others have done or are doing, or what they have done in the past. Complicating the student expectation issue is their facade of moaning and groaning about the old along with their moaning and groaning about the new. Sorting this out is tricky; it often demands honoring the old in some ways while weaning them away in reasonable steps to be open to the new.

This is especially true with long-term projects which, even when broken down into the most reasonable of steps, still overwhelm kids who have been segmenting their attention to school into daily activities. Developing their ability to attend to a prolonged activity seems to arise from abundant short-term projects. This requires teacher creativity and persistence as well as a willingness to engage in trial and error.

Choosing readings and activities intended to prod kids

into making connections presents another dilemma. I am always wary of an inclination to cut to the chase so the kids will make the same connections I do. I try to keep in mind that my connections are *mine*, arising from a much richer set of experiences than I am probably providing my students. I am especially suspicious of readings that seem to say it all, or activities so structured that the end result is pre-ordained. And I am leery of my tendency to prematurely sum up or pull disparate ideas together. This is especially hard to resist when through the class activities I have suddenly discovered a new connection or new slant on things. After all, it is the kids' epiphanies that count.

After doing the Myers-Briggs inventory, I further realized that many of my classes were slanted towards intuitive students. Now I search for literary pieces that stand up and wave at the reader when a leap is to be made or symbols are used. At least then the less intuitive kids have a fighting chance of beginning to leap or decipher. I also rely more on diagrams and patterns and even literary equations, to prevent those students from becoming so muddled that they retreat to the safety of plot in every literary undertaking. These curriculum variations do not come naturally; I have to force myself to think differently.

Each time I encounter a new lens to apply to curriculum development—learning styles, Howard Gardner's thoughts on disciplinary understanding, Eleanor Duckworth's wonderful ideas, Grant Wiggins's work, and so forth—I sense some resonance, then a feeling of being overwhelmed. What should one attend to in curriculum? How much can one attend to in curriculum? Am I just stumbling along, hoping that what I do in the classroom is right for kids and condemned to tinkering when it isn't? Perhaps there is some magic formula that I am too obtuse to recognize. Or just perhaps, Socrates was right in the *Gorgias* when he says that teaching is an art and not a craft. With that, I am a bit easier with these curriculum tensions.

Michigan's Caledonia High School \$450,000 to develop a ninth- and tenth-grade curriculum integrating science, technology, agriculture, and natural resources. The experience challenged the seven teachers who spent over three years on the project, using an extra daily planning period, release days, and paid weeks in the summer.

"We did quite a lot of team-building activities from the start, but even though we could agree on a general vision we had different opinions and viewpoints," says ninth-grade science teacher Mike Fine. "We tried to keep ourselves focused on scientific processes and the thinking skills of good scientists. Then we used a systems approach to content: we identified fifteen systems that integrated one or more areas of science, and put them together in the form of projects."

Developing the habits of inquiry proved critical to the teachers' efforts. "We began by reading everything we could get our hands on," Fine says. Kellogg's funding paid for the team to visit other schools and institutions as far away as California and even Scandinavia. "Anything that could help us get out of the bubble, we did," he recalls. "We went to innovative museums, aquariums, and companies; we talked to as many experts and outsiders as we could." Even visiting other classrooms within one's own district, Fine observes, is a challenge for most teachers.

New technologies also contributed substantially to widening the Caledonia team's horizons. "Anyone who does this should get their hands on as much technology as they can and get students and teachers both using it," Fine says. "There's so much great stuff out there, and now you can use the Internet to talk to other teachers and experts all over the place."

Before, during, and after the curriculum development process, the Caledonia team faced pressures from every quarter to keep the curriculum within conventional

bounds. "No one grew up learning science this way," Fine observes. "We've been forced to modify the approach to make people more comfortable." He laughs. "I have to admit it would be more comfortable to teach the old way, too. I could just get out the textbook and coast."

Keeping up the team nature of the innovations also proved difficult once the curriculum was in place. Caledonia is organized into ninth, tenth, and junior-senior teams, so the ninth- and tenth-grade teachers who wrote it together now find little time to work across grades. "It's frustrating when I can't answer all the parents' questions on what the tenth grade is doing," Fine observes.

These practical adjustments in what Joe McDonald refers to as a school's "wiring"—its distribution of energy, information, and power—can determine how well teacher-developed curriculum works. "It's not just a matter of substituting one set of activities for another," notes John Watkins, the ethnographer who evaluated Caledonia's project. "It's the most fundamental change on a personal and professional level. That's why it's so hard. Many teams end up recreating their districts in microcosm."

Perhaps that explains why so many of the Essential school teachers who are successfully developing curriculum have the full encouragement of their district, their state, and often of outside partners as well. They may belong to networks of like-minded teachers, such as Foxfire. They may call on the resources of a nearby university, as with Gorham and the University of Southern Maine. They often have easy access to the Internet and its rich bank of collegial advice and support from near and far. Many teach in teams, which share regular planning time during the school day. They get training in working as a group. They feel welcome in each other's classrooms; they get out and visit other schools. They expect to work with colleagues in summer institutes or weekend workshops,

and they are paid to do so. They read.

"Our district has shown tremendous support for thoughtful risk taking over the past ten years," says Gorham's John Newlin. "If you've done your research and talked with other people who have tried something, they'll say, 'Go ahead'; they understand that you might not succeed and back you up if you don't."

A push from the district or state, in fact, can sometimes catalyze the need to develop new curriculum. Gorham's new requirement for every teacher to use portfolio assessment has moved most teachers to develop classroom projects to put in them. In California, 144 schools that have taken the lead in curriculum and assessment receive extra funding under the state's Restructuring Initiative. National associations like the AAAS often light a fire under outdated approaches by supporting large-scale curricular projects like Project 2061. Even a push to turn around high dropout rates or to meet the needs of an underserved population can spark the grass-roots development of new ideas for what and how to teach.

Adapting What's Out There

Since creating a curriculum from the ground up takes more resources and experience than most teachers have, what about using packaged curriculum? Textbook publishers, after all, have responded to the shift in the educational climate by developing lavish textbook series complete with technology add-ons that would leave most home-grown efforts by teachers in the dust. Years in the making, these curricula are usually carefully aligned with various national standards and thoroughly vetted for the kinds of oversights a teacher's own work might contain.

Yet often such ready-made curricula leave little room for the unique and particular learning situation, several experienced Essential school teachers agreed in a recent Coalition seminar on curriculum