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ABSTRACT

This document is comprised of the six issues in volume 16 of the Harvard Education Letter, a bimonthly newsletter addressing current issues in elementary and secondary education. Articles in this volume include the following: (1) January-February--"Grade Inflation: What's Really behind All Those A's?" (Birk) and "Every Friday was Fight Day" (Farber); (2) March-April--"Successful School Reform Efforts Share Common Features" (Downs) and "Mining for Gold in a Mountain of Online Resources" (Tally and Burns); (3) May-June--"Putting Cooperative Learning to the Test" (Walters) and "Schools Need To Pay More Attention to 'Intelligence in the Wild'" (Perkins); (4) July-August--"Shakespeare vs. Teletubbies: Is There a Role for Pop Culture in the Classroom?" (Amster), "View from the Classroom: Student Writers Hone Their Skills," "Would More Phys Ed Curb Kids' Weight Gain?" and "Online Term-Paper Mills Produce a New Crop of Cheaters" (Ditman); (5) September-October--"Are High-Stakes Tests Worth the Wager?" (Sadowski), and "Portrait of the 'Super Principal'" (Pierce); and (6) November-December--"Getting a Jump on Good Health" (Amster) and "Will New Standards Bring Peace to the Math Wars?" (Downs). Regular features include editorial statements and summaries of recent research. (KB)

Harvard Education Letter, 2000.

David T. Gordon, Editor

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HARVARD EDUCATION LETTER

INSIDE

Grade Inflation: What's Really Behind All Those A's?

Teachers are using one blunt instrument—grades—to do the job of many tools. What are the alternatives?

By Lisa Birk

Whenever Carin Aquiline sat down to grade a stack of papers, she wondered what grades really meant. She even wondered whether they conveyed useful information to anybody—to students, parents, or teachers.

"I had a student with low skills, who plodded through her work," says Aquiline, a former 11th-grade English teacher who now works in professional development in the Boston public schools. "After a lot of hard work and time, she demonstrated the proficiencies to earn D's. And she was trying. I had another student who was capable of doing B work when he put his mind to it, but he very rarely did the work. His average grade came out to an F."

Those experiences and countless others in Aquiline's eight years of teaching raise familiar questions about how to assess student work. "What is it that we end up measuring by grades?" she asks. "What do grades tell us about students, and do they give us useful information about student learning?"

"What do grades tell us about students, and do they give us useful information about student learning?"

Practitioners face such questions almost daily. Researchers have been more reluctant to take them on because without commonly accepted yardsticks for student achievement, assessing the relative value and effectiveness of grades is so difficult. Opinions about what teachers do evaluate with grades often conflict with those about what teachers should evaluate.

While most would agree on the general purpose of grading—to provide feedback to students, parents, and others on student performance—finding a consensus on what criteria to use for grading is a different story. Should Aquiline have rewarded the D student for her effort and bumped her grade to a C, which may have caused her parents to interpret the grade as a signal that their daughter's work was adequate rather than barely passing? Or should Aquiline have risked discouraging her student by giving her the D her academic work warranted? And what grade should the underachieving student have received? An F for lack of effort? The failing grade might have prodded him to work harder, but would it have accurately reflected the real quality of his work?

What's in a Grade?

Grades are often based on a mishmash of conflicting criteria, according to a 1997 survey by H. Parker Blount of Georgia State University. For 86 percent of the teachers questioned, student effort was a factor in their grading. Eighty-two percent said they used grades to motivate students. Said one teacher in Blount's study: "It isn't because I believe that grades evaluate a student's knowledge. It's because the grades motivate the students to work hard. I believe that if we were on a pass/fail system most students would do the bare minimum to pass." Blount explains the psychology of the carrot-and-stick motivational system: "[O]ne promising student with a sagging self-concept is rewarded with a grade. Another promising student who is off-track is threatened and cajoled with a grade."

Please visit our website: www.edletter.org

Currently on the web:

The Research Feature
This month, the focus is on grade inflation, with online links and other resources.

The Forum Feature
A conversation with Frank Wilson, neurologist and author of *Tone Deaf and All Thumbs* and *The Hand*, about hands-on experience and education.

Also visit our past research features, including those on the arts in education, high school reading programs, and retention.

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In neither case does the grade reflect content mastered. And since at most schools there is no single grading policy, teachers tend to give grades for many different reasons: to measure content mastery, to chart progress, to motivate students, and to provide information to a variety of audiences from students to parents to college admissions boards. Meanwhile, parents are left to determine for themselves exactly what those grades reflect.

Part of the problem may be in the evaluation method itself. A grade does not communicate all that many teachers want to say. As researchers Jeanne H. Hubelbank of Pine Manor College and Peter W. Airasian of Boston College pointed out in a 1997 article for the *American School Board Journal*, teachers they studied "wanted to say much more than their report cards allowed. They were more interested in describing how a child [was] learning than what level she had attained."

English teacher Charles Kamar of Newton (MA) North High School sees that phenomenon at work in his own school. While Kamar reports that he has felt little pressure to inflate grades, he has seen colleagues deal out A's and B's on papers that he would not have given such high grades. He wonders if those teachers are trying to judge something other than content mastered. "There might have been a huge improvement in the student's work," he speculates. "The teacher might have been giving an incentive."

While using grades for motivational purposes is common, say Hubelbank and Airasian, the danger is that an A, B, or C—the teacher's "message" to the student—may have no clearly defined meaning. An A might mean 100 percent of material mastered, or it might mean the student tried hard—or something else altogether.

When it comes to grading, teachers face a variety of pressures, from administrators who want to make their schools look good in district studies to parents whose kids' GPAs may affect college and financial aid applications. As Blount points out, grades, like money, have become a medium of exchange. He writes: "Students can exchange grades for recognition, awards, scholarships, and admittance to prestigious colleges and universities."

Parents are especially eager to get more information from grades, according to an as yet unpublished survey of nearly 500 K-12 parents conducted by Dennis Munk of Northern Illinois University. In that survey, parents identified up to 10 different purposes they wished grades served. According to Munk's preliminary analysis of the data, the top three purposes parents identified were to "communicate progress on individual goals and mastery of specific content, communicate child's effort and work habits, and communicate child's strengths and needs and provide feedback on how to improve." But can a single grade communicate three data points? Perhaps it's not surprising that "[the majority of parents] felt that grades were not very effective," says Munk.

Grades have become a medium of exchange that students cash in for recognition, college admittance, and scholarship money.

Why Are Grades Going Up?

Whatever it is that grades represent, more students are getting A's than ever before. In 1984, 28 percent of all students taking the SAT reported an A average, according to Wayne Camara of the College Board. In 1999, Camara says, 39 percent of SAT-taking students reported an A average, an 11 percent increase over 15 years.

Could it be that this year's crop of college-bound students are smarter than their 1984 counterparts? Not according to their SAT scores. Scores on both the math and verbal portions have fluctuated only about 20 points over the last 23 years—between 490 and 510 on a test where 800 represents a perfect score. Yet despite no demonstrable improvement on the SAT since 1976, students continue to report more A's.

One troubling aspect of grade inflation is that it masks the failure of many impoverished schools. Many students in both low- and high-poverty schools get A's, but their achievement diverges dramatically as measured by 8th graders' scores on the National Education Longitudinal Study of 1988 (NELS:88) standardized tests.

In high-poverty schools (where more than 75 percent of students receive free or reduced-price lunch), students who got A's in English scored roughly the same on the reading test as those who got C's or D's in the most affluent schools, according to a 1994 U.S. Department of Education study. The study, by researcher Judith Anderson, found the discrepancies in math even worse. The "A" students in high-poverty schools received test scores similar to those of the "D" students in the most affluent schools. Neither Anderson nor the College Board's Camara would speculate on why there is the discrepancy.

The Trouble with Grades

Teachers, it turns out, are using one blunt instrument—grades—to do the job of many tools. Consequently, grades may create misunderstanding. Parents and students may read a student's A or a B as high achievement, when the teacher may mean solid effort and success relative to his low-achieving peers. As a result, that student may never get the help he needs.

Some believe that the trouble with grades is deeper, more insidious. "When students are focused on getting good grades, three things tend to happen: their interest in what they are learning declines, the quality of their thinking drops, and they tend to prefer the easiest possible task," says education writer Alfie Kohn, a critic of the carrot-and-stick approach to grading. "We shouldn't be worried that too many kids are getting A's," says Kohn. "We should be worried that too many kids think that the point of school is to get A's."

Blount lays some of the blame for this inflated grade economy on extra-credit assignments that routinely allow students to raise their grades. "[E]xtra credit raises grades but generally does not augment learning," he writes. The result: "Learning is not the fundamental goal; improving grades seems to be the main objective."

Kohn believes that many if not all of the pitfalls of grading can be avoided by replacing grades with qualitative assessments such as narrative descriptions of students' work, parent-teacher conferences, etc. Qualitative assessments offer

some advantages: they allow teachers to describe, with complexity and nuance, a student's learning process, and therefore offer parents and students more insight into the student's progress. Of course, there is a downside. Writing narrative descriptions for 100 or 150 students is a time-consuming proposition. And, for better or worse, college admissions boards and employers often prefer grades and numbers over narratives.

What to Do?

Any solution to grade inflation will be, like the problem, multifaceted. The first step is to define the problem. The standards-based reform movement has no doubt created some urgency to clarify exactly what grades mean—a discussion that has been happening in higher education for years. With state-mandated tests and curricula, grading may now need to fit into a system that includes other measures of performance. In New York, for instance, some schools are displaying scores from the state Regents Exams on report cards next to the grades in corresponding courses.

Anderson of the Department of Education suggests that schools provide an annual report card with data including dropout rates, average SAT and AP scores, and percentage of seniors matriculating to post-secondary schools. She believes that kind of information will help parents and students of high-poverty schools make better sense of grades.

Clearly, conveying an accurate portrait of students as learners is a complex task. Perhaps the most promising approaches are those that separate achievement from effort from ranking. The Boston Arts Academy, a pilot school in Boston, MA, has done just that. Twice a year, teachers evaluate student achievement with a grade and every other aspect of the learner with a narrative.

Headmaster Linda Nathan describes how a narrative for "Kelly," who will never get A's but works hard, might read: "There have been 16 assignments, and Kelly has completed 10, four of high quality. She worked really hard on this particular piece, and she's just beginning to grapple with this year's question: What makes us human?"

This system allows teachers to communicate student achievement, effort, and conduct without diluting the grade or quashing student self-esteem, says Nathan. "Teaching is both an art and a science," she says. "It's the science that grades and compares. It's the art that looks at the human side." □

Lisa Birk is a freelance writer living in Cambridge, Massachusetts.

For further information

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Linda Nathan, Headmaster, Boston Arts Academy, 174 Ipswich St., Boston, MA 02215; 617-635-6470. **http://artsacad.boston.k12.ma.us**

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'Every Friday Was Fight Day'

Violence involving girls is a growing problem that gets little attention. But a few researchers are looking at why girls fight—and how to help them stop.

By Peggy J. Farber

Geoffrey Canada, director of Rheedlen Centers for Children and Families in New York City, holds his hands out in front of his chest, patting the air tentatively. "This is how people approached a fight between girls," he says. "They would say, 'Come on, you all.' They just wouldn't intervene."

Canada describes how teachers he supervised when he was principal of an inner-city Boston high school seemed hesitant and confused when approaching fights between girls. "I spent particular time training men and women to break up a fight between girls," he says. "Even after we went through it, they wouldn't do it. They just wouldn't do it."

Canada could have been describing the reaction of society at large to girls' violence, say experts in juvenile justice and violence-prevention programs. U.S. Department of Justice statistics show that girls account for a significantly larger proportion of violent juvenile offenses than they did 25 years ago. Yet there has been almost no increase in the number of studies and services devoted to girls and violence.

Instead, researchers say, people are typically confused by and reluctant to confront girls' violence. "We either deny it exists entirely, or we demonize it," says Meda Chesney-Lind, a leading researcher on criminally violent adolescent girls. What research there is on female adolescent violence focuses almost exclusively on girls in the criminal justice system, leaving questions about school-based violence largely unanswered.

Disturbing Trends

In 1973, girls accounted for 15 percent of adolescents arrested for aggravated assault, the most serious violent offense other than murder or rape. In 1998, that figure had risen to 22 percent—this despite a nationwide drop in crime rates, according to U.S. Department of Justice statistics.

There are other indicators that girls' violence is increasing. In a recent article entitled "Girls and Violence," Chesney-Lind, who is with the Social Science Research Institute at the University of Hawaii, writes that 34 percent of girls surveyed for a 1995 U.S Department of Health study reported fighting at least once during the previous year. Nine percent had been in four or more fights during the year. A second national study done that same year by the Centers for Disease Control reported nearly identical results.

A few researchers are paying more attention to violence involving girls, though their output is dwarfed by research on boys. When the staff of the Harvard School of Public Health's (HSPH) Violence Prevention Programs decided to design a program in 1998 for inner-city girls, they found a dearth of data and materials, says Marci Feldman, a project coordinator at HSPH. "There's a scarcity of information about girls and violence. Al-

most all studies and programs have been geared to boys."

Without a comprehensive understanding of which girls engage in violence, what kinds of violent acts they commit, and the circumstances that lead them to violence, community leaders find it hard to address the problem effectively.

Soon after New York State began trying violent 13- to 15-year-old children as adults in criminal court, Judge Michael Corriero of the Supreme Court, New York County, created a special courtroom to determine which youngsters, if any, should be sent to community-based programs instead of prison.

Judge Corriero says he has seen a sharp increase over the last two years in the number of girls in his courtroom. Because of the lack of research on girls' violence and possible solutions, he doesn't always know what to do with them. "They are a dilemma. I really think we have to develop an understanding about the differences between a young woman's adolescence and a young man's," he says. "I kind of struggle along trying to figure out ways of handling it."

Violence in Schools

Lishone Bowsky's story may suggest a wider, unreported world of violence, one that especially affects schoolkids. Bowsky, now 19, remembers a weekly ritual just outside the front door of her middle school in Brooklyn, NY. "Every Friday was fight day," she says. By unwritten rule, the girls evened up that week's scores. "You couldn't leave the building on Friday without fighting. Any little thing that came up during the week was settled on Friday."

At a time when kids are turning to violence to settle even petty disputes, teasing can be dangerous.

Dr. Sibylle Artz, director of the School of Child and Youth Care at the University of Victoria, works on a Canadian team studying school-based violence in Vancouver. The team's study covers 5,400 students in 16 schools and includes surveys of students, teachers, and parents; an ethnography; and evaluations of prevention programs. In every phase of the project, Artz and her colleagues include an investigation of gender differences. The team began the project in 1995 after the Vancouver Island School District asked for help with what appeared to be an alarming increase in the number of girls involved in all forms of violence.

"Girls were being cornered by other girls in the bathroom, turned upside down, and dunked in the toilet," Artz says. "There was one incident where a girl was ambushed at a party, and her hair was set on fire. It was difficult for us to establish whether there was really an increase in incidents, but it felt like a crisis to the district because of the type of violence involved."

Locked into Conventional Roles

In order to develop a comprehensive portrait of the "life-worlds" of violent girls, Artz did an ethnographic study of six girls who had been identified as fighters by counselors, classmates, and the girls themselves. The girls were white, aged 13 to 16, and lived in two-parent homes in which both parents worked, mostly at blue-collar jobs. Only one of the six lived with a stepfather; mothers and fathers of the others had been married for between 16 and 26 years. None of the families was affluent, but each had enough income to own a home and two cars.

When she began interviewing, Artz was startled by each girl's limited understanding of women's opportunities. "The thing I least expected was how locked into stereotypical notions of gender these girls were," Artz said. "They really had trouble envisioning any other way to be." The girls had traditional aspirations for themselves. They planned to marry and have children soon, despite the family turmoil they experienced day-to-day. None had plans or goals for education beyond high school.

Conventional gender roles were upheld in these girls' homes despite the fact that all of the mothers held jobs outside the home. The mothers depicted themselves as powerless and invisible. "One woman talked about getting up each morning, fighting with her husband for a sense of power, losing, and trying again the next day," Artz says. "Another found herself not talking much, and what she did with that time instead was clean." Artz says her team's surveys of children and parents found a strong correlation between stereotypical notions of gender and aggressive attitudes.

The Abuse Factor

Another factor linked the girls' experiences: they were victims of violence at the hands of family members or friends. All six of the girls reported they had been screamed at, pushed, and/or punched by their fathers. Four had been sexually abused by older male relatives (other than their fathers) or family friends. The study

Corrections

- Two references were omitted from "The Arts Step Out from the Wings" (November/December 1999). They are:

  M. Goldberg. *Arts and Learning: An Integrated Approach to Teaching and Learning in Multicultural and Multilingual Settings.* New York: Longman, 1997.

  M.R. Goldberg and A. Phillips, eds. *Arts As Education* (Harvard Educational Review Reprint Series, No. 24). Cambridge, MA: Harvard Educational Review, 1992.

  In that same article, the name of Project Zero's founder should have been Nelson Goodman.
- In "Johnny Still Can't Read?" (July/August 1999), the name of Christine Cziko, the teacher who proposed and helped develop the "Academic Literacy" course at San Francisco's Thurgood Marshall Academic High School, was omitted. For more details on their work, see: R. Schoenbach, C. Greenleaf, C. Cziko, and L. Hurwitz. *Reading for Understanding: A Guide to Improving Reading in Middle and High School Classrooms.* San Francisco: Jossey-Bass, 1999.

concluded that the primary determinant of violent behavior was the child herself being the victim of an assault.

Victimization is a key factor in many studies of incarcerated women and adolescent girls. In a 1999 study of girls in the southern California juvenile justice system, Leslie Acoca of the National Council on Crime and Delinquency found that 92 percent of the girls she interviewed had been the victim of some form of emotional, physical, and/or sexual abuse. An earlier study by Acoca of adult female prisoners showed that over two-thirds of the study participants had been exposed to violence as children. The University of Hawaii's Chesney-Lind also has found that girl gangmembers reported very high levels of physical abuse.

The Trouble with Teasing

Research suggests that less dramatic events than abuse can also spark violence in girls. Many students experience daily teasing about grooming and appearance. At a time when kids are turning to violence to settle even petty disputes, such harassment can be dangerous, says Geoffrey Canada, though he cautions that his observations are anecdotal.

"The toughest girls I knew were the least [well-]kept girls. Other girls would start picking on them when they were six or seven, and it was clear that these children couldn't do anything about it. They couldn't fix their own hair. You could tell there was no parent at home who was taking care of them, making sure their stuff was washed."

The pain of handling harsh comments about clothes and appearance was also a theme in the lives of the girls Sibylle Artz studied. "It all came down to your fingernails, your hair, how thin you were, your rings, your clothes," says Artz.

Lishone Bowsky, who stopped fighting only recently, seconded that observation: "I was teased a lot because I was skinny and tall. Kids are mean. When they would tease me, I would fight them."

Some girls who are teased about their appearance are simply too busy to get ready for school, says Marci Feldman of the HSPH. Feldman initiated a small violence-prevention program for girls at Brighton (MA) High School in 1998. The after-school program targeted 10 junior and senior girls identified by school officials as physically aggressive. Feldman and co-researcher Anne Bishop, the high school's health coordinator, launched the program with a personal survey in which the girls revealed that they were shouldering substantial wage-earning and child-care responsibilities at home.

"They had to take an average of three buses to get to school," says Feldman. "They got up at 5 o'clock in the morning. They had to share one bathroom with an average of three other people. They were in charge of siblings after school and on weekends, and they all had jobs."

Canada says the girls in his school differed from boys in that the girls rarely committed random acts of bullying or violence. "They were not bullies who would just go over and pick on kids, take their stuff," he recalls. "If you insulted them, if you teased them, if you disrespected them, they would beat you up." Girls' fights also resulted in many more injuries than boys' because adults failed to react as swiftly.

Girls rarely commit random acts of bullying or violence, researchers say.

Adds Sibylle Artz: "Boys and girls act out differently. That has to do with socialization. Boys are more likely to engage in more random violence. Girls base their anger on personal relationships. Boys tend to make a statement that will draw attention to them. The girls are interested in making a statement, but they're also interested in revenge."

Hopeful Signs

If girls act violently for different reasons than boys, the good news is that they may respond better to antiviolence programs, according to researchers. For instance, Artz and her colleagues working with the Vancouver Island School District measured pre- and post-program attitudes among boys and girls in three middle schools. They found that after children had participated in their school's antiviolence programs, boys were less likely than girls to adopt the programs' antiviolence messages.

Asked to explain the results, Artz says, "The girls actually like the process exercises. They seemed to gravitate to social activism. They flocked to take on leadership roles."

A second study, released in 1999 by the National Center for Children in Poverty (NCCP), found that girls responded better than boys to a popular antiviolence program in New York City. The study evaluated the impact of the Resolving Conflicts Creatively Program, which teaches children to mediate disputes, on 5,000 children in 15 New York City public schools. According to Joshua Brown, a research associate at the NCCP, "There was still a strong pattern of results for boys, just not as strong as it was for girls."

Of course, girls can only respond positively to offers of help if it is available. In community centers and schools, Canada says violence prevention still focuses on boys. "Girls are on the fringes," he adds. Hopefully, it won't take still higher rates of girls' violence to stem that trend. □

Peggy J. Farber is an education reporter based in New York City.

For further information

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'Sexual Harassment Erodes the Notion That School Is a Safe Place'

For further information

N. Stein. *Classrooms and Courtrooms: Facing Sexual Harassment in K-12 Schools.* New York: Teachers College Press, 1999.

N. Stein. "Sexual Harassment in School: The Public Performance of Gendered Violence." *Harvard Educational Review* 65, No. 2 (Summer 1995): 145-162.

In recent years, a number of highly publicized lawsuits and incidents have heightened awareness of sexual harassment in schools. In the newly published Classrooms and Courtrooms: Facing Sexual Harassment in K-12 Schools, *Nan Stein examines the roots of sexual harassment—and how to uproot it from schools. A senior researcher and project director at Wellesley College's Center for Research on Women in Wellesley, MA, Stein is also a former middle school teacher.*

What responses to sexual harassment do you find especially problematic?
One of the worst, I think, is making the subject of the harassment confront the harasser. That should be an option, but it should never be a requirement. That puts the burden of changing the harasser's behavior on the kid who was the target of the harassment. The burden has to be on the grownups. For that same reason, I am not in favor of students mediating without an adult around. I'm not sure that student mediators can be immune from peer pressure. To think that kids can ignore those pressures is a little foolhardy.

Are bans on mutual touching between students too draconian?
Sexual harassment doesn't cover mutual, wanted sexual contact, so mutual displays of affection are usually not covered by a sexual harassment policy. A lot of touch is affectionate, joyful, or consoling. And schools ought to encourage that.

What about teacher-student interaction?
I'm in favor of teachers being able to have appropriate physical contact with kids. I was a very touchy teacher. A lot of kids feel like contaminated goods if grownups don't touch them. They read something very negative into that, like, "You don't want to touch me because I'm dirty." Women have more license to touch, quite frankly, because our touch is not held in suspicion.... I only have two rules about touch, and I've come to these from reading lawsuits: don't put any kid on your lap, and don't give neck rubs and back massages. You can say to a little child, "You get to sit next to me today." But you don't have to put a kid on your lap. They can sit close by and still feel special.

What's the difference between sexual harassment and bullying?
Bullying involves repeated harassment, either physical or verbal, of someone who is weaker. It can be sexual in nature but it doesn't have to be. Bullying that is sexual in nature—sexual harassment, in other words—is illegal. But other kinds of bullying aren't necessarily illegal, taunting or name-calling that aren't sexual, for instance. Exclusion is a way of bullying that you see with girls a lot. They'll say, "You can't play with me" or "I'm not going to be your best friend anymore." That isn't sexual harassment, and it's not illegal. But it's a kind of bullying.

I use the framework of bullying as a way to address sexual harassment with younger kids without having to use the expression "sexual harassment," which they might not understand. It really has more to do with what's appropriate for their age. That's not to say you can't have litigation with younger kids on sexual harassment.

At what point does verbal taunting turn into harassment?
For something [verbal] to be sexual harassment, it has to be severe, or persistent, or pervasive—something that takes on a life of its own and affects a kid's work and concentration. In one famous case, 15 boys harassed this one girl verbally, mooing like cows whenever they saw her and talking about the size of her breasts. They did this outside of school, in school, on the way to school. Other kids heard it and saw it. Teachers and custodians told the administrator, who kept saying, "It's not a big deal." It became disruptive. Sexual harassment erodes the notion that school is a safe place to be.

Do you find that schools often deal with boys and girls differently in terms of sexual harassment?
Yes, even with little pranks. When boys are mooning girls and girls then decide to moon them back—and I'm not endorsing mooning here—the girls get a much more severe punishment, because the act of mooning is seen as especially inappropriate for their gender. When a girl wears a raunchy T-shirt with some sexual innuendo—"naked coed whatever"—it's seen as unladylike. For boys it's taken as locker-room behavior. It's tolerated.

Is it helpful for schools to post their sexual harassment policies?
Not unless they put [such policies] into user-friendly words for the kids and really talk about what [the policies] mean. A sexual harassment policy might say, "No unwanted physical contact." But what does that mean to an 8th grader? Even more explicit language is not always enough. A policy can say, "No pinching, patting, or grabbing," and kids will go around kneeing each other in the butt because, well, kneeing is not pinching. Kids are always pushing the envelope. So you really have to have a conversation about it, and include it in the curriculum. That gives the grownups the advantage of learning from kids. They may regard certain behavior as harassment that we hadn't thought of. It's time-consuming but worth it.

What should schools do when kids use the First Amendment to justify offensive T-shirts or offensive speech?
Kids do that all the time. That's where I think we need to have the conversation and let kids at least understand why decisions are made. I'm all for letting the First Amendment flourish, but that doesn't mean anything goes. We have to teach kids to be participants in the democracy, to live in the marketplace of ideas. Some of those ideas you're not going to like. Some of them you'll embrace. We have to live out the Bill of Rights and live out the Constitution in schools. □

For a complete transcript of this interview, go to www.edletter.org.

Charles Patrick Ewing

continued from page 8

Under most Zero Tolerance policies, each of these students would be suspended from school. Any further action against them would likely depend on the facts of the case, including any mitigating evidence. In my view, having spent more than two decades researching juvenile violence and evaluating its perpetrators, this is the right approach.

Sensible application of a Zero Tolerance policy in all schools is warranted for a number of reasons. First and foremost is the need to at least temporarily separate a dangerous or potentially dangerous student from the rest of the school population. Where a student has acted in a violent manner, as in assaulting another or carrying a truly dangerous weapon to school, removal of the offender from the school setting is necessary for the physical protection of other students. An assessment of the offending student, the reasons for the infraction, and the need for additional sanctions, if any, should be undertaken, but only after this concern for the safety of other students is given paramount importance.

Beyond immediate safety concerns, however, this application of Zero Tolerance appropriately denounces violent student behavior in no uncertain terms and serves as a deterrent to such behavior in the future by sending a clear message that acts which physically harm or endanger others will not be permitted at school under any circumstances.

More difficult is the application of Zero Tolerance to cases in which violence has been threatened but not carried out. Here, as well, both safety and deterrence warrant at least a brief suspension from school, with any additional action to be determined later. While the vast majority of student threats prove to be idle, in virtually all jurisdictions even threatening to harm another person is a crime. Beyond the law, however, common sense dictates that all student threats must be taken seriously and investigated so as to protect the safety of others in the school environment. Suspending a threatening student provides school and law enforcement authorities the time to conduct a thorough assessment of the threat and to make an informed decision regarding the needs of the school and community, as well as those of the threatening student.

Finally, as for the so-called "joking" threats that are also raised by some critics of Zero Tolerance, it should first be noted that it is often not easy to determine whether a student is joking or serious when making a threat. School officials who attempt to make that distinction do so at their own risk, as well as the risk of others. Airline passengers have long had to accept the fact that they cannot even joke about violence when passing through airport security. The same should be true of students, for in both cases the stakes are too high to require officials to quickly guess who is serious and who is not. I believe that even where it appears likely that a student's threat has been made in jest, at least a brief suspension from school is warranted in order to teach that violence is no joking matter. □

Charles Patrick Ewing is professor of law and psychology at the State University of New York at Buffalo, where he has taught criminal law, evidence, juvenile law, and psychology, psychiatry and law since 1983. Dr. Ewing is the author of five books, including When Children Kill: The Dynamics of Juvenile Homicide. *He is also senior editor of the journal* Behavioral Sciences and the Law.

Joan First

continued from page 8

down.... We want quality more than quantity. If that means removing dead weight, then we will remove dead weight."

U.S. schools have always excluded many students for disciplinary reasons. And data reveal that school exclusion is consistently about race. U.S. Department of Education Office for Civil Rights (OCR) data show that, during the 1976-77 school year, 15 percent of all U.S. public school students were black and 75 percent were white. Yet blacks received 30 percent of suspensions and expulsions, while whites received just 64 percent. By 1997-98, 17 percent of the public school students were black and 64 percent were white, but blacks received 32 percent of suspensions, whites just 51 percent. In the interim, OCR had stopped collecting expulsion data. However, partly in response to the Zero Tolerance movement, OCR resumed collecting it in 1998. These data will be released this spring and are expected to document increased racial disparity.

A 1999 report by the Student Advocacy Center of Michigan (SAC) backs this prediction. In 17 Michigan school districts surveyed, the average African American population is 39.8 percent, while African American students account for 64 percent of expulsions. Reflecting upon 100 expulsion cases SAC handled in 1999, Executive Director Ruth Zweifler notes, "We have chosen as a society to identify every child as potentially dangerous. This is destructive to the children and to our national future. [Zero Tolerance] punishes children who are often frightened, sometimes thoughtless, rarely dangerous, but now clearly endangered."

Although school crime rates declined sharply between 1993 and 1997, the number of multiple homicides in schools increased from one event in 1994-95 to five in 1997-98, according to the 1999 Annual Report on School Safety of the U.S. Departments of Education and Justice. That suggests a continued need for laws that keep guns out of the hands of children. These should be accompanied by state and local school codes that describe types of student misbehavior, categorize them by severity, and provide for appropriate consequences.

Most of all, schools need a return to wise adult decisionmaking. I am haunted by the case of the student who was expelled for helping his suicidal friend, and by his mother who said, "I am proud of him. He did everything right." Why couldn't the adults at school see that? What was missing? A teacher who knew him. A caring adult who, once the gun was safely secured, said, "Tell me what happened." An adult who listened and concluded, "Thank goodness you were there! Don't worry. We will see that your friend gets help." In short, an adult who saw something of his or her own son in this young man, rather than an instant enemy and a likely killer.

Our schools desperately need adults who are willing to talk with students. Otherwise, intolerable burdens are placed upon children. Surely we have ample data to conclude that adults who "check out" of teaching children about justice and compassion encourage the very kind of behavior they seek to end. □

Joan M. First is executive director of the National Coalition of Advocates for Students (NCAS) and author of several publications on school reform and related issues, including The Good Common School: Making the Vision Work for All Children *and* New Voices: Immigrant Students in U.S. Public Schools. *She has been a university-based school desegregation specialist, an education reporter for daily newspapers, and editor of a preschool education journal.*

The Pros and Cons of Zero Tolerance

Several recent incidents, such as the expulsion of seven students in Decatur, IL, for fighting, has led educators and policymakers to question the aims and limits of Zero Tolerance discipline policies. *HEL* asked Charles Patrick Ewing of the State University of New York at Buffalo and Joan First of the National Coalition of Advocates for Students to outline their positions on Zero Tolerance.

Sensible Zero Tolerance Protects Students

By Charles Patrick Ewing

In recent years, approximately one out of every 200 American children has been the victim of a serious or potentially serious crime of violence at school. While the vast majority of these incidents have involved physical assaults without a weapon, 10 percent of all public schools have experienced one or more serious violent crimes, including murder, rape, sexual battery, or assault with a weapon. At the same time, a growing number of teachers and other school officials have been threatened or assaulted, and many schools have been besieged with bomb threats and other attempts to disrupt educational activity.

In an effort to stem this rising tide of school violence, many school districts have implemented Zero Tolerance policies. These policies vary widely, but most are based on the principle that violence or even a threat of violence has no place whatsoever in schools and will not be tolerated in any form. Under such policies, students who threaten or commit acts of violence have been punished, often suspended from school, and sometimes expelled. In a small percentage of these cases, school-based sanctions have been followed by juvenile or criminal court prosecutions.

Are Zero Tolerance policies in U.S. schools knee-jerk reactions to the recent high-profile school shootings or useful tools in the broader effort to prevent school violence? The answer depends on what is meant by Zero Tolerance.

Critics point to a handful of cases in which Zero Tolerance has led to absurd results, including elementary school children suspended for carrying nail clippers or bringing plastic knives to school to cut the fruit in their lunches. If this is what is meant by Zero Tolerance, the critics are right; some schools have wildly overreacted.

But what about the more common applications of Zero Tolerance? An elementary school student carries a loaded gun to school, shows it to a friend, and then turns it over to a teacher. A middle school student brags to peers about having a gun in his locker and planning to use it at school; school officials search the locker and find no weapon. A high school student punches a classmate in the face. Another student passes a note containing reference to killing the school's principal; a teacher intercepts the note, and the student explains that he was "just joking."

continued on page 7

Protection for Whom? At What Price?

By Joan First

The school reform movement is rife with unanticipated consequences. Zero Tolerance school discipline policies are a prime example. In 1994, to bolster school safety and ensure orderly learning environments, Congress passed the Gun Free School Act which require states that receive federal funds to mandate expulsion from school for at least one year for any student who brings a weapon to school.

Soon startling stories about the irrational removal of students from public schools began to appear:

- A little boy kisses a girl on the cheek. Although this is developmentally appropriate behavior for a five year old, he is suspended from school.
- A Florida 1st grader who recently witnessed street violence panics when a uniformed "Officer Friendly" enters her classroom. The frightened girl tries to run away and a teacher restrains her. The child strikes the teacher. The girl is taken to a police station until her parents arrive.
- A male high school student learns that a suicidal friend has a weapon. He persuades her to give it to him. When he hands it to school authorities, he is expelled.

Is this what Congress had in mind? I don't think so. The sound idea that guns don't belong in schools has gone awry. Student intent no longer matters, and harmless pranks are now crimes. As Boston Globe columnist Ellen Goodman recently wrote: " Zero Tolerance for misbehavior evolved into Zero Tolerance for kids themselves.... We are in a time of general crackdown—a tough love without the love."

Expulsion is particularly destructive because many schools lack alternative programs, and those that do exist often offer inferior instruction. The respected newsletter *Catalyst: Voices of Chicago School Reform* reports that expulsions from Chicago public schools rose from 21 in 1994-95 to 668 in 1997-98. Paradoxically, alternative school seats dwindled from 582 in 1997-98 to 350 in 1999-2000.

In addition, an estimated 700 students over age 16 with 20 days of unexcused absence were dropped from district rolls. These students cannot return to a regular Chicago high school. Orr High School administrator David Meegan told *Catalyst*, "What we have found is that those kids who are missing 20 days are the ones that drag your test scores

continued on page 7

Coming soon...

Standards-Based Reform

Helping Special Needs Kids with New Technologies

Is the Charter School Experiment Working?

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INSIDE

Successful School Reform Efforts Share Common Features

Schools big and small show that standards-based reform doesn't have to mean standardization. But it does require building "a culture of excellence."

By Andreae Downs

Almost every public school teacher and administrator has had to grapple with the issue of standards and improving student performance. How should standards be defined? At what level should they be set? Who should set them? While such questions will continue to be debated, the topic of *whether* higher standards are needed comes up much less frequently since 49 states have adopted some type of standards.

Instead, the issue of how to implement new standards has taken center stage, and a consensus seems to be emerging among school researchers about what kinds of reforms work best. Several successful models of standards-based reform in both large school systems and individual schools demonstrate the common elements of what one education researcher calls a "culture of excellence."

"This is not about standardizing children; it's about forming a clear idea of what excellence is."

Focus for Success

Mike Schmoker and Robert J. Marzano, researchers for the Mid-continent Regional Educational Laboratory, a research group focusing on standards, identify the first important characteristic common to schools and districts successful in raising standards: focus. "The success of any organization is contingent upon clear, commonly defined goals," they write in *Educational Leadership.*

Mark St. John, president of the independent educational research group Inverness Research Associates, agrees. He notes the dizzying array of standards documents that can confront classroom teachers. "In some districts there are so many different 'standards' that teachers attend to none or simply to the loudest or most familiar standard in that context," he writes. "The fact is that it is very difficult, if not impossible, to simultaneously attend to district standards, state standards, and national standards, especially if they are at odds with each other."

Those schools that successfully raise standards for all students generally have narrowed their goals down to improving some aspect of students' work. The area of focus can vary, as long as it is manageable and measurable. For instance, New York City's District 2 initially chose literacy as its primary curricular focus since the ability to read is so fundamental to achievement in other areas. The district, which is comprised of elementary and middle schools, has also paid close attention to screening new hires and to the kind of professional development it provides teachers.

Marguerite Straus, principal at District 2's PS 1 in Chinatown, describes her elementary school's response to the district's 10-year-long literacy drive. "Literacy is always our first priority. We look at everything we do in the building—every new program has to focus on literacy. Everyone knows the focus is on getting children to work better." At PS 116, a District 2 elementary school in midtown Manhattan, principal Anna Marie Carrillo recalls that when she arrived at the school nine years ago, only 55 percent of students were reading at grade level.

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The Research Feature
This month, the focus is on standards-based reform, with online links and other resources.

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After an intense focus on increasing literacy in all grades, 80 percent now do, she says.

At the Francis W. Parker Charter Essential School (grades 7-12) in rural Devens, MA, teachers have developed a basic set of performance goals for students based on state standards, as well as guidelines so students know exactly what is expected of them—and when. Having defined what skills kids need to graduate, teachers then organize their content each year around this agreed-upon core, according to Deb Merriam, an arts and humanities teacher. One year, kids may learn to write persuasive essays and do in-depth research as part of a unit on the philosophies of ancient China; the next year, teaching essay writing and research skills will continue, though the unit may focus on the nature of revolution.

This may require teachers to adjust. They may have to trade extracurricular activities for more training, or they may be asked to revise or eliminate their favorite lesson plans, says Anne Lewis, author of *Figuring It Out: Standards-Based Reforms in Urban Middle Grades.* For instance, the Parker School has given up survey courses. "You don't get 'coverage' here," says Merriam. "We go deeply into a few things. But the reality is that most kids in traditional survey courses won't remember much of it."

Such single-mindedness can, in fact, also free up resources and let teachers concentrate on doing a few things well, according to Theodore Sizer, founder of the Coalition of Essential Schools. "In most high schools, there is one teacher or administrator for every 14 kids, and the curriculum is so fractured that the meat and potatoes are carried by very few teachers. A teacher of freshman English can end up responsible for the work of 145 students," he says. "So you need to simplify, to focus on the central tasks. This is hard to do, but the results are wonderful. Kids don't drop out. They stay the course, they go to college."

Strong Leaders Build Community

Research on District 2 by Harvard's Richard Elmore and Deanna Burney of the Camden, NJ, schools also demonstrates the importance of strong leadership that builds a sense of community among staff. In a district where most student work in reading and math has improved, principals and teachers take part in professional development, select training programs, and read materials.

In the spirit of teamwork, administrators provide the support and structure the staff needs in order to focus on improving student work. They carefully screen new hires, taking only those who demonstrate commitment to the district's reform goals. And they give teachers and principals the time to reflect on the work of students or teachers. The sense of community is enhanced by establishing clear goals that are informed and shared by students, teachers, and administrators.

St. John agrees that this kind of leader-

One Urban School's Adventures in Reform

With the help of an innovative program, King Middle School became an award-winner

By Andreae Downs

In 1987, when Mike McCarthy became the principal of the King Middle School in Portland, Maine, he knew the school was in a slump. "This was a school no one would want to go to," says McCarthy. The traditional teaching methods weren't helping the urban school's 600 students very much. The diverse student body scored poorly on state tests. In 1992, McCarthy proposed that the school adopt what was then a brand-new reform model: Expeditionary Learning Outward Bound (ELOB). Figuring there was nothing to lose, the staff approved the decision.

Based on the team-building approach of Outward Bound, the adventure-and-service-based educational program, ELOB encourages students to view learning as a mission that requires teamwork, commitment to the community, and an ability to solve real-world problems. Learning expeditions involve long-term explorations of single themes, such as civil rights or local ecology, that engage students in multidisciplinary projects, fieldwork, and community service. Students are asked to reflect on and critique their own work and that of others. All of this is meant to make learning relevant, to answer the question often heard by bored or frustrated students: What's the point?

Teachers design fun and challenging learning expeditions that will also prepare students to meet state and district standards. In addition, ELOB schools invite members of their communities to help define standards for students. A carpenter or a banker might visit to talk about what skills are needed for those jobs. Students also venture into the community to do fieldwork. To accommodate the expeditions, which last six to eight weeks, the school gives teachers flexible schedules so there is time to go to the shore for exploration one day, do library research the next, and do more traditional class work on other days. Tracking, or grouping students by ability, is eliminated, and students stay with a teacher or a team of teachers for more than one year (i.e., multiyear looping).

The school has been scaling new peaks ever since. King is a richly diverse school. Its students speak 26 languages; 22 percent come from new immigrant or refugee families; 60 percent qualify for free lunch. Stereotypes might suggest that such a school would not perform as well as wealthier, suburban schools on standardized tests. But in the past few years, King's scores on the Maine Educational Assessment have risen to above average, even as the assessment itself has been made more difficult.

Team spirit is evident among King's faculty now. McCarthy was named the

ship is crucial to keeping teachers involved in and enthusiastic about reform measures. Where such leadership is lacking, "teachers may just close the door and continue teaching as before, in the hopes that 'this, too, shall pass,'" he says. Education writer Anne Wheelock adds that successful standards-based reform is marked by a sense of collegial community, a feeling that everyone in the school community is invested in making student work better. She calls this "building a culture of excellence."

Getting teachers and administrators to talk to each other about learning and teaching is an important step to achieving excellence. Talking about student work accomplishes important things: it breaks down teachers' isolation, and it enables principals and teachers to continually assess their own progress, articulate what the standards are (e.g., what an "A" really means), work on issues together, and ask for help. This is clearly easier in smaller schools, where communication and coordination are less difficult.

Even a large organization like District 2 has shown that it's possible to build a common culture. Richard Elmore points out that the district's administrators found that the most effective professional development—and possibly the fastest—happens right where the teachers are: in classrooms. The district hires adjunct teachers, freeing up classroom teachers to visit more experienced teachers, who may also be freed from regular classroom duties in order to spend time in a more junior colleague's classroom.

At PS 116, teachers meet with Principal Carrillo at the beginning of the year to discuss areas of their work they would like to improve. She then arranges visits with master teachers, or she arranges their schedules so they can visit other teachers' classrooms. Teachers augment training and personal research with regular conversations among themselves about their practice, and they have formed study groups focusing on various areas of the curriculum. "Teachers observe teachers, and reflect and talk about their work," says Carrillo. "Continuous dialogue is an integral part of how we work." Principals in District 2 also visit each others' schools and classrooms, and exchange information about administrative issues.

The Parker School, which is part of Sizer's Essential Schools network, uses surprisingly little formal professional development, but it places the same strong emphasis on collegiality as District 2. Teachers share their skills through frequent discussions about students and their work. "Staff development is built into the structure of the school," says teacher Deb Merriam. "The collaboration among teachers is part of the daily meeting and planning time. We're constantly talking about the work of the school."

Knowing Every Child

Besides building community, teacher mentors and staff discussions have the added benefit of focusing more adult

national "Principal of the Year" in 1997; he won the state award in both 1996 and 1997. According to the Portland *Press Herald*, McCarthy was recognized for "his willingness to take risks to help students, his ability to anticipate and solve problems, and his success in improving the school's learning environment." McCarthy modestly points back to his staff, saying he has just helped his faculty apply the principles of ELOB to the fullest.

Professional development plays a key role in the ELOB model. At King, a "school improvement team" pulls together the academic and teaching skills information that teachers say they need. For instance, they create rubrics that teachers can use to assess their own lesson plans according to state standards and the faculty's own teaching goals. The team provides mentoring and moderates discussion about teaching strategies, too.

In addition, the staff participates in expeditions of its own as a way to foster teamwork and enthusiasm. They have gone together on an Outward Bound wilderness survival program on Hurricane Island, which McCarthy says helped teachers to stop viewing professional development as something to be endured.

The staff takes part in a school review annually, and ELOB sends in other teachers and principals for a "peer review" of each school every four years or so. With each cycle of assessment, the staff looks at what they have done and sets goals for the next years' improvement. This kind of continuous reflection and improvement allows staff to be responsive to new standards, to raise standards as children's performance improves, and to react quickly to any difficulties encountered in new programs or expeditions. What comes across clearly is staff excitement about kids and what they can do when challenged. "We have high expectations for all students," McCarthy says.

Students also display their achievements in public presentations. Community and family members attend final exhibitions of student work, review student portfolios, and contribute to the process of assessment. Meg Campbell, executive director of ELOB, says that public performance or presentation is an integral part of the Expeditionary Learning design. Expeditions, which are chosen by teachers based on the state or district standards, are to be purposeful, have a service component, and have a real audience, she says.

In addition, every student has to demonstrate what he or she has learned in a "published" form such as a book or model. One year, students studied an aquarium proposal for the city, building their own models and explaining them. "Their jury was actual architects," McCarthy says. Later, 16 students worked with the city selection committee and critiqued the architects' plans. "If they hated something, they said so right away," says McCarthy, adding that their insights drew praise from the professionals as incisive and honest.

McCarthy proudly displays some of the students' work in his office. They include a guide to shore life of Casco Bay and a collection of immigration stories —all biographies of students. They are just some of the real-world achievements of King Middle School's students. □

attention on students' individual learning styles and on how they are learning. "You have to know each child well enough to adapt to how that child learns," says Sizer.

Elmore agrees: "In District 2, you don't talk about groups of low-performing kids, you talk about individual kids. The principal knows every child at risk, the teacher knows every child in the classroom. Success depends on whether you have a plan for that child."

Many in policy circles forget that working schools are human communities, says Wheelock, and quality work can't be achieved if "standards" is construed to mean standardization. In schools where every child is known well by at least one adult, she says, no student is allowed to fall through the cracks. Some techniques for achieving this include giving children time every day to talk with an adult about their work, reducing class size, and looping.

At Parker and PS 116, students are encouraged to talk about their work and what they are learning every day. At Parker, students also prepare for biannual parent-teacher conferences at which they present and talk about their work in the context of the school's guidelines for excellence. "This is not about standardizing children; it's about forming a clear idea of what excellence is. How can we get an excellent piece of 4th-grade work from a typical nine-year old?" asks Kathleen Cushman, a member of the Parker School's board. One structure Parker uses to foster discussion is student-teacher advisories. Every adult in the school—secretaries and gym teachers included—is assigned a small group of students with whom they discuss all kinds of issues, including student work.

At PS 1, where 80 percent of students come from households where English is not the primary language, teachers and administrators started a series of programs to get parents more involved in their children's learning. Students write letters to their parents about what they are learning, and parents are asked to bring their children with them for parent-teacher conferences. "It's important that we plan together for the next step," says PS 1's principal, Marguerite Straus.

PS 116 students face many of the same challenges as do PS 1's—some live in temporary housing or shelters, 50 percent qualify for free lunches, and many don't speak English at home. Teachers at PS 116 show parents how to use neighborhood libraries and bookstore reading areas so that their children get more exposure to books. Parents come to the school on alternate Fridays to act as reading buddies with their children. They also attend "publication parties" at school to celebrate the final, bound drafts of children's stories. "Parents can watch the teacher interact with their children, and learn how to help children with reading difficulties," Principal Carrillo says. "And then more parents are informed about what we are trying to do."

"The real test is understanding. Can a youngster take what he's learned and apply it powerfully? That's how it is in the real world."

Sizer says that in Essential Schools teachers are never responsible for more than 50 kids, which not only allows them to know how each child learns, but also permits closer contact with parents. "If I have 50 kids, it is not unreasonable for me to meet all the parents and guardians of the kids who are in some kind of trouble," he notes.

At Parker, PS 1, and PS 116, kids are not grouped by abilities. Each student is given the extra help he needs to learn what the school has defined as the standard for that grade. District 2 offers children extended day, extended year, and Saturday classes so they can get extra coaching in areas they have trouble understanding.

Robert Balfanz of the Johns Hopkins University's Talent Development Program found that intensive, individualized mathematics classes for under-performing students at Central East Middle School in Philadelphia buoyed the performance of other students in those math classes, as well. Central East, which has high numbers of at-risk students, boosted morale by treating the intensive classes as "plum" electives rather than remedial classes, Balfanz notes. The fact that struggling students had extra help made teachers feel they could push all of their students to do better. "When teachers feel that the weaker students are being 'taken care of' in terms of getting extra help with basic skills, they themselves feel they can move forward with the thinking skills curriculum without worrying about kids who might not be 'getting it,'" says Balfanz.

Quality Assessment

Ensuring that all students are learning according to standards requires regular, if not constant, assessment, Carrillo and other educators say. Assessment can be part of regular conversations with students about their work, or it can take the form of evaluating student work through portfolios, quizzes, tests, and other performance measures.

At the Parker School, assessment of student work is part of daily conversations among teachers as well as between teachers and students. Teachers and parents meet to look at examples of student work and to decide what meets the school's standards. Teachers meet regularly about the curriculum and to assess whether their ideas of good enough work are roughly equivalent. "You get fascinating discussions on what is good enough, what and how to teach," says board member Cushman. A critical cultural element, Cushman notes, is that such conversations leave "everyone with a feeling of having common standards."

As a result of regular conversations about student learning at PS 116, Carrillo and her teachers are constantly raising standards to reflect student improvements. For example, Carrillo knows that, according to national reading standards, her kindergartners should be reading at a particular level of difficulty by the year's end. But because of District 2's focus on literacy, most teachers report that by mid-year their students have reached those levels and met the city's goal of having kids read 25 books per school year. By being aware of their students' progress in relation to standards, teachers can raise the bar accordingly.

Teachers also assess themselves in a similar way, says Carrillo. "We're always

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Coalition of Essential Schools, CES National, 1814 Franklin St., Suite 700, Oakland, CA 94612; 510-433-1451
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measuring ourselves against what's there, and teachers are always looking at each other's work and measuring themselves against each other. This can only happen in a truly open work environment that is truly risk-free."

Sizer argues that children's assessments should mirror the kinds of demonstrations of ability required in the real world. Says Sizer: "The real test is understanding. Can a youngster take what he's learned and apply it powerfully? That's how it is in the real world where you have to apply knowledge in an unfamiliar situation. The real world isn't about being tested on something specific you've just learned."

Wheelock says the successful schools she has observed communicate clearly to students what quality of work is expected —usually in written statements and sometimes with examples of previous students' work. This gives teachers a concrete way to discuss students' work with them later.

Benefits of Revision

Quality assessment should also include constant revision, Wheelock says. Typically, revision entails a student's teacher or peers reviewing a completed draft of an assignment and making comments and suggestions. The student is then expected to incorporate this feedback into a new draft and present it for further review. Requiring revision communicates "the message that success depends more on students' effort than ability and that students have control over the quality of their work," says Wheelock.

During a visit to one middle school, Wheelock asked kids when they knew it was time to stop revising. She found that they had a variety of ways, from asking peers for suggestions until they ran out of ideas to comparing their work to that of adult professionals. Such frequent assessment of draft work allows teachers to catch student difficulties early on and get help to those that need it, Wheelock says.

At King Middle School in Portland, ME, and other Expeditionary Learning Outward Bound (ELOB) schools, students' final revisions—which incorporate suggestions from teachers, students, and outside evaluators such as parents or local experts—are publicly presented, or "published." This strategy increases the relevance of student work, says Meg Campbell, executive director of ELOB. "Having a real audience is a way of taking the children seriously."

In most cases, the result is a product that future students—and others in the community—can use as a reference. For instance, King students studied the shore life of Maine's Casco Bay for a year. Their final project included beautiful student-drawn illustrations and accurate scientific descriptions of the plants and animals found there. It went through several drafts for completeness, style, and scientific and visual accuracy. The book can be used by parents and children on a walk on the shore and has been distributed to all the Portland libraries for just such use.

Parker School students, too, learn that "everything has to be revised," says Sizer. "For many youngsters, standards have no body to them. But when you watch your older friend explain and discuss her work, it's a real eye-opener. You can connect your work to the real world." At Essential Schools, students produce books that are "published" and brought home. They also present their research on a topic before panels of parents and any experts in that field whom parents or teachers have been able to corral for that purpose. Harvard's Richard Elmore points out an additional benefit of this practice: By inviting parents and other stakeholders of the community to weigh in, the school is building a political base of support for quality work.

By inviting parents and other community stakeholders to assess student work, schools can build political support for quality work.

When done right, testing, too, can play an important role in measuring student achievement, says Elmore. He believes the Texas state tests are forcing schools there to focus on student achievement, though there is considerable disagreement in the educational community about whether Texas is a good model. District 2, Parker, and King have done well on state and national standardized tests though none of the schools does specific test preparation. Instead, they all focus on improving classroom instruction and view standardized tests as useful indicators of progress, not goals in themselves.

These schools are also subject to regular outside evaluation, where they have to demonstrate that they are implementing reforms that benefit their students. In most cases, teachers and administrators say they appreciate such outside assessment, which usually augments a regular internal review of their progress.

The Parker School has state-mandated inspections as well as school-initiated reviews by outsiders. "Inspections are wonderful," says Sizer. "They make you pull your socks up and be clear about what you are about." Parker keeps all student work in portfolios for such inspections—and for students and parents to review. "Portfolios send a signal that what each student does is important, so important that the public can view it," says Sizer.

In District 2, the expectation of teaching excellence also extends to principals. Students aren't the only school workers expected to be thoughtful and reflective; teachers and administrators also reflect on their work and some are asked to keep portfolios of their work. Teachers are asked to continually improve instruction, to seek out the best professional development and curricula they can find. Superintendents schedule regular and surprise visits to check on principals' progress, and groups of principals tour and evaluate each others' schools.

In the end, of course, the greatest test of standards-based reform is what attitude children develop toward learning. "The kids love coming to school," Principal Carrillo says. "It's a delight to see them so happy to be here. They cry at the start of summer vacation. I don't ever remember doing that." □

Andreae Downs, a Massachusetts-based reporter, writes frequently about education.

For further information

King Middle School, 92 Deering Ave., Portland, ME 04102; 207-874-8145.

Mid-continent Research for Education and Learning (McREL), 2550 S. Parker Road, Suite 500, Aurora, CO 80014; 303-337-0990. **http://www.mcrel.org**

Parker Charter Essential School, P.O. Box 2129, Devens, MA 01432; 978-772-3293. **www.parker.org**

Performance Assessment Links in Science (PALS). An on-line, standards-based resource bank of science performance-assessment tasks indexed to the National Science Education Standards (NSES). Includes examples of student work. **http://pals.sri.com/**

Mark St. John, Inverness Research Associates, PO Box 313, Inverness, CA 94937; 415-669-7156. **www.inverness-research.org**

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Mining for Gold in a Mountain of Online Resources

A Library of Congress project shows what the Web can add to history class

By Bill Tally and Melissa Burns

At Dow High School in Midland, MI, students in Michael Federspiel's social studies class pore over congressional transcripts from a 1913 water rights hearing involving Yosemite National Park. At Williamsburg Middle School in Arlington, VA, students analyze dozens of Civil War photographs by Matthew Brady. And at University Library High in Champaign, IL, students examine oral histories of Depression-era immigrants.

Thanks to the American Memory collections, the Library of Congress's new online archive (http://memory.loc.gov), students from all parts of the country and at all grade levels are working with the raw material of U.S. history right at their desktops. American Memory comprises more than 40 primary-source archives, each including thousands of documents, photographs, pamphlets, films, and audio recordings from U.S. history and culture.

An abundance, even an anarchy, of sources and material are now available on the Web, and teachers and students need whole new sets of skills to use the material in meaningful ways. To help teachers and librarians use these new resources effectively, the Education Development Center (EDC) and the Library of Congress have developed the American Memory Fellows Program (AMF), a national staff development project. The program brings together 25 teams of middle and high school educators each year to develop, test, and publish innovative classroom activities that use online primary-source collections.

The program has three phases. During a six-week online orientation in late spring, Fellows get to know one another, and the digital collections, through Web-based activities and discussions. At the week-long AMF Summer Institute in Washington, DC, in July, Fellows immerse themselves in the collections, explore methods of inquiry using primary documents, and design their own humanities lesson. During the following school year, the Fellows test and revise the lessons in their own classrooms. Through the use of electronic portfolios, they share and reflect on their developing expertise with colleagues online.

The project emerged from classroom research in which we at EDC found that

Other Valuable Nuggets . . .

These online resources can give a boost to humanities teaching and learning:

EDSITEment (www.edsitement.neh.gov/), the "gateway" site of the National Endowment for the Humanities, offers valuable online resources for teaching English, history, art history, and foreign languages, along with lesson plans and in-school activities. The 49 websites are rich in content and the lesson plans are well-written. Educators can also sign up to participate in in-school activities that aid learning through the Internet using the EDSITEment resources. Good parent activities as well.

History Matters (www.historymatters.gmu.edu/) is indispensable for high school and college teachers of U.S. history survey courses. It offers resources such as first-person primary documents that focus on ordinary lives and require students to actively analyze and interpret evidence. Created by scholars at the City University of New York and George Mason University, the site mostly covers the period of 1876-1946, though more materials are added regularly.

The Valley of the Shadow (http://jefferson.village.virginia.edu/vshadow2/) is an excellent resource for Civil War study. Developed at the University of Virginia, the archive contains thousands of primary resources documenting two Shenandoah Valley communities on opposite sides of the Mason-Dixon line. Ideal for student documentary research, the site offers census records, newspapers, photographs, government papers, letters, and diaries, as well as overview documents. Includes online lesson plans.

The federally-sponsored **AskERIC (http://ericir.sunsite.syr.edu/)** has a virtual library of more than 1,200 lesson plans for teachers on a range of K-12 topics, from language arts lessons such as spelling and phonics to social studies topics such as Oregon Trail and the U.S. Postal Service. In addition, the AskERIC Q&A service promises to answer teacher questions about educational theory or practice within 48 hours using a nationwide network of experts and databases of the latest research.

K-12 teachers will find a rich variety of arts-related lesson plans, curriculum units, and activities at the Kennedy Center's **ArtsEdge Curriculum Studio (http://artsedge.kennedy-center. org/cs/cover.html).** Elementary lessons include teaching traditional Japanese songs and learning the history and art of making African masks. One high school curriculum unit explores the theme of monsters in literature, music, and drama. □

students who use primary sources exhibit more of the traits we associate with good historical thinking: they pose questions, observe details, and speculate about context—about what was going on behind the documents. For both teachers and students, the Web broadened access to primary sources enormously. But we also discovered that using digital archives poses new problems. In the past, experts such as librarians, textbook publishers, and professional historians filtered out bad, irrelevant material. The new media have done an end-run around the experts.

The result is a wider, richer, and more varied universe of information—oral histories of the Depression, discussions of Toni Morrison's novels—but also dubious offerings of cultural trivia, advertising, and sex. More than ever, teachers and students need help sorting out which online material is relevant, how to locate and evaluate useful texts, and how to apply what they have found to their questions or problems.

Working with American Memory, teachers learn that the criteria for valuable humanities resources include authenticity and open-endedness. Do the resources give students access to voices, perspectives, and conflicts that can deepen their understanding of a historical or cultural phenomenon? Do they encourage students to be active interpreters and meaning-makers? Yet even when digital resources are authentic and open-ended, like those in American Memory's primary source archives, their sheer volume and variety require new skills.

One of AMF's goals is to build "information literacy." First, Fellows learn how to navigate the Web to find materials—to use search engines to find relevant documents. Second, they practice evaluation skills: Where did this document come from? Can I rely on it? How useful is it to my purposes?

Teachers can bring those skills back to their classrooms. For example, middle school students often approach Civil War photos looking for images of life and death on the battlefield. They are often surprised to find the battlefields are strangely empty. Why? Linking to background information on the collection, they learn that Matthew Brady's cameras were too cumbersome to allow the kind of journalistic coverage we now expect. They do find plenty of pictures of the aftermath of battle, including famous images of Confederate dead at Gettysburg, Antietam, and elsewhere, with captions like "Bodies of Confederate dead gathered for burial." What do these images say about the war and how it was fought? Again, students must consult the background information to discover that most of the photos were taken by photographers sympathetic to the Union cause. Thus, while the pictures faithfully portray battlefield details (dress, weaponry, landscape), students see that they also narrate a particular perspective—that Confederate soldiers died in vain.

Evaluation skills are especially important when teachers and students deal with historical archives. Often unedited, they let students see the ugly side of U.S. history, including racist and sexist language in political pamphlets and newspapers, for example. Many teachers are not adept at talking about these sensitive issues in class. So they need skills for teaching students ways to approach this material with a critical eye.

As teachers develop information literacy, they become able to do some filtering by assembling well-chosen sets of materials to suit their pedagogical aims. For example, at Pleasant Valley High School in Chico, CA, social science teacher Brett Silva has set up a historical role-play for his students involving a provocative set of primary sources from the 19th century. The students are asked to mediate a Texas land dispute between Native Americans and white settlers. The primary source documents present the issue from an Indian perspective, a white perspective, and a 19th-century Quaker perspective. Brett uses Web resources to help his students understand that human history reflects multiple points of view. He invites his students to see how the world was—and how it might have been different. □

Bill Tally is a media researcher and designer with the Manhattan-based Center for Children and Technology, a division of the Education Development Center (EDC). Melissa Burns is a writer-researcher at EDC's headquarters in Newton, MA.

For further information

American Memory Fellows Program, Library of Congress, 101 Independence Ave., SE, Washington, DC 20540; 202-707-5000
http://memory.loc.gov/

Teaching units created by American Memory Fellows can be viewed at:
http://memory.loc.gov/ammem/ndlpedu/index.html

Why Current Assessments Don't Measure Up

By Marya R. Levenson

New statewide standards that emphasize accountability for all students have forced educators to look more closely at student data to see who is learning and who is struggling to learn. However, what administrators and teachers are discovering is that mandating high standards does not, by itself, raise achievement. Furthermore, current assessments such as standardized tests are not adequate for measuring those new standards.

Given the skills our students will need to compete in today's economy, many of us can appreciate the need for higher graduation requirements for all students. For too many years, educators and parents have not had high enough expectations for urban and poor rural students, or even for some students in affluent suburbs. Still, there is concern that some students may not be able to reach those new learning standards on the tight timetables set by many states—even where transitional safety nets such as lower passing scores are temporarily in place.

Students come into schools with very different backgrounds and preparation. Some face incredible hardship as they and their families grapple with poverty, illness, or other problems. Some do not learn well within traditional classrooms. Others need alternative approaches, more individual attention, or more time to master a subject.

As schools have developed different instructional programs to teach students who don't do as well in traditional classrooms, we have learned that many students are capable of achieving much more than we had believed.* Such programs, however, require extra time and resources so that faculty members working in smaller classes can develop and modify new curricula and instruction to produce good learning as well as acceptable results on new state exams.

Some who are advocating higher standards have not been so quick to call for the additional resources needed, especially in urban and poor rural districts, to support staff and program development. Nor have they understood that the current standardized assessments are not adequate for measuring the learning standards.

Multiple Measures Are Needed

State departments of education understandably want to have "foolproof" assessments of how schools are meeting the new standards, ones that can withstand challenges by angry parents or state legislators when many children fail to pass. States also place a premium on standardization so that schools can be compared to each other. As a result, rich and complex learning standards are often being measured only by high-pressure standardized tests.

In New York State, teachers have become so focused on preparing 4th- and 8th-grade students for publisher-developed English-language arts and mathematics tests that most feel they do not have time to develop creative, in-depth performance assessments in these and other subjects. Moreover, because of the pressure caused by the tests as well as numerous articles and editorials comparing school and district results, many students have been made to believe they are failures because of initial poor test results. Some 4th graders are even being retained, despite the fact that these new assessments were originally implemented to alert schools and families about which students may need more support in order to pass the Regents exams years later in high school. The New York state plan to rank and compare each school according to how students perform on the 4th- and 8th-grade tests may accelerate these pressures.

In the North Colonie School District in New York, we understand that there is a role for standardized tests. They provide a good snapshot of how our students and our district perform compared to others in the state and the nation. But we do not look at a student's performance on such tests as the only measure of achievement or criterion for placement in a program. After all, the student may not have tested well on that particular day. We consider class work, including performance assessments such as writing portfolios, teachers' observations, and data from various standardized and state tests.

At a time when there appears to be increasing national pressure to use new state standardized tests as the only criteria for judging schools and students, educators should advocate for multiple measures to assess whether a student has truly met the learning standards.

One final cautionary note: As schools focus on helping students who were previously allowed to "get by," we need to maintain appropriate standards and assessments for students at the top of the spectrum. It would be truly ironic if implementing the "higher" state standards ends up diluting the educational experiences of students who already meet and exceed the standards.

Creating and implementing high educational standards is an essential challenge. Never before in our country's history have we attempted to have all high school students attain such a high level of literacy and other skills. Implementing new standards incorrectly or too quickly can harm our children and our schools. As schools work to meet these ambitious standards, incremental accomplishments should be recognized. And since teachers understandably focus what they teach on how their students will be assessed, let's make the assessments worthy measures of the new learning standards. □

Marya R. Levenson is superintendent of the North Colonie (NY) schools.

**See www.ncolonie.org for information about Shaker High School's Integrated Regents Program, an interdisciplinary program for students who learn better through problem-solving.*

Coming soon...

Cooperative Learning

Looping

David Perkins on Intelligence in the Wild

We welcome your comments

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INSIDE

Putting Cooperative Learning to the Test

While studies link cooperative learning with higher achievement, defining the term and implementing the concept is a challenge

By Laurel Shaper Walters

In Terry Anderson's 3rd-grade classroom, nobody has an assigned seat. During the school day, the 23 students move from the carpet to a computer station or scatter to work at three small tables around the room. The arrangement works well, reports Anderson, a teacher at Robinson Elementary School in Kirkwood, MO. "Anywhere the kids want to settle in during their reading and writing time is fine," she says. "And this way there are more places for kids to work in groups. They're usually all over the floor."

In schools across the country, teachers are putting down their chalk and moving away from the front of the class. They are rearranging students into groups and encouraging a steady hum of voices sharing ideas. Pods of desks are replacing neat rows as the landscape of the American classroom shifts to accommodate more teamwork. Much of this activity is based on the principles of cooperative learning, in which the traditional competitive, teacher-driven approach is transformed by students' working together.

"There's a huge difference between changing a seating arrangement and changing the way the students interact with each other as they learn."

"But there's a huge difference between changing a seating arrangement and changing the way the students interact with each other as they learn," cautions Roger T. Johnson, co-director of the Cooperative Learning Center at the University of Minnesota and one of the leading researchers in this field. Johnson and his brother David have developed one of the most-used models of cooperative learning (see ebar, p. 5).

In effect, cooperative learning redefines teaching and the role of the educator. With students working together in groups, the teacher often functions as a facilitator rather than a lecturer. Students are encouraged to discover information together and to help one another learn.

Two Key Components

The cooperative learning concept is a mature one with a solid research base accumulated over several decades. This body of work has led to agreement about two components that must be present for cooperative learning to lead to significant gains in achievement.

The first key component is promoting interdependence within groups—fostering the perception among group members that they must work together to accomplish the goal. "There has to be a recognition that you're in a sink-or-swim relationship," Johnson notes. "That you can't be successful unless your partners are as well, and they can't be successful without you. That's the essence of a cooperative relationship."

Cooperative learning is most likely to go wrong when one of the students does all the work while others watch. Each of the established models of cooperative learning recommends strategies for avoiding this problem. Some popular strategies for fostering interdependence within groups include assigning a single product for the group, asking students to take on different roles

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Currently on the web:

The Research Feature
This month, the focus is on cooperative learning, with online links and other resources.

The Forum Feature
A discussion with Nicholas Lemann, Ted Sizer, Linda Nathan, and Angela Valenzuela on "Testing Mania: Good Intentions Gone Awry."

Also visit our past research features, including those on standards, discipline, and grade inflation.

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(recorder, facilitator, researcher, presenter, and so on), and assigning one student in each group to become an "expert" in one particular area and report back to the others.

The second key component is holding students individually accountable for demonstrating their understanding of the material. While students should be expected to teach one another and learn material as a group, proving their own understanding must be done individually. "Each person in the group should get up and walk away enriched and having learned something," Johnson says. "If you have 'hitchhiking' within the group, it's not yet a cooperative group."

One strategy for achieving this component is to have students teach what they have learned to someone else in their group. In project work, group members may be held responsible for their individual contributions to the goal. Alternatively, teachers may randomly choose one student to represent the group in an oral or written quiz.

Beyond these two agreed-on components, various models emphasize different additional elements, and researchers disagree about how teachers should implement cooperative learning. Some believe it can be used within an existing curriculum as long as certain basic principles are followed. Others are weaving the concept into a comprehensive reform program, embedding cooperative learning in a new curriculum. And some advocate providing exercises or "structures" that introduce cooperative learning into an existing program.

One proponent of such structures is Spencer Kagan, director of Kagan Publishing and Professional Development, which last year trained more than 20,000 teachers in cooperative learning through workshops and conferences. "We are very clear with teachers that they should make cooperative learning part of any lesson," Kagan says. "Ours is an integrated approach rather than a replacement approach."

For example, Kagan instructs teachers to use a "Timed Pair Share" structure. In this exercise, the teacher divides the class into pairs of students and poses a question. Within each pair, Student A talks about his or her answer for one minute, then Student B does the same. "In the same amount of time that you could have had two students respond, you have every student in the class respond to the question," Kagan notes.

The more than 100 structures devel-

Building a Bridge Between Research and Practice

By Laurel Shaper Walters

At Parkway South High School in suburban St. Louis, students in Karen Bettis's French classes come prepared to work together. Since the school went to a block schedule of 90-minute classes last year, Bettis has been able to use group work in nearly every class. "I like working with groups because I see the positive benefits," she says.

During her 24-year teaching career, Bettis has attended several workshops on cooperative learning, yet she doesn't use any specific model of cooperative learning. "I know I don't follow all the rules of cooperative-learning activities," she says. "I choose what will work for my class." Defining the "rules" of cooperative learning can be confusing, especially when researchers disagree about what works best. Meanwhile, teachers like Bettis are taking the basic concepts behind cooperative learning and experimenting with ways to apply them in the classroom.

In a recent French II class, Bettis introduces new material and then has students work in pairs to review it. They later reassemble in groups of three to help prepare each other for a vocabulary quiz. A seating chart shows each student's current partner for pair work and a pod of three for group work. "I put these groups together very carefully, spending a lot of time making sure they are heterogeneous," Bettis says. She reorganizes the groups every several weeks but keeps the number of students to three for group work. "I think it's important for them to learn to work with a variety of people, but I have also found that when you do group work with more than three, someone ends up sitting back and other group members tend to do more work."

"Learning is social, and the best way for kids to learn is by being actively involved with each other."

Getting students to talk to each other in group work is essential to reinforcing their learning, Bettis argues. "When I say group work, that doesn't mean students sit there in a circle writing down answers. The expectation is that they talk through the answers." To make sure that happens, Bettis circulates throughout the room during group work, answering questions and prodding students to challenge each other. "You really have to pay attention to how they're doing," she says.

Window into Students' Minds

Having teachers listen during group work is vital to cooperative learning's success, says Roger T. Johnson, co-director of the Cooperative Learning Center at the University of Minnesota. "The key to cooperative learning from the teacher's point of view is to be able to hear students as they're working, as they're thinking," he says. "You might describe it as a window into the

oped by Kagan incorporate the basic principles of cooperative learning. "So when teachers are using one of these structures," he says, "they're doing good cooperative learning." Kagan developed this idea about 10 years ago after growing frustrated with more complex and comprehensive cooperative learning programs. "The message was: 'Stop what you're doing now. We've found a better mousetrap. Do cooperative learning instead.' With that approach, you get resistance."

Determining exactly how many teachers are using cooperative learning is difficult. Few national studies have been done. The best national data date back to the congressionally mandated "Prospects" study of 1993, in which 79 percent of elementary teachers and 62 percent of middle-school teachers reported making some sustained use of cooperative learning.

But narrower, in-depth studies have found that teachers' definitions of cooperative learning vary widely, so it is hard to tell what teachers mean when they claim to use it in their classrooms. In a 1998 study by researchers at the University of Washington in Seattle that surveyed teachers from six Washington State elementary schools, 93 percent said they used cooperative learning regularly. And yet, the researchers found, these teachers "eschewed cooperative learning models that dominate the research literature."

As one teacher explained: "When I was trained in cooperative learning, it sounded so wonderful but so complex the way they laid it out. Every kid had to have a job, and they were so prescriptive. Through my teaching, I've learned that cooperative learning, for me, is just to have the kids discuss things with each other and put together a product. I was hoping I could use it full-blown all the time and learned that's not realistic."

A Great Success Story

Nevertheless, researchers consider cooperative learning one of the great success stories in educational research. "In terms of something that actually leaped across that bridge from theory to research to practice, it's hard to think of many better examples," says Robert E. Slavin, co-director of the Johns Hopkins University Center for Research on the Education of Students Placed at Risk, who has developed several well-known models of cooperative learning.

Hundreds of studies over more than three decades show a positive correlation between cooperative learning and achievement. Research has been done in every

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students' minds. You can hear them thinking out loud as they're talking to each other."

That's exactly what Terry Anderson, a 3rd-grade teacher at Robinson Elementary School in Kirkwood, MO, expects to gain from using cooperative learning in her classroom. "The way one child thinks brings another child's thinking along in certain ways," says the 20-year veteran teacher. Anderson is in constant demand when her students are working in groups. She keeps them on task, clarifies expectations, and pushes them to ask the right questions.

For example, after a math investigation about dividing submarine sandwiches equally, she rings a wind chime to get everyone's attention. A group returns from working in the hall, and they all reassemble on the carpet. One member of each group holds a large piece of paper showing their answers and the process they went through to solve the problem. Anderson sits in a rocking chair and asks each group to come forward and explain their strategies. Some used trial-and-error, others estimated and then checked their work. The goal, she says, is to scaffold their solutions, saving the best for last. "But the main thing is reaching a consensus," she says.

Anderson tries various grouping methods to create working groups of three or four students. "If I let them choose their groups, they end up with the same people all the time," she says. Sometimes she will assign students to groups, other times she might allow students to choose a partner and then combine two pairs to make a foursome. The goal is to get students talking and working together. She is convinced that her students are better off working in groups, even if the classroom is louder and more chaotic. "Learning is social," Anderson says, "and the best way for kids to learn is by being actively involved with each other."

Preparing Tomorrow's Lessons

Anderson builds her lessons around what she hears the groups talking about. For example, during the group activity about dividing sandwiches, Anderson gains clues about which aspects of fractions most students understand and which areas require further explanation. As math time ends and the school day winds down, Anderson makes a mental note of what to stress in tomorrow's math lesson on fractions. She reviews what they've learned from each group's approach to the problem and outlines the next step in the project. "Now you know how to get started tomorrow," Anderson says.

The basic concepts of cooperative learning are responsible for many changes in U.S. classrooms. The widespread acceptance of this approach means students like Anderson's are no longer lined up in rows of individual desks. Yet there is a yawning chasm between current practice and recent research about how to use cooperative learning most successfully. For these two teachers, much of the research on what constitutes successful cooperative learning is beyond the scope of day-to-day classroom practice.

What the teachers classify as "cooperative learning" some experts would label mere group work. While most researchers reject the notion of assigning group grades to students, for example, Bettis has experimented with the idea after hearing talk of it at various conferences. These teachers—and the research shows they are not alone—seem to view full implementation of any one cooperative learning program as too limiting or impractical. The bridge between practitioners and researchers in this area is still under construction. □

subject, at all grade levels, in all kinds of schools. And there is widespread consensus that students benefit when they can help one another learn instead of having to work apart from—or against—one another.

The concept of cooperative learning appeals to contemporary educators on several levels. For teachers dealing with increasingly diverse classrooms, it easily accommodates individual differences in achievement. Most models of cooperative learning advocate heterogeneous groups of three or four students at various levels of achievement.

Other Incentives

Other issues commonly viewed as negatives, such as peer pressure, can be turned to the teacher's advantage as students focus on a group goal. At the same time, cooperative learning encourages social and interpersonal development as students learn how to work together and to appreciate diversity. In fact, many studies credit the approach with improving cooperative attitudes outside the classroom and increasing cross-racial friendships.

Cooperative learning also garners praise from the business community, which is looking for a future work force with strong teamwork skills. Many teachers recognize this as an incentive for using the approach. "In addition to just teaching academic subjects, we also have a role in helping kids learn how to work in a group better, because jobs in the future are going to require this," says Karen Bettis, a French teacher at Parkway South High School in St. Louis, who uses cooperative-learning strategies.

But widespread acceptance does not automatically translate into consistent, effective implementation. In fact, despite the strong interest in cooperative learning, many practitioners are not implementing the concept effectively.

"Cooperative learning has become so standard that sometimes it's honored in the breach," Slavin notes. "Everybody's heard of it, and they all had a course on it or some mention of it in their preservice. So they just use it from time to time. It's not seen as a big-deal innovation anymore. In some ways that undermines both the quality of implementation and the likelihood that people really understand what they're doing."

While researchers agree on the key components of successful cooperative learning, these components are not always understood or used by teachers. In Terry Anderson's 3rd-grade class, for example, students work in groups frequently. "But we don't do formal cooperative learning where everybody has a role," Anderson reports. "I just kind of make my own program. I see what works and what doesn't." And one teacher told the Washington State researchers: "I don't use cooperative learning in the sense that I'm assigning roles in the groups. I do group work."

But not all group work is cooperative learning, researchers insist, and defining the term is difficult for many educators. In the hands of poorly trained teachers, cooperative learning can dissolve into little more than loud, chaotic classrooms. "If you stop with just putting the students in a group," Johnson warns, you may not get the positive effects of cooperative learning.

One study suggests that students do better when they are directed toward strategies for understanding rather than toward strategies for performing better on quizzes.

The research has provided ample evidence about those positive effects. Models of cooperative learning that promote its two key components—interdependent work and individual accountability—are consistently found to lead to gains in achievement. According to a 1996 review of the literature by Slavin, 37 of 44 studies comparing traditional instruction with cooperative-learning methods, including these two elements, found significantly positive effects for cooperative learning; only 4 of 23 studies of cooperative-learning methods lacking group goals and individual accountability found positive effects on student achievement.

While some researchers view the two key elements as the core of cooperative learning, others urge educators to include several more components. "We're more demanding, if you will," Kagan says. His training includes two more basic principles. The first is "equal participation," which pushes teachers to give every student an opportunity to contribute. For example, a teacher following this principle would never ask students simply to make a list with a partner on their own. "Suzy could grab a pencil and make the list while Johnny sits and watches." Instead, Kagan recommends a "rally table" at which Student A writes one item on the list, then Student B adds something. The other principle Kagan emphasizes is "simultaneous interaction," which encourages teachers to actively involve as many students as possible at any one moment.

Other models emphasize additional elements. For example, Johnson and Johnson's Learning Together model includes work on team-building skills. "Many students need to be taught the behaviors or skills necessary to be a good partner and work together cooperatively," says Roger Johnson. This model also includes regular group discussion to evaluate the effectiveness of student groups. "When the work is done, the processing starts as you set it aside and ask: 'How well did we do as a team?' and 'What can we do next time to be more effective with each other?'"

To test the usefulness of such processing, a University of Minnesota study of 3rd-graders compared groups of students provided with a structured time and format for group processing with students working cooperatively but not allowed this time for reevaluation. "We expected that we'd find better relationships and more skillful people in the processing group, which we did," Johnson says. "But we also found that the group that was using processing had higher achievement." His conclusion: The more skillful students are at cooperating, the better the product.

Strategy or Group Rewards?

There is also some evidence that careful structuring of activities in cooperative groups can be effective. For example, a 1992 study compared students working in two cooperative situations. In one group, students were taught specific strategies for reading comprehension (such as predic-

Four Leading Models

By Laurel Shaper Walters

Research on specific methods of cooperative learning began in the early 1970s. Most of that research has been sustained over time and focuses on the four major models described below. The models differ in how much structure is provided, what kinds of rewards are offered, methods for holding students individually accountable, and the use of group competition.

Student Team Learning (STL)

Developed at Johns Hopkins University. The focus of a large number of studies, led by creator Robert E. Slavin. Emphasis on team goals and team success. Teams earn certificates or other team rewards if they achieve above a designated standard. Students are rewarded for improving on their own performances, and team scores are important motivators. This method includes four separate programs. Two are general cooperative-learning methods for use in most subjects and grade levels: Student Teams-Achievement Divisions (STAD) and Teams-Games-Tournament (TGT). Two others are comprehensive curriculums: Team Assisted Individualization (TAI) for math in grades 3-6 and Cooperative Integrated Reading and Composition (CIRC) for reading and writing instruction in grades 3-5. Contact: Robert Slavin, Center for Research on the Education of Students Placed at Risk, Johns Hopkins University, 3505 N. Charles St., Baltimore, MD 21218; 410-516-8000. **www.csos.jhu.edu**

Learning Together

Developed by David Johnson and Roger Johnson at the University of Minnesota. Students work in four- or five-member heterogeneous groups on a group assignment sheet. A single product is turned in, and the group receives rewards together. Emphasis on team-building activities and regular discussions within groups about how well they are working together. Contact: Cooperative Learning Center at the University of Minnesota, 60 Peik Hall, University of Minnesota, Minneapolis, MN 55455; 612-624-7031. **www.clcrc.com**

Jigsaw

Originally designed by Elliot Aronson and his colleagues at the University of California at Santa Cruz. Students are assigned to six-member teams to work on segmented academic material. Each team member reads an assigned section, and then members from different teams who have studied the same sections meet in "expert groups" to discuss their sections. Then students return to their own teams and take turns teaching their teammates about their section. Jigsaw II is a modification designed at Johns Hopkins University in which all students read a common narrative but individuals meet and become "experts" on assigned topics. Primarily used in social studies and other subjects where learning from text is important. Contact: Elliot Aronson, Department of Psychology, University of California at Santa Cruz, 271 Clark Kerr Hall, Santa Cruz, CA 95064; 408-459-2470; e-mail: elliot@cats.ucsc.edu.

Group Investigation

Developed by Shlomo Sharan and Yael Sharan at Tel Aviv University. In this general classroom organization plan, students form their own two- to six-member groups, choose subtopics from a classwide unit, and produce group reports. Each group then makes a presentation or display to share its findings with the entire class. Contact: Shlomo Sharan, Tel Aviv University School of Education, P.O.B. 39040, Ramat-Aviv, Tel Aviv, Israel 69978; e-mail: shachar@ashur.cc.biu.ac.il □

tion or summarization) and given "think sheets" to help them remember to use the strategies. The other group earned team scores if their members improved on weekly quizzes. Students in both cooperative groups showed a high level of engagement with the material. But the strategy group made significantly greater gains on a reading-comprehension test, suggesting that students do better when they are directed toward strategies for understanding rather than toward strategies for performing better on quizzes.

Slavin, however, is a strong promoter of the group-rewards concept. His cooperative-learning programs include opportunities for students to earn a team certificate or other recognition if all group members improve their performance on quizzes or other individual evaluations. In his review of the literature, Slavin documented positive effects on student achievement in 50 of 64 studies of cooperative-learning methods that included group rewards, while studies of methods providing no group rewards or based on a single group product found few positive effects.

"A lot of the opposition to cooperative learning has been because an A student comes home with a C," Slavin points out. "When the parents ask what happened, the kids say there's another student in their group who keeps making trouble. The parents go ballistic, as they, frankly, should." This is why Slavin favors keeping grades separate from group rewards: "The grading system should be completely based on your own personal performance, whereas the group recognition or rewards can be parallel to that."

In her high school French classes, Bettis makes a concerted effort not to let group work jeopardize her students' grades. When she asks students to review material together before taking a quiz and then randomly chooses one student's quiz to represent the group, she emphasizes that the quiz will not be worth many points. "If I happen to choose a group member who is not very strong, it's not

going to wreck the grade of the kid who really did know it," she explains. "The idea is to just put a little bit more pressure on the kids to help each other learn when they are working on the review together."

Who Benefits?

A number of studies have looked at the question of which students gain the most from cooperative learning. While the research shows that cooperative learning is effective with students across grade levels, the concept has been more readily accepted by elementary teachers. Yet interest is growing rapidly in middle and high schools. One reason is the shift toward block scheduling in high schools. "High school teachers are becoming aware that you can't just lecture at kids for 90 minutes and hold their attention," Kagan says. Two years ago, high school teachers outnumbered elementary attendees at Kagan's summer training institutes.

Advocates of cooperative learning argue that it benefits students at all achievement levels as well. A few studies have found better outcomes for high achievers than for low-achieving students, and a few have found low achievers gaining more. Most studies, however, have found equal benefits for high, average, and low achievers, Slavin reports.

The most vocal skeptics about cooperative learning are advocates for gifted students, who worry that bright students will be held back by the limits of the group. The existing research provides little evidence that gifted students are shortchanged in cooperative-learning settings. But, then, there has been very little research focused on the truly gifted. And some gifted students do express frustration with group projects. "When you explain it, you want to do it real fast because you're bored or something," says a gifted middle-schooler from a wealthy suburban district. Marian Matthews, an assistant professor at Eastern New Mexico University who interviewed gifted 6th- and 8th-graders, concluded that these students benefit most when working in homogeneous groups with other gifted students.

More to Study

Despite the extensive research on cooperative learning, today's researchers see much more to be studied. "There's a great deal more to be done in terms of development of replicable strategies," Slavin says. Much of the current research focuses on comparing existing cooperative-learning models and examining the internal dynamics of cooperative learning to determine what specific skills are needed to make it work.

As cooperative learning continues to mature, advocates are trying various tactics to persuade practitioners to implement it fully and successfully. Slavin sees great promise in the idea of weaving cooperative learning into innovative materials. "My guess is that when people get a quality cooperative-learning experience these days it's more likely to be because they think they're using a math innovation," he says. In fact, many new programs are using cooperative learning without making an issue of it. It's simply part of a well-planned curriculum. For example, the 1,500 schools implementing Slavin's Success For All program are built around cooperative learning.

Slavin is pessimistic about "how much you can accomplish when it's just done in a Saturday afternoon workshop and then teachers go back to their classrooms and pick out the parts that they like." Most teachers are not likely to implement true cooperative learning under those conditions, he argues, and will end up not getting its full benefits.

Kagan strongly disagrees. "Cooperative learning, when viewed as a curriculum reform, gets into all kinds of trouble," he maintains. "Instead it should be introduced as a tool in the teacher's tool box that can be used in any lesson."

On both sides of such disputes, advocates of cooperative learning are relying on research to continue to provide insight into what makes it work best. And there's no evidence, Slavin says, that teachers are doing any damage when implementing their own versions of cooperative learning—although this sort of casual use may not offer all the achievement benefits. "There's some evidence that even poorly organized cooperative learning is probably improving things like race relations and attitudes toward mainstreamed kids. They're just missing out on a lot of the potential." □

Laurel Shaper Walters is an education writer living in St. Louis, MO.

For further information

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Intelligence in the Wild

continued from page 8

But is problem detection just another face of laboratory intelligence? Maybe, but our research argues otherwise. As part of our method, we also use measures of laboratory intelligence—sometimes short-form IQ tests and sometimes other indicators. Our measures of problem detection do not correlate very strongly with these measures of laboratory intelligence, which tend to be based on solving clearly defined problems. In some of our studies, the correlation is zero, in others quite low. So the wild side of intelligence appears to be a different kind of beast.

This connects to another interesting pattern of results. In research on intelligence, creativity, school performance, and professional achievement within a field, professional achievement turns out to be not highly correlated with school performance or IQ. Suppose, for example, that you are studying physics. Without a doctoral degree and an IQ high enough to help you do the academic work to get it, you're probably not going to become a professional physicist. But once you get the degree, how well does your grade point average or your IQ predict your professional success as a physicist? Not very well. The correlations are around zero. In other words, while IQ contributes to mastering relevant academic knowledge and while credentialing is an important way to filter out those who just can't hack the physics, how high your IQ is or how well you did academically is not very predictive of your success as a creative professional physicist. The same appears to apply to other fields—doctor, business person, teacher.

In the wild, people function collaboratively. In typical academic settings, one spends a lot more time functioning solo.

In short, the traits and abilities that may have served you well academically—or not so well, if you didn't perform superbly—don't seem to matter as much in the wild. The wild side of intelligence has been neglected, both in psychological studies and in many patterns of schooling, and we do youngsters a disservice by neglecting it in our conceptions of intelligence and in our school practices. Very bright students who have done extremely well in conventional academic settings will sometimes be shocked to face life outside of those settings with much less success.

Schools at all levels, including universities, can do things to be more attentive to the wild side of intelligence. Certain methodologies can help. For instance, case-based learning can bring students closer to the wild than reading about somebody's theories in a textbook. Simulations also give a sharper sense of the wild and let students demonstrate their coping strategies and where they might need help. One can use assignments and activities that create a lot of space for problem detection; in other words, ill-defined problems are better than well-defined problems for helping people get the knack of coping with the murky wild. The murk is good; it is more authentic. At the high school or university level, internships provide similar experiences in the wild.

Intelligence in the wild can play out very effectively in collaborative environments. The wild does not connote the solo explorer at all. In the wild, people function collaboratively. In typical academic settings, one spends a lot more time functioning solo than in typical settings outside the academic context. One is supposed to show one's mettle and display one's skill as an individual. The notion of grading a team or giving a team a degree is completely alien. I am not saying that we should start giving degrees to teams, but I am saying that many academic settings offer too few opportunities for collaborative work.

At-risk kids often are thought of as slow learners because they are not particularly in tune with academic expectations. But they may have "street smarts" for which there is no measure or reward in a typical academic environment. Some people have strengths that only show up when the rules of the game are changed. Suddenly you find people who didn't look so smart before looking smarter, and vice versa. It's relatively commonplace in school settings to discover that when you make learning more open-ended, when you begin to use case-based learning or hands-on activities, different students come to the fore, ones you weren't noticing so much before.

By acknowledging intelligence in the wild and its importance, we can legitimately hope to find a connection with some youngsters who haven't been relating, responding, or learning well in the traditional academic mode. For others who are already doing fine in school, making them aware of the need to cultivate this other side of intelligence may help them to cope better today with their nonacademic lives and prevent a rude awakening later when they live and work in the wilds of "the real world." □

Since 1971, David N. Perkins has served as co-director of Project Zero, a research and development group at Harvard Graduate School of Education concerned with learning, intelligence, creativity, and understanding in child and adult contexts. He received his Ph.D. in mathematics and artificial intelligence from the Massachusetts Institutute of Technology in 1970. He has published and spoken widely.

CORRECTION

In the article, "One Urban School's Adventures in Reform" (March/April 2000), we mistakenly reported that Mike McCarthy was the 1997 Principal of the Year. While he was one of three finalists, Doris Alvarez, then principal of Hoover High School in San Diego, CA, received that honor.

Schools Need to Pay More Attention to "Intelligence in the Wild"

By David N. Perkins

Traditional schools usually emphasize the kind of intelligence students need to solve clearly defined problems. By stressing this kind of "laboratory intelligence," schools typically ask students to engage in focused, systematic tasks that have unambiguous goals and a clear choice of answers: learn this list of words and how to spell them, learn who the presidents were. The tasks may be challenging, but they are challenging in a predictable way. The attention paid to standards and assessments often works to increase the emphasis on this laboratory intelligence.

What's missing is an appreciation for what I like to call "intelligence in the wild." The phrase may conjure up images of someone trekking through the jungle, but it actually refers to intelligence as it is used to get along in the world, to handle gritty situations in smart ways. For example, "the wild" might be a classroom or the street or even a used-car lot. It might involve running a corporation or managing a scout troop. Intelligence in the wild includes the ability to recognize problems hidden in messy situations and the motivation and good sense to choose which problems (because there are always too many!) are worth the time and energy it will take to solve them.

You have to muck around and puzzle out what you want or need to do and where to invest your efforts. That's intelligence in the wild.

How does intelligence in the wild differ from laboratory intelligence? The two are certainly related. However, our research at Project Zero has shown that one of the most important aspects of intelligence in the wild is what's called thinking dispositions. Everyday terms like open-mindedness, curiosity, and skepticisim refer to thinking dispositions. Thinking dispositions have to do with 1) sensitivity to situations that call for thinking and learning and 2) the motivation to invest in thinking and learning.

Everyday decision-making offers a good example. Whatever situation I find myself in—teaching a class, fixing a car, pushing along an internet start-up, out on a date—it is important to be sensitive to when the situation invites a decision. If I do recognize that I'm facing a decision, then I have to ask whether it's worth the bother to make the decision thoughtfully. Many decisions aren't that important. Finally, if I do want to invest in a thoughtful decision, I have a fairly well-defined problem to figure out.

That "figure out" part is the most like laboratory intelligence. Schools often begin there, teaching kids how to deal with clearly defined problems. However, life is more confusing and complicated than that. Often the greatest challenge is just discerning whether there is a problem or what the problem is. You have to muck around and puzzle out what you want or need to do and where to invest your efforts. That's intelligence in the wild.

For a number of years, we have done research at Project Zero on thinking dispositions in an attempt to measure people's ability to detect the problems in situations. We usually use scenarios where reasoning goes awry—for instance, where somebody makes a decision without considering a range of options. Here's an example from our actual research: Mrs. Sanchez lives with her daughter in Chicago and works for Company A. Company A decides to relocate to Memphis. Mrs. Sanchez doesn't mind moving, but her daughter, who is in her last year of high school, wants to finish the school year with her friends. Mrs. Sanchez says, "You know, we really don't have any choice. I need the job. I need to follow the company." So they move, and the daughter is disappointed.

We measure how participants in our studies—mostly children in the latter half of elementary school—respond to stories like this. When they hear the story of Mrs. Sanchez, do they recognize that Mrs. Sanchez certainly has more choices than she thinks she does? She could refuse to go with the company and shop around for a similar job; she could move and let her daughter stay with a relative for the rest of the school year; she could negotiate with her company to move three months later. Interestingly, our findings show that once people realize that Mrs. Sanchez really does have options, they're pretty good at thinking of what some options might be. The bottleneck lies in recognizing that Mrs. Sanchez has jumped to her conclusion.

What's true of the story of Mrs. Sanchez is true of most of our findings. The principal roadblock to thinking well is usually detecting the problem in the first place and then caring enough to invest effort, not in following through. People tend to be much better at solving problems than detecting them. Although schooling and conventional intelligence tests emphasize solving well-defined problems, the greater challenge in the wild is problem detection.

continued on page 7

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Shakespeare vs. Teletubbies: Is There a Role for Pop Culture in the Classroom?

Some say tapping kids' interest in movies, TV shows, and games through student journalism is a good way to improve literacy and critical thinking. Critics aren't so sure.

By Sara-Ellen Amster

What was that mysterious place where human skulls stared at passersby through the plate-glass window? Mary and Gloria Navarro asked themselves that question each day as they walked by a shop called "Mama Roots" on Adams Avenue in Normal Heights, a working-class section of San Diego. When the 10-year-old twin sisters joined an after-school program aimed at building literacy skills, it gave them a reason to find out about those skulls.

The girls interviewed the shop manager, John Lee, about magic and ghosts and witches. They then wrote a story about the shop and shared it with their classmates. After receiving suggestions to improve the piece, Mary and Gloria rewrote the story (see sidebar). It turned out much better the second time, Mary says.

The Adams Avenue Newspaper Project teaches grade-school students to explore their community as if they were reporters. While journalism programs have long been used at the secondary-school level, studies show that they can also benefit the teaching and learning of younger students. Editing workshops that teach students to critique each other's work, special guest speakers from local media, and instruction in computerized newspaper design all help enrich the students' journalistic efforts.

The program, which was developed and is run by faculty and students at the University of California, San Diego (UCSD), takes the journalism idea one step further. It tries to improve literacy by tapping into students' vast knowledge about popular culture—from X-Men and Pokemon to movies and talk shows, from TV news to the Internet. This wider classroom use of the media can be controversial because of the great lengths many teachers go to to keep such cultural products, often laden with violence, consumerism, or stereotypes, out of the classroom.

"If you want to build on what children know, then you have to pay attention to the media."

Yet some researchers counter that children are going to use the media anyway—to learn, to construct their own identities, to situate themselves within particular groups—giving teachers an opportunity to make use of students' attention to the media for educational purposes. "There is a need for adult monitoring, of course, but it does no good to pretend children have not seen what they've seen or heard what they've heard," says Anne Haas Dyson, a professor of language, literacy, and culture at the School of Education at the University of California, Berkeley. "If you want to build on what children know, then you have to pay attention to media."

Dyson's ethnographic study of how grade-school children adapt superhero stories to everyday life is described in her 1997 book, *Writing Superheroes: Contemporary Childhood, Popular Culture and Classroom Literacy.* She shows ways that students can be taught to reconstruct superhero narratives to promote broader

definitions of what it means to be strong, to include less stereotypical behavior by girls and boys, and to avoid violence. Teachers may have children make their own videos, tape interviews with family members, or produce a newspaper, she says.

Dyson is now researching additional ways teachers can use children's familiarity with media genres. She is "interested in the knowledge that simply surfaces in children's response to school activities." The same composition skills that girls might employ on the playground when they pretend to be soul singers or DJs can be tapped for collaborative poetry reading and writing, Dyson says. Children often appropriate diverse media including radio, television, videos, and sports shows during open-ended writing activities and when they present and explain their work in class, Dyson says. "In one class I observed, embedded in the children's sports talk was nascent knowledge about geography—the names of teams' cities and states—as well as gender and power ideologies just itching for organization and critical discussion in the official world."

In drawing football fields and writing sports reports, children may demonstrate mathematical knowledge (two-digit numbers, counting by tens). Ideological issues may also come up: for example, Dyson examined football pictures drawn by girls that included skimpily clad cheerleaders. The teacher Dyson observed asked the students who liked football (not all boys, as students thought) and who didn't (not all girls) and who was supposed to play the game (a popular children's movie had a co-ed team). Female athletes were invited to talk to the class about their own limited opportunities to play sports as children. "Children don't need to be football fans, popular music fans, or movie buffs to become literate in school, but they do need respectful teachers with the imagination to see possibilities for resources in the lives of diverse, contemporary children," Dyson says.

Tom Newkirk, a professor of English at the University of New Hampshire in Durham, also sees a clash of cultures in schools where traditional "great works" of literature are emphasized more than the popular media materials children often try to bring into the classroom. For example, while teachers may see certain horror films as purely violent, students may have a more complex understanding of them and the cultural references they invoke. They may see humorous moments and even be able to mock the genre in ways that adults wouldn't.

Newkirk, who has been interviewing 4th and 5th graders at four southern New Hampshire schools for a book on this subject, says he watches *Teletubbies* on TV and has no idea what's going on. But two- and three-year olds know exactly. "A lot of times we are snobs," he says. "We see ourselves as special, protecting our own forms of literacy and protecting literature. We miss a connection with kids if we dismiss movies and TV. Kids sense the disapproval. You want them to acknowledge your world, but you also have to acknowledge theirs."

Obviously, teachers can't ignore the violence and sexual degradation in horror films. But they can make it a point for discussion.

That's not to say everything is fair game in the classroom, but teachers should have good reasons for not allowing something in, he says. "Movies have detail, dialogue—the elements of the narrative are there—and the kids are attracted to them," he says. "If they can write a summary of a long movie, you can teach sequencing, description, narrating, tension and resolution, and the kids might have the basis for discussing more realistic fiction later." Such discussions can also improve students' writing, he adds.

Teachers who know popular culture know students' reference points and have a bridge to their world when discussing traditional texts. Obviously, teachers can't ignore the violence and sexual degradation in, say, the horror genre. However, rather than simply condemning violence in films, they should make it a point for discussion. Even Shakespeare contains violence, so it is not enough to say no violence should be tolerated. A more constructive approach would be to ask when violence is necessary to a story and when it becomes mere gore. A legitimate topic when discussing horror films may be the use of suspense and anticipation in writing, Newkirk says.

However, some scholars remain skeptical about allowing popular media in the classroom. Many forms of media are corrupted not only by violence and stereotypes, but by commercialism, making it difficult even for adults, let alone children, to tell good from bad, says education policy analyst Edward Miller. Children are better off avoiding the imitation of popular shows in their writing; they should learn to do their own creative work, he says. "Teachers probably should at least be aware of what's out there and what kids are looking at, but many teachers dismiss popular media because they sense that these things don't have a lot of value. And I think their instincts are right," says Miller, a former editor of the *Harvard Education Letter.*

From Consumers to Producers

In a society saturated with media messages, how can schools negotiate this uneasy relationship with popular culture? The use of journalism offers a good solution, says Miller, because it teaches skills of inquiry and critical thinking while at the same time connecting them to the outside world. Children learn how to judge fact from opinion, gauge the accuracy of information sources, and tell balance and fairness from bias, he says. This not only has academic benefits, but it may also make students better citizens.

Studies dating from the 1970s and 1980s by such researchers as Roy Peter Clark at the Poynter Institute for Media Studies and Donald Graves at the University of New Hampshire have already shown that journalistic techniques can foster children's critical thinking skills and sense of ownership in their work as they pursue practical aims as writers. The knowledge that their work will culminate in a publication to be read by others provides students with a natural imperative to write clearly and the motivation to meet deadlines and work hard.

As they solve basic obstacles to mak-

continued on page 4

Harvard Education Letter

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View from the Classroom: Student Writers Hone Their Skills

The following drafts were written by Mary and Gloria Navarro, 10-year-old twin sisters in the after-school journalism program in Normal Heights, CA. After interviewing the manager of a magic shop, they wrote a first draft and submitted it to their class for critique. Once the girls had received feedback from their classmates, they drafted new questions to clear up confusing points and returned to the magic shop with a teaching assistant for a second interview. "The hard thing was to get [the magic shop manager] to sometimes confess some things," said Mary, "and sometimes he talks too much and we were like, 'wait, wait, could you repeat that?'"

Mary says she was nervous at first about what her classmates would say, but that they had many positive comments and she learned a lot through the process. She also says she would prepare better questions for future interviews, keeping in mind that readers often need more information than writers may think and that quotations have to be exact. (She learned, for instance, that a person would not normally refer to himself as "he.")

Version One:

We went to interview the manager of the magic shop, John Lee. We asked him why he liked to work here. He said, "He doesn't know, but he just loves it." What item do you sell the most? we asked. Love potions, because it is almost Valentine's Day. This was John's dream to work in a magic shop. He has a favorite customer named Phoenix, who would like to work in the store. He told us spells work because you want them to. He wants to work at the store because it is fun and it is the best place to work at. We asked has a ghost ever visited him? He said, "Yes, it was my grandmother when I was eight. My grandmother told me that she was going to die soon. I got in trouble with my dad for saying that. Then, in the middle of the night they got a call that my grandmother had really died."

I asked has anyone cast a spell on you? He said yes, when he was younger but not anymore, because he is a witch. All types of people come to the store, including witches. Mostly people buy candles at the store. John is a good witch. When witches send something bad out it comes back to them times three. John introduces people to magic to make them interested in the subject and come there more often. You should not take a picture of a spell book because it will cause you bad luck. If you do not know what you are doing with magic, bad things will happen, like when playing with a Ouija board.

Version Two:

We interviewed John Lee, the manager of Mama Roots—Traditional and Urban Magic, a magic store located at 3512 Adams Avenue. We asked him why he liked to work in there and he said he "just loves it," it was his dream to work in a magic shop. Mr. Lee started reading Tarot cards and Wiccan literature when he was a kid. Mr. Lee was a preschool and elementary school teacher before he began managing Mama Roots and practicing magic. His favorite customer is a girl named Phoenix who would like to work at the store.

Mr. Lee says that magic is neither good nor bad. According to Mr. Lee, the rule of Wicca is that you must "do what you will as long as it harms no one." He told us spells work because you want them to. During Valentine's Day, the most popular spell is a love spell. When we were taking pictures for this article, Mr. Lee said we shouldn't take a picture of a spell book or it would cause bad luck.

Mr. Lee says that his favorite definition of magic comes from the book, Granny's Luck, written by Kris Kissner of Del Mar. Kissner writes: "Magic is opening your heart to imagine something for someone other than yourself. Magic is a manifestation of love. Magic is a result of selfless caring. Magic can be as simple as a friendly hello or as complex as raising a child. Magic can be wishful thinking. You can make anything magical. Prayer is magic."

Mr. Lee says that a spell can backfire if the person casting the spell is not acting out of love. He says that Wiccans believe in the laws of Karma—that what you do comes back to you. When witches send out something bad it comes back to them times three. He also said that if you don't know what you are doing with magic bad things will happen. We asked Mr. Lee if he had ever been visited by a ghost. He said yes, it was his grandmother when he was eight. She came to him as a ghost just after she died. He told his dad and his dad got mad. But the next day they got a phone call informing them that she had really died.

We asked him if anyone had ever cast a spell on him. He said yes, but it happened when he was younger. Now he is a witch and it doesn't happen anymore. Mr. Lee is a good witch.

Mr. Lee believes there is an increase in interest in the metaphysical, which is why shows like The Others, Buffy the Vampire Slayer, Charmed, Sabrina the Teenage Witch, and Angel are on television right now. He also said that the movies Practical Magic and Craft were sort of good examples of magic, although a little bit off in some ways.

All types of people come into the store, including witches. Mama Roots is owned by a high-priestess named 1-Star. She sells books, candles, incense, Tarot cards, spells, woods, oils, crystals, pictures, and other things. Mostly people buy candles at the store. Mr. Lee introduces people to magic to make them interested in the subject and come there more often. ■

Tips for Teaching Writing

Roy Peter Clark, senior scholar at the Poynter Institute for Media Studies and a longtime writing coach, offers the following advice:

- Free students to write every day, far more than any teacher could grade. The idea is to give students enough practice in writing to improve significantly.
- Write with and for students. They benefit from seeing a teacher work through a problem or challenge presented by writing.
- Demystify the writing process for children. Teach writing as a craft, letting students know that they all can take steps to improve their work.
- Confer with students and get them to talk about their writing. Talking about reading and writing provides them with the tools they need to grow.
- Give students support and encouragement. Never use writing as a form of punishment and never write anything negative on a student's paper if you are not willing to write something positive.
- Teach students to rewrite. It may be more helpful for students to revise one story five times than for them to work on five different stories.
- Create an environment in which students can learn from each other. It's important to train students to support their fellow writers, ask good questions, and articulate specifically what works for them in a story.
- Let students discover some of their own writing ideas. Students need to see their world as a well of story ideas—and they can't do that if they get all their writing prompts from teachers.
- Emphasize writing based on real life. Children have written wonderful fiction about places they've visited, and it tends to be much more detailed and the quality of writing tends to be much better than when they just sit there and think something up.
- Publish the best work of every student. There are dozens of ways to make a writing public, from reading it aloud to putting it in a class booklet to putting it on a web site.
- Teach mechanics in the context of writing. There's no reason to learn how to spell or use correct grammar unless it's to help communicate a message or to make a meaning clear and powerful.
- Don't forget to teach the kinds of writing that are for learning and discovery, such as notetaking and outlining, which are valuable in all parts of the curriculum.

Says Clark: "We write to remember, to highlight, to play, to discover, to inventory, to give names to things, and so we should be teaching tools for these purposes." ■

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continued from page 2

ing their work understandable, children absorb lessons that have application in their regular schoolwork. Like their newspaper stories, student writing assignments also must have a focus, engaging introductions, smooth transitions, and satisfying endings. Grammatical problems often are solved along the way in the journalistic process and are seen as more interesting because finding solutions is necessary to make writing readable to an audience.

"Kids Like Being Reporters"

All this happens twice a week at the Adams Elementary School annex in San Diego, when 15–25 children gather to discuss story ideas, write, and learn desktop publishing skills as part of a newspaper project organized by Ellen Seiter, a professor of communication at UCSD. Because the University of California seeks to get faculty involved in urban K–12 education, Seiter received $15,000 in seed money from UC's Urban Community School Collaborative Grant to launch the program at Adams Elementary, where most students are Mexican American and 90 percent of students qualify for free lunches. A $16,000 grant from the Price-Weingard Fund paid for 14 computers and two digital cameras.

Students like Mary Navarro interview local shopkeepers and take photos of the community. The community comes to them, too. After a guest lecture by George Lipsitz, a music critic and professor of ethnic studies at UCSD, students wrote about what kinds of music they enjoy. They then agreed to write about the Backstreet Boys, with girls and boys taking opposite points of view. Another collaborative project that followed a talk by a local DJ and blues artist had them writing a group story, with each student contributing two comments.

Seiter, who has studied children's use of the media for some 20 years, and graduate students from UCSD help students edit the paper, working as a group to spot errors and determine story size and placement. The paper is then distributed as an insert to a community newspaper published by the Adams Avenue Business Association, reaching 17,000 readers in the working-class neighborhood.

The idea of producing a newspaper seems "very important to the kids," who are especially interested in getting their names in the paper, says Seiter. "The focus on the end product has really motivated them in terms of self-representation, and they do like being reporters."

In addition to building kids' writing skills, the program also aims to spark their interest in reading newspapers. They learn to think of their own families, their own churches, and their own favorite restaurants as places that are newsworthy, says Seiter. For 10-year-old Mary Navarro, the strategy seems to be working: "It's making me interested in reading the newspaper. Sometimes I say, 'Mama, could you get me 35 cents? I want to go buy the newspaper,' and she says, 'Sure.'"

By teaching kids to become both media producers and media consumers, the Adams Avenue project promotes the reading, writing, and critical thinking skills necessary to succeed at the college level, Seiter says. That's especially important

for at-risk students, she adds, because while "they may know a lot about TV or movies or video games, kids don't get points in school for just being media literate. In fact, it tends to get you labeled as someone who is media-saturated and not growing up in a healthy environment."

Roy Peter Clark started using journalism to teach writing decades ago after seeing start-up newspapers created by elementary school children—entrepreneurial efforts by 4th and 5th graders who distributed their work in their neighborhoods. Clark's writing classes do not start with lessons on sentence or paragraph structure. Instead, he assumes kids are ready to tell stories from the moment they walk into the classroom, and he gives each student a reporter's notebook. "That sends a signal that writing is not about sitting still and making things up. It's about going out and searching, gathering, collecting, and selecting. Making judgments about what's most interesting and important."

Grammar is important, Clark says, but it needs to be taught in the context of the children's actual construction of meaning so that "it has some reference to the purposes you are striving for." Student reporters learn to observe their surroundings and their culture, ask good questions, and pursue answers to those questions, he says. In other words, they learn to be learners. ■

Sara-Ellen Amster, a former assistant editor of the Harvard Education Letter, *is a graduate student at UCSD. She has supervised several student newspapers and advised Ellen Seiter's project.*

new and noteworthy

Would More Phys Ed Curb Kids' Weight Gain?

Should schools increase the number of mandatory physical education classes? One group of researchers at the University of North Carolina says yes. In a nationwide study of adolescent physical activity published in the June issue of the journal *Pediatrics*, researchers at UNC's Carolina Population Center argued that American kids, especially minority girls, don't get enough exercise, contributing to the "major U.S. health problem" of adolescent obesity. They concluded that one answer may be to increase the number of hours per week of mandatory physical education in schools and to improve access to after-school recreational centers. The researchers also called on parents to curb TV watching and video-game playing to encourage healthier habits among sedentary youngsters.

The report, drawn from an analysis of the 1996 National Longitudinal Study of Adolescent Health of 17,766 middle and high school students, showed that only 21.3 percent of all adolescents reported participating in phys ed classes at least once a week. Those who had PE class five times a week (14.6 % of the total sample) were more than twice as likely as those who did not have PE at least once a week to be highly active. Those who had PE 1 to 4 times per week (6.7 % of the sample) were 44 percent more likely to be highly active. African American and Hispanic adolescents, and especially girls, were more likely to be inactive, the report says. Also, inactivity increased with age so that highschoolers engaged in less physical activity than middle school students. According to the authors: "The national push away from comprehensive PE in U.S. schools is remarkable. Our results indicate that PE classes may represent the only opportunity for many adolescents to engage in weekly physical activity."

"Obesity is difficult to treat in children, so prevention is key."

That report coincided with the release in June by federal health officials of new growth charts for children showing that, in general, today's children are heavier but not taller than they were two decades ago. The charts—a revised version of the original 1977 standards used by pediatricians, nurses, and nutritionists to monitor kids' growth—reflect a population of young people that is more culturally and racially diverse than it was 20 years ago. The new charts include an important new tool—an assessment for body mass index (BMI)—that will help identify weight problems early on in children.

The charts are based on the National Health and Nutrition Examination Survey (NHANES), which collects data from actual physical examinations on a cross-section of U.S. children. The survey shows that in the past two decades the number of overweight children and adolescents has doubled. In addition, it showed that over one-half of all American adults are overweight and that the number of obese adults has doubled.

"Obesity is a condition that is difficult to treat clinically in children, so prevention is key," said Jeffrey P. Koplan, director of the Centers for Disease Control, in announcing the new charts. "These new CDC charts are an important new tool to identify growth problems at an early age so we can better prevent excess weight gain." ■

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Online Term-Paper Mills Produce a New Crop of Cheaters

The Web makes plagiarism easier—and more tempting—than ever. What can teachers do to discourage cheating?

By Orit Ditman

John" sits at his computer working energetically on a term paper, a model of the diligent student—or so it seems.

In reality, John is browsing an online "term-paper mill," looking to make a purchase. He may choose a paper that's already written. Or, he may splurge and order a customized paper tailored to his teacher's specific assignment. All he has to do is make his choice and punch in a credit-card number, and he will have "completed" his assignment with just a few clicks of the mouse.

While plagiarizing and purchasing papers have long been academic problems, the advent of the Internet, with its sprawl of information, has made cheating easier for dishonest students to do—and harder for teachers to catch. More than 70 Internet sites offer research papers, dissertations, and college entrance essays for sale. They're so prevalent that many students practically stumble onto them in the course of legitimate web searches.

High school and college students are visiting online paper mills at an alarming rate. According to the 1998 Survey of High Achievers conducted by Who's Who Among American High School Students, four out of five teens at the top of their classes claim to have cheated in some way, the highest proportion in the 29-year history of the survey. As more cheating resources are offered on the Internet, those numbers are likely to increase.

"We know the problem has ballooned, not because students have been caught, but because the web sites boast about the number of hits they get and the money made off the sale of papers," says Peter Wood, associate provost at Boston University, which sued eight online companies in 1998 in an effort to stop the sale of papers.

Papers typically cost from $7 to $35. Term-paper mills generate income by selling papers and also by selling advertising to firms eager to reach the student market. Many of the sites link to others of potential interest to students, including those about music, sports, even pornography, as well as other term-paper sites.

Some of the more popular online term-paper sites are: ACI Net Guide to Term Papers (www.aci-plus.com), JunglePage (www.junglepage.com), Cheater.com (www.cheater.com), Cheat Factory (http://cheatfactory.hypermart.net), A+ Papers (www.schoolpaper.com), BigNerds.com (www.bignerds.com), Genius Papers (www.geniuspapers.com), Professor Korn (www.serve.com/doctor/), Evil House of Cheat (www.cheathouse.com), and School Sucks (www.schoolsucks.com).

Just a Resource?

Many sites are produced by high school, college, or graduate students; some even claim to be managed by professors (e.g., ACI Papers). Most include a disclaimer that says the site is just a study resource; others give papers away, drawing income from ads. For example, School Sucks attracts advertising because it claims to have received more than 3 million hits.

Why do students risk embarrassment, failure, and even expulsion by downloading a paper? Aside from the obvious reasons such as laziness, the anonymity of the Internet attracts students who might otherwise be too embarrassed to ask for help, according to Kathleen Ross, who trains teachers and students in educational technology at private and public schools in Boston. "The Internet is so much easier to turn to for help than another person, who might make a judgment," Ross explains.

Ross has found that surprisingly few high school teachers are aware of the extent of online temptations facing their students, and teachers seldom get formal training in how to detect or deter online plagiarism.

The quality of the papers offered on these sites tends to be poor, and this may actually help students avoid suspicion of plagiarism, according to New Jersey high school teacher Monica Terry: "The fact that these papers are so full of spelling and grammatical errors makes it hard to suspect that they were actually taken from another source." For example, of the School Sucks site, Terry says, "I don't see much value in using their papers as study guides. The thoughts are too basic and often incoherent. A paper on A Midsummer Night's Dream, a text considered suitable for 9th or 10th graders, was written at a level far below that of a high school student."

Jessica Corr-Bolender, an English teacher at St. George's School in Newport, RI, spot-checks some of the popular online sites when she suspects a paper has been plagiarized. "It would be stupid for a student to take a paper off the Internet. I can find it," she insists.

For a price, teachers can get help spotting "digital plagiarism" through sites such as www.plagiarism.org, developed by a group of researchers and alumni of the University of California, Berkeley. At the site, teachers have papers "fingerprinted" or checked against a database of manuscripts from schools, universities, and other sources. Teachers receive an e-mailed "Originality Report" that shows what percentage of a paper appears to have come from other sources and links to those sources. The method is not foolproof: since it relies on matching keywords, it can flag a legitimate paper due

to the high recurrence of keywords throughout the Web.

In one sense, any tool for detecting plagiarism could be considered a failure, in that it is just a Band-Aid for the larger problem. In order to truly combat digital or other kinds of plagiarism, teachers need to find ways to help students avoid the temptation to cheat.

Teachers who assign papers on the same topics each year, who assign papers with unrealistic deadlines, or who don't provide enough preparation and information to make students comfortable writing a paper increase the likelihood that their students will cheat, says Oliver Woshinsky, professor of political science at the University of Maine. "I make assignments as specific as possible and require tie-ins with classwork and course texts," he explains. Woshinsky's strategy is one that many teachers may want to copy. ■

Orit Ditman is a Boston-based writer and former elementary schoolteacher.

Green-Eyed Monster

continued from page 8

their own knowledge and level of innovation, they were not ready to "publicly" share with other teachers their cutting-edge techniques—such as conversing with parents via e-mail or using interesting Internet sites in classes.

The third teacher felt more comfortable in her role as an innovator and, with the support of her principal, talked openly about the changes taking place in her classroom. Because this teacher was comfortable sharing her methods and showcasing her students' activities, she was in a position to improve, expand, and use her experiences to teach other teachers how to integrate these new technologies into their classrooms. Interestingly, she worked in a district where administrators stressed the need to "hothouse" innovative practices. She was given permission to develop her own personal agency—to become a star, in other words. Professional jealousy in this case revealed itself not in only other teachers' trying to intimidate her, but in their flat-out rejection of what she was trying to achieve through educational technology.

The issue of collegial jealousy and how it can become a barrier to innovative teaching may be one of the most important challenges we educators face. Most teachers value teamwork and want to be accepted by their peers; they do not want to appear to be playing a game of oneupsmanship when demonstrating their technological achievements. Yet what they have to share about the effective use of new technologies can have important benefits for other teachers, and. especially, for their students. Students who are knowledgeable about ways to use computers to aid their own learning will be better prepared for the types of jobs they will encounter in the 21st century.

Throughout the past decade, studies have shown that for technology to be successfully integrated into classrooms, teachers need release time to experiment with computer software, the Internet and other innovations away from pressures of the classroom; follow-up support when implementing new techniques; and ample opportunities to network with colleagues beyond their own school through graduate-level courses, technology groups, and professional conferences. Studies also show they need first-hand exposure to successful models of teaching using new technologies—which is unlikely to happen in a school where even subtle forms of professional jealousy can interfere with the sharing of technological expertise.

At the same time, I'd suggest we need to seriously consider ways to support personal development along with professional development. This combination would help teachers become innovators without threatening their colleagues in the highly collaborative elementary school culture and thereby evoking the green-eyed monster. ■

Julie M. Wood is a lecturer in the Technology in Education program at the Harvard Graduate School of Education and director of the America Reads program at the Massachusetts Institute of Technology. She wrote about literacy and technology in The Digital Classroom, *a new book from the* Harvard Education Letter.

Innovative Teachers Hindered by the "Green-Eyed Monster"

By Julie M. Wood

O! Beware, my lord, of jealousy;
It is the green-eyed monster which doth mock
The meat it feeds on ...
—Othello, *William Shakespeare*

As an elementary schoolteacher in suburban Boston, Michelle Jacobson talked enthusiastically to individual colleagues during lunch breaks about her students' successful electronic slide show creations and about how such innovative technology had invigorated the learning of her 1st- and 2nd-grade students. But she knew better than to talk that way to a group of teachers. She had heard other colleagues be criticized for such "showing off" and. even without bragging, felt shunned herself by some teachers for introducing new practices into the classroom.

While studying primary schoolteachers who use innovative technologies for my doctoral dissertation. I was struck by an unexpected finding: pioneers like Michelle sometimes downplay their expertise or novel teaching strategies rather than risk evoking jealousy from their peers. In other words, they go underground. In the typical "all for one, one for all" elementary school culture, drawing too much attention to oneself is seen as showing off and invites a hostile response. It can also contribute to a growing uneasiness among traditional teachers that their hard-won teaching style is rapidly becoming obsolete—and so are they. This highlights a distressing paradox: although most teachers support student achievement, they are often ambivalent about, or even hostile toward, the success of their peers.

Techno-savvy teachers may downplay effective new resources and techniques.

Despite the contention by experts such as Seymour Papert and Jan Hawkins that early technology training should logically begin with young children, and despite the fact that young children spend much of their school day learning to read and write, many administrators and practitioners don't have a good understanding of strategies for using technology to support early literacy instruction. Couple this with collegial jealousy of those who do use media-enhanced teaching practices, and the classrooms of techno-savvy teachers can easily become pockets of innovation that fail to engender schoolwide change.

In considering the implementation of technology, experts have focused mainly on issues associated with teacher training (e.g., hardware, software, and technical support) and the cultural issues associated with teacher-generated change. However, they have paid scant attention to the complex psychological processes that teachers undergo when some become innovators and change agents and others do not. By merging these bodies of knowledge, we can better help teachers cope with the problem of collegial jealousy that can derail innovative initiatives in schools.

Harvard's Robert Kegan, an expert in adult development, suggests in his constructive-developmental personality theory that one salient characteristic of adults is their dependence on others for a sense of self—that "one's self definitions, purposes, and preoccupying concerns are essentially co-defined, co-determined, and co-experienced." Normally, adults will eventually move into another, more autonomous stage in which the self determines its own standards, morals, and belief systems—one in which being liked is no longer a preoccupation. Yet there remains a powerful yearning for both community and personal agency—that is, while generally people want to contribute to the overall welfare of others, they also desire recognition for their unique qualities and accomplishments—and many people toggle between the two stages.

According to Kegan, institutions do not typically serve our longing for both community and agency well. Elementary schools, for example, place a greater emphasis on community, where collaboration and sharing are highly valued forms of behavior—more valued perhaps than individual innovation. As Dan C. Lortie has written: "The traditions of teaching make people who seek money, prestige, or power somewhat suspect: the characteristic style in public education is to mute personal ambition."

Thus, in a typical school, innovative teachers may bend over backwards to avoid threatening the school's sense of community, so that in trying to achieve a balance between sharing their expertise and overpowering others, they downplay potentially effective new resources and techniques.

During the 1996–97 school year, I examined the practice of three primary-grade teachers and their strategies for integrating new technologies into reading and language arts curricula. Although the findings are limited to these three case studies and therefore are not generalizable, the fact that these teachers attempted to develop their vision without threatening their peers has important implications for other practitioners who stand poised at the vanguard of school change.

What happens when a teacher tries to bring innovation into the classroom? That depends on how that person deals with collegial envy and jealousy. In my study, two of the teachers (one was Michelle) felt that, while comfortable with

continued on page 7

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HARVARD EDUCATION LETTER

Are High-Stakes Tests Worth the Wager?

Amid reports of test-score gains, researchers ask some tough questions about the consequences for Latino and African American students.

By Michael Sadowski

Choose the best answer to complete the following sentence: Standardized tests that are linked to graduation, promotion, and other high-stakes outcomes are . . .

a) a good idea because they create incentives for students, teachers, and schools to meet high achievement standards.
b) a good idea because they help to ensure that all students will graduate with at least a basic foundation of academic skills.
c) a bad idea because they stigmatize students who do poorly and exacerbate educational inequities along socioeconomic, racial, and ethnic lines.
d) a bad idea because they encourage a curriculum driven by fact memorization and test-taking "tricks" instead of critical thinking and other higher-order skills.

Poll the staff of any elementary, middle, or high school and you will probably get the full range of responses to this question in equal numbers. Similarly, education researchers are far from reaching a consensus about whether testing students for high-stakes outcomes actually improves learning. While some researchers seem to focus primarily on the potential and others on the pitfalls, many seem to agree that some key questions are not being asked in the current rush toward high-stakes testing. According to the latest figures released by the Education Commission of the States, a bipartisan policy group, 24 states now require students to pass exit tests before they receive their high school diplomas, and this number continues to grow as additional states phase in such requirements.

Such assessments appear to be popular—and becoming more so—with the majority of Americans: in a 1999 poll by the ICR Survey Research Group, 93 percent of respondents agreed with "making students meet adequate academic standards to be promoted or graduated." Taken in the light of a 1994 poll by Public Agenda that found that 80 percent of adults believed students should have to pass standardized tests in order to graduate from high school, those results suggest that public support for more student accountability is growing.

"Test construction is a social and political process. We cannot afford to lose sight of that fact."

Why are testing programs so attractive to the general public? In part because they have a largely unquestioned reputation for objectivity, says Aaron M. Pallas, professor of sociology and education at Teachers College, Columbia University, and co-author of a report on high-stakes testing for the Civil Rights Project at Harvard University. "Most standardized tests are viewed by the public at large as objective, which means several things: there are right and wrong answers to the test questions; unlike grades, which are awarded at the 'whim' of a teacher, standardized tests are standardized—scores don't depend on who is performing the assessment; tests yield numerical scores, which are precise measures of performance; and, like a laboratory measurement, test scores are reliable. Testing experts acknowledge that some of these assumptions are questionable," says Pallas. "Test construction is a social and political process, and we cannot afford to lose sight of that fact."

continued on page 2

INSIDE

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Currently on the web:

The Research Feature
This month, the focus is on high-stakes testing, with online links and other resources.

The Forum Feature
A conversation with school reform pioneer and *HEL* editorial board member Deborah Meier on "Will Standards Save Education?"

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Indeed, policymakers and political candidates have responded to—if not partly created—the public appetite for high-stakes testing as more and more of them propose accountability programs modeled after those already established in other states. Two of the most extensively studied—and controversial—of these programs are those in Texas and Chicago.

Texas Miracle or Mirage?

Education is the single most important issue to voters in this year's presidential election, according to a July Gallup Poll, so Texas governor George W. Bush's bid for the White House has turned all eyes to the Lone Star State's schools—and helped turn high-stakes testing into one of this year's big issues. The Texas Assessment of Academic Skills (TAAS), a group of tests required for graduation and used diagnostically in the lower grades, has both strong supporters and detractors.

Proponents of the TAAS, some of whom have referred to the tests as the "Texas miracle," point to the rise in test scores as evidence that the system is working. According to data released this year by the Texas Education Agency, students in that state set their seventh straight record-high passing rate on the TAAS. Preliminary results show that 80 percent of all students tested in grades three through ten passed the English version of the TAAS this past spring, a rise of two percentage points over last year and 27 percentage points over the 1994 pass rate of 53 percent. In addition, the score gap has narrowed between white youth and African American and Latino students since the tests were first implemented in 1989. Between 1996 and 1998 alone, pass rates for African American students rose from 76 to 82 percent, for Latino students from 76 to 83 percent, and for white students from 92 to 94 percent.

In July, Texas education officials received more good news when a report by the RAND research organization ranked the state second (only to North Carolina) among 44 states for its score gains on the National Assessment of Educational Progress (NAEP). Laura Bush, wife of the presidential candidate, cited the RAND report in her speech at the Republican National Convention in Philadelphia, saying it showed "that education reforms in Texas have resulted in some of the highest achievement gains in the country among all racial, socioeconomic, and family backgrounds."

However, some researchers contend that the rise in TAAS scores may be nothing more than that: an improvement in students' ability to perform well on that particular test. "Texas has made much of its claims of narrowing test-score gaps, but there is a lack of evidence of improvement except for the tests taught to," says Monty Neill, executive director of the National Center for Fair and Open Testing (FairTest) in Cambridge, MA. As for the RAND report, Neill says it paints an incomplete picture because, as RAND acknowledges, it does not include 1998 data and is heavily weighted toward mathematics. While RAND produced its rankings based on five NAEP math scores in three testing years (1990, 1992, and 1996), only two grade-four reading tests for 1992 and 1994 were included in the analysis.

Researcher Lauren Resnick suggests that testing offers a kind of structure and coherence that is lacking in some teachers' classrooms, especially those teaching in poorly funded schools.

"If you look at 1998 reading data, you see that Texas has not had a statistically significant gain in reading on the NAEP," Neill says. He adds that the NAEP reading score gap between African American and white students in Texas widened between 1992 and 1998, and reading scores for African American students actually went down. "One has to be careful of these kinds of analyses when they leave out reading," Neill says. "The data certainly suggest that the vaunted gains the TAAS is supposed to be having on learning do not show up elsewhere, except possibly in math." Whatever students' scores on the NAEP or the TAAS, Neill is quick to add that these kinds of tests are hardly adequate measures of what students should know and be able to do: "Though they are very hard to track, we should be asking ourselves instead what our schools do that makes a difference in terms of real-world outcomes."

Other researchers have also suggested that the passing rates tell only half the story. The other half, they say, is told by dropout and retention statistics for Texas students. In a recent report for The National Board on Educational Testing and Public Policy at Boston College, authors Marguerite Clarke, Walter Haney, and George Madaus note that high school dropout rates in Texas, particularly among minority students, are considerably higher than they were before the TAAS, and they speculate that there may be some connection between the attrition figures and the high-stakes assessments. The researchers cite previous research by Haney that showed minor fluctuations in dropout rates through the late 1970s and 1980s, but a sudden, sharp decline in the 1990–1991 school year, the first year the TAAS was required for graduation. Dropouts among black and Hispanic students were about 50 percent greater than among whites. According to Haney's findings, which are based on Texas Education Agency statistics, about 60 percent of all black and Hispanic 9th-graders in Texas went on to complete high school on schedule through most of the late 1970s and early 1980s, but in the years under TAAS, the numbers for each group hovered around 50 percent or slightly lower. White students graduated on schedule at a rate of about 70 percent in 1998 (the last year for which data were available), down slightly from the 72–78 percent range of figures seen in the late 1970s and early 1980s.

Also significant, the researchers say, are retention statistics for 9th grade, the year before students are required to take the exit-level TAAS. According to a Texas Education Agency report, 18 percent of all 9th-graders in Texas were retained at that level in 1997, and roughly one in four African American and Latino students were held back. This 9th-grade retention rate has been dramatically higher than the rate for all other grade levels through most of the 1990s. By contrast, only

2 percent of 8th-graders, 8 percent of 10th-graders, 5 percent of 11th-graders, and 4 percent of 12th-graders were retained in Texas schools in 1997. While it is difficult to draw conclusions about the reasons for the high 9th-grade retention rate, some have suggested that the TAAS is a major contributing factor.

At a recent Harvard Graduate School of Education forum on high-stakes testing, Angela Valenzuela, a research associate at the University of Texas at Austin, suggested that there may be strong reason to believe that some weaker students are being held at the 9th-grade level so that they will not lower their schools' average TAAS scores. "The state's accountability system was originally designed to hold school administrators and teachers accountable, but the main people who are being punished here are the children," Valenzuela said.

From the Editor

Listen this autumn as Vice President Al Gore and Texas governor George W. Bush promise to energize U.S. education with more parental choice, stricter accountability measures, character and civics education, improved school safety, and better access to educational technology. Listen closely—the same words from different candidates may have very different meanings—and celebrate the fact that after decades as a backburner issue in national politics, the education and future of our children is finally a topic of prime-time debate.

With education at the top of this election year's agenda, what better time to take advantage of the many resources offered on our website, **www.edletter.org**? You'll find back issues, research features, transcripts of forum discussions from the Harvard Graduate School of Education, and more. Since 1985, the nonprofit *Harvard Education Letter* has provided school practitioners, policymakers, education researchers, and parents with thoughtful, jargon-free articles about new research, helpful resources, and innovative practice in K–12 education.

As the new editor of the *Harvard Education Letter*, I'd like to offer a special word of thanks to Kelly Graves-Desai, outgoing editorial director, for her many years of dedicated service to the *Letter*. And I assure you we will continue to do our best to give you the information you need to help improve our nation's schools.

—David T. Gordon

Displacement and Distortion

Some researchers are also documenting what they consider to be the detrimental effects of the Texas tests on curriculum. Linda M. McNeil, professor of education and director of the Center for Education at Rice University, has studied the effects of TAAS on Texas schools and sees in her case studies a pattern of "displacement and distortion" of curriculum to make way for TAAS preparation. "There are classrooms where children read no prose from September to February," she says. Instead, McNeil adds, students read short, disconnected passages and answer questions about them in patterns similar to those seen on the TAAS exam. "They study information they are meant to forget. It's all artificial content to raise test scores."

Curriculum changes, McNeil says, when superintendents and school boards respond to political pressure to raise tests scores by passing that pressure on to teachers and building-level administrators. A recent study by James V. Hoffman, Julie Pennington, and Lori Assaf of the University of Texas at Austin and Scott G. Paris of the University of Michigan supports this finding. In their survey of 200 Texas teachers, 85 percent agreed that areas not directly tested on the TAAS "receive less and less attention in the curriculum." The modification of curriculum is affecting poor and minority youth the most, says McNeil, since many of them attend schools where scores are lowest and the pressure to raise them is greatest. "[Students of color] are not getting the same educational experience as kids in suburban schools," she says.

Finally, the TAAS poses special challenges to the large number of Latino students in Texas for whom English is their second language. Catherine E. Snow, a professor at the Harvard Graduate School of Education and president of the American Educational Research Association (AERA), says tests like the TAAS pose a difficult conundrum regarding the inclusion of these second-language students: "We can't ask questions about how these tests affect language-minority kids unless we include them, but how do we do this without bringing negative consequences down on them?"

Despite such complications, however, some researchers contend that a test-driven curriculum is better than no real curriculum at all. Lauren Resnick, director of the Center on Education at the University of Pittsburgh, has done extensive work in the areas of standards and accountability. While agreeing that "teaching to the test" is not the most effective approach to instruction, Resnick suggests that testing offers a kind of structure and coherence that is lacking in some teachers' classrooms, especially those teaching in poorly funded schools. "There are certainly some places where the curriculum is being dramatically narrowed to whatever types of items are on the test," Resnick says. "There are also places that five years ago were hardly teaching kids at all, especially poor kids. So now at least they're teaching them something, and it appears this is coming in the wake of high-stakes testing."

Under a new measure against social promotion passed by the Texas legislature, the TAAS will soon affect more than just 10th-graders seeking the state's permission to graduate: 3rd-, 5th-, and 8th-graders will also be required to pass TAAS exams in order to advance to the next grade.

Chicago Hope?

A similar promotional testing requirement has been in place in the Chicago Public Schools since the 1996–1997 school year, and research results are in on its first two years of implementation. Under the pol-

What the AERA Says About High-Stakes Testing

Pressure to raise test scores can force state- and district-level officials to make decisions that may run contrary to what's best for students, education researchers say. In an effort to provide research-based guidelines to policymakers, test publishers, and school personnel, the American Educational Research Association (AERA) has issued a position statement on the use of high-stakes testing in pre-K–12 education. According to its authors, the statement presents "a set of conditions essential to sound implementation of high-stakes testing programs." The conditions, summarized here, include:

Protection Against High-Stakes Decisions Based on a Single Test

"Decisions that affect individual students' life chances or educational opportunities should not be made on the basis of test scores alone . . ." At the very least, the AERA recommends that students be given multiple opportunities to pass high-stakes tests and that alternative forms of assessment be provided where there is "credible evidence" that a test may not measure a child's true level of proficiency.

Adequate Resources and Opportunity to Learn

Before students, schools, and districts can be "passed" or "failed" by high-stakes tests, they must have access to the materials, curriculum, and instruction to enable them to succeed on such assessments: "When content standards and associated tests are introduced as a reform to change and thereby improve current practice, opportunities to access appropriate materials and retraining consistent with the intended changes should be provided before schools, teachers, or students are sanctioned for failing to meet the new standards."

Validation for Each Separate Intended Use

Tests must only be used for the purposes for which they are valid, and each use of a particular test must be subject to "a separate evaluation of the strengths and limitations of both the testing program and the test itself."

Full Disclosure of Likely Negative Consequences

"Where credible scientific evidence suggests that a given type of testing program is likely to have negative side effects, test developers and users should make a serious effort to explain these possible effects to policymakers," recommends the AERA.

Alignment Between the Test and the Curriculum

The test should reflect the curriculum in both its content and the cognitive process involved: "High-stakes tests should not be limited to that portion of the relevant curriculum that is easiest to measure." To avoid the problem of "teaching to the test," the AERA recommends using multiple test forms "to avoid a narrowing of the curriculum toward just the content sampled on a particular form."

Opportunities for Meaningful Remediation

Students who fail a high-stakes test should be given a second chance, and "remediation should focus on the knowledge and skills the test is intended to address, not just the test performance itself."

Additional conditions for sound testing implementation outlined in the statement include: setting valid and appropriate passing levels; taking into consideration language differences among examinees; paying appropriate attention to students with disabilities; and performing ongoing evaluations of the intended and unintended effects of high-stakes testing.

"These are all criteria that we believe have to be put in place in order for testing to be fair," says AERA president Catherine Snow. "Right now, there's not a state in the union that's abiding by all of them." The full text of the AERA position statement is available online at **www.aera.net**. □ —*M.S.*

icy, Chicago 3rd-, 6th-, and 8th-grade students must achieve a certain cut score on the Iowa Test of Basic Skills (ITBS) in reading and mathematics to advance to the next grade. Because of low baseline test scores among Chicago students, school officials set the score requirements for promotion at one year below grade level for grade three, 1.5 years below grade level for grade six, and 1.8 years below grade level for grade eight. Students who do not meet the required score are required to attend a six-week program called Summer Bridge and repeat the test at the end of the summer. If they fail the test again, they are retained in grade for that year. Students can also attend an extended-day remediation program called Lighthouse. School officials have made exceptions to the policy for students participating in bilingual and special education programs.

In a study called "Ending Social Promotion: Results from the First Two Years," researchers from the Consortium on Chicago School Research have reported some encouraging preliminary results. The data show that ITBS scores have improved significantly under just two years of the policy, with 20 percent more 6th-graders and 21 percent more 8th-graders reaching the minimum cut score in 1997 than in 1995 (before the scores were used as promotion criteria). The evidence suggests that the high stakes of the tests and the remediation programs are in some way combining to help students raise their scores, the researchers say. They also note that the positive news about test scores has brought a great deal of attention to the Chicago policy, including this mention in President Clinton's 1999 State of the Union address: "When we promote a child from grade to grade who hasn't mastered the work, we do that child no favors. It is time to end social promotion in America's schools. Last year in Chicago, they made that decision. . . . I propose to help other communities follow Chicago's lead."

Some educational researchers, however, are less eager to call for an end to social promotion based on these findings. Jay P. Heubert, associate professor of education at Teachers College, reports that the news we get from research about retention is almost all bad: "Nearly all of the research on retention shows that it has

strong negative effects on kids," he says. Heubert and Robert M. Hauser, a sociology professor at the University of Wisconsin at Madison, cite numerous studies on the effects of retention in a 1999 National Research Council report they edited, entitled *High Stakes: Testing for Tracking, Promotion, and Graduation.* The preponderance of studies, they note, link retention to such negative student outcomes as lower levels of academic and social success and much higher risk of dropping out. (See "Retention vs. Social Promotion: Schools Search for Alternatives," *HEL*, January/February 1999.)

The Chicago consortium's findings, though impressive in terms of test scores, also seem to suggest that retention may be having a detrimental effect on students. Under the promotion test policy, the researchers note, "only one-fourth of retained 8th-graders and one-third of retained 3rd- and 6th-graders in 1997 made 'normal' progress during the following school year, meaning that they stayed in the school system, were again subject to the policy, and passed the test cutoff the next May."

Like the rise in TAAS scores, the Chicago students' higher scores on the ITBS have also led some researchers to wonder if they represent real gains in academic skill or just improved test-taking ability. The data are inconclusive, but lend some support to the latter hypothesis. According to the consortium's report, "the picture is mixed on whether getting students up to a test-score cutoff in one year allows them to do better the next year." Test-score increases for students participating in the Summer Bridge program, for example, were not followed by improved performance during the subsequent school year and may be the result of "testing effects versus learning gains," the researchers say.

The numbers of those who pass the tests may tell only half the story. The other half is told by dropout and retention rates.

Finally, Heubert notes that the publishers of the ITBS, Riverside Publishing, have said that the tests are invalid for retention and promotion decisions. Heubert says, "Chicago is failing tens of thousands of kids each year, almost all minority and almost all likely dropouts. And the top brass knows the test they're using isn't even valid." Philip Hansen, chief accountability officer for the Chicago Public Schools, disputes that claim: "The tests are used to determine who goes to summer school, and students get three chances to retake the test, with remediation in between, before promotion decisions are made. There's no evidence our promotion policy doesn't work, but those who are philosophically opposed to standardized tests will blast anything we do."

New Guidelines

Even those researchers who are holding high-stakes testing programs up to the closest scrutiny insist they are not against testing; they simply want a more critical review of its results and a more careful consideration of all its consequences. "Used properly, tests can be very helpful. Used poorly, they can do considerable harm," says Heubert.

To provide guidance to educators and policymakers on the fair and appropriate use of testing, the AERA issued a position statement this past summer outlining a set of conditions that should be met by any educational testing program (see sidebar, page 4). These include using more than a single test for making high-stakes decisions about students, the provision of adequate resources and opportunities to learn, the alignment of tests with curriculum, and the full disclosure of the likely negative consequences of testing. The U.S. Department of Education's Office for Civil Rights is also preparing a resource guide on the use of high-stakes testing for educators and policymakers. It will focus on considerations for appropriate test use and the legal ramifications of high-stakes testing, especially those affecting second-language learners and students with disabilities.

"Tests can be a valuable part of a student's education," says Marguerite Clarke, associate director of the National Board on Educational Testing and Public Policy and assistant professor of research at Boston College. "But when they become the driving force behind educational reform, they can become corrupted. In this kind of environment, attention focuses almost exclusively on the test at the expense of other aspects of the education system. High-stakes testing can then lead to low-level learning." That's an outcome a public hungry for accountability may not be able to stomach. □

Michael Sadowski, former HEL *assistant editor, is a doctoral student at the Harvard Graduate School of Education.*

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Portrait of the 'Super Principal'

After a tumultuous decade of reform, principals work longer hours, have more stress, and get less thanks. Is there any way to make this job more attractive?

By Milli Pierce

According to a 1998 report published by the National Association of Elementary School Principals (NAESP), the typical elementary school principal a decade ago was a 45-year-old white male who worked 40 hours a week with most of the summer off, had authority for 17 percent of his budget, and belonged to a principal's association or union. He spent little time in the classroom, functioning more as a manager, and aspired to ascend the career ladder.

Today's principal works longer hours, is less appreciated, has greater accountability, and has little time to learn or think about how to manage competing demands and constituencies, according to the NAESP report. While still white and male, the typical principal is now 50 years old, with an annual salary of $61,000. He works ten hours a day at school and another eight hours on weekends or evenings. He controls 26 percent of the school's budget. Most of his time is spent in three areas: staff supervision, interaction with students, and discipline/student management. This principal can retire at age 57 and—eager to be relieved of work that was once rewarding—probably will.

The widespread demand to improve student performance is at a fever pitch. Forty-nine states now have mandated curriculum standards. Charter schools, home schooling, vouchers, and other alternatives to traditional public schools have provoked new pressures no principal could have anticipated 15 years ago.

In this era of accountability and high-stakes testing, raising achievement scores is just one of the challenges confronting today's "super principals." Facing multiple instructional priorities with layered administrative tasks, principals spend time on teaching and learning, ensuring that teachers have the support necessary to do their work, while at the same time making sure the cafeteria and grounds are safe and orderly. Creating a learning community requires planned pursuit, yet principals can be easily consumed by everyday "urgent but unimportant" matters. Their quandary is whether to learn to carve out time to supervise and coach teachers and work with them on professional development plans that support real school improvement, or to risk leading a disaffected, low-performing school community.

No longer are schools self-contained institutions where outsiders come in only when they are invited. Many contemporary schools are truly community facilities, offering before- and after-school care, along with a host of other social services. Many such schools offer community education programs four nights a week, ending only at 11 o'clock. Though these programs have appointed coordinators, most principals in these settings feel compelled to be at the school during most, if not all, of its hours of operation. As one New York principal says, "I'm here until almost midnight. I am responsible for this school, so I am the last one to leave each night."

The wall between school and community has come tumbling down. "Out there" is now "in here."

As Michael Fullan of the University of Toronto has noted, the metaphorical walls of the school have come tumbling down. "Out there" is now "in here," as government policy, parent and community demands, corporate interests, and ubiquitous technology have all stormed the walls of the school. The relentless pressures of today's complex environments have intensified the workload for principals.

In a study conducted by the Montana School Board Association, principals ranked "long working hours" as their primary source of stress. No wonder. The typical elementary school principal works between 50 and 70 hours a week, including evenings and weekends. When I mentioned this fact to a group of suburban high school principals, they said, "Yeah, those are our hours on a slow week." No wonder that school districts seeking principals advertise nationally and come up empty-handed.

Performance-based funding has added to increasing pressure on principals. On a recent visit to a large urban district, I noted how disingenuous local leaders managed to quietly shift district funds from low- to high-performing schools. Some low-performing schools do not have enough books for children to take home to complete homework assignments. Others have no access to technology, and some struggle to implement central office–mandated curricula. Such heavy-handed administrative practices fail to include the very people who are ultimately held responsible for school improvement: principals.

Musical Chairs

The preferred school improvement strategy of too many central offices involves a game of "principal musical chairs." Often principals are removed before the school has a chance to show improvement in test scores. Recently I met an urban principal, the seventh in four years at her school, who remarked about the difficulties of trying to get teachers to take their teaching seriously. Teachers who stubbornly refuse to change feel they can and will wait her out, she says. In the 1980s, teachers and principals engaged in collective bargaining. Today, principals are often stuck with a one-year contract while teachers remain tenured.

The contemporary principal must also have a skill set that encompasses technology and its many uses. Discussions about the number of computers in a class is silenced by more substantive issues such as

how to plan for technology that will improve classroom instruction and relieve administration functions. Keeping up with advancements is a beastly burden. Couple this with securing the resources to outfit a school with hardware and software and a principal can be overwhelmed. While the tasks of a technology coordinator could and probably should belong to someone else, data suggest principals are assuming this responsibility, too, according to the 1998 NAESP report. Technology is, after all, part of the school curriculum plan required of the principal.

In a study of principals and their perceptions of their changing roles, "increased responsibilities" were reported in 11 job-related areas. Seventy percent noted increased marketing responsibilities. Seventy-six percent of urban principals noted increased responsibility for site-based professional development. The irony is that principals with responsibility for site-based professional development are often bound by collective bargaining rules. In many districts, professional development time varies from one hour a week to one hour a month.

Almost all principals (92 percent) have sole responsibility for supervising and evaluating staff. The remainder share this responsibility with others within the school's departments or with central office directors/supervisors. In schools with more than 600 students, principals typically delegate some of this responsibility to assistant principals. According to the NAESP report, principals are also now responsible for teacher involvement in instructional improvement, and for structuring opportunities for creative scheduling, teaming, and project-based learning, so that teachers can work together during the school day to improve instruction.

Who Hires?

Yet many principals do not have a say in which teachers get hired. In too many cases the central office is solely responsible for hiring. In urban school districts where teacher selection could play a significant role in student achievement, principals have far less authority than their suburban and rural counterparts. Since a majority of principals surveyed have responsibility for supervision and evaluation, it is reasonable to expect that they have a choice in who will deliver the ces they must evaluate. Principals welcome the opportunity to select faculty for their school. Indeed, in schools where principals do get to choose faculty members, they have a higher level of satisfaction and sense of balance between responsibility and authority in the role.

What can be done to improve the lot of today's "super principals" and to attract new talent to the profession? First, it's worth noting that, in spite of the rapid changes in the profession, many principals love their work. A focus group conducted by the Maine Leadership Academy on problems associated with changing leadership exposed long hours, stress, lack of suitable compensation, and relationship problems as key reasons why principals are dissatisfied. Despite these concerns, the panel participants acknowledged their own feelings of deep satisfaction with the leadership role inherent in the principalship.

Many mistakenly believe that people of color are role models only for the children who look like them.

They also feel that their colleagues should understand that schools are changing institutions in our society, and that paramount to establishing reasonable leadership responsibilities is the need to clarify the principal's role and improve preparation for that changing role accordingly. Creating a job description that clarifies the expectations and responsibilities of principals, including districts' expectations, would help principals establish and fulfill realistic priorities.

Two-Leader Approach

There are other potential solutions to this conundrum. For example, perhaps two leaders are needed in every school: a principal teacher and a principal administrator. The principal teacher would have a well-established teaching history rooted in strong instructional practice. This person would spend the year supervising teaching teams, coaching, giving feedback, and teaching teachers to engage in deep, reflective practice based on unambiguous learning outcomes. The principal teacher would be accountable for student achievement, curriculum, and technology, and have authority to hire and fire.

Meanwhile, the principal administrator's responsibilities would focus on plant management, including capital improvements, transportation, food, secretaries and custodians, scheduling, data collection, and parent involvement. This person would be accountable to the principal teacher. Since student achievement would eclipse all else in the school, the principal administrator's role would be to support that effort.

Embedded in the call for improvement of the principal's lot is also a call for more diverse leadership. At a time when we have more people of color and women with advanced degrees, too few are being appointed to leadership positions. While women have made notable gains, educators of color who ascend to school leadership posts almost exclusively serve in minority and/or poor school communities. Many mistakenly believe that people of color are role models only for the children who look like them. But, if diversity is to be taught and modeled, children of all colors must see teachers and leaders of all colors.

While many principals feel the sand shifting under their feet during this time of reform, the men and women who take on the role of principal do so because they believe they can make a difference for children—and most believe they are doing just that. Still, many principals express concerns for the future of the principalship. Longer hours, increased stresses, and inadequate compensation will not make the position attractive to the best of the best. There are 93,000 principals in the United States. As retirement looms for at least half of those currently practicing, the key to recruiting and retaining the best of the best lies in how we define the position and support new recruits.

Well-articulated goals, accountability with authority, support from superintendents, protection from political interference, and a critical look at teacher tenure might make the difference for those who want to pick up the mantle but are reluctant to lose a limb in the process. □

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We Need a Better Understanding of Inquiry in Instruction

By Frank X. Sutman

Many national and state science education instructional documents propose inquiry as a standard for learning without saying what it really means. For instance, the National Research Council's recently released report, *Inquiry and the National Science Education Standards*, presents examples of inquiry practices, particularly in science classrooms, but no clear definition.

Yet studies conducted by this author and his students through Temple University's Center for Science Laboratory Studies, as well as research reported by M. D. Herron (see his 1979 article, "The Nature of Scientific Enquiry," in *The School Review*) and later reports reveal that providing examples alone does not increase teachers' ability to understand this approach to instruction. While instructional materials can update content and involve students in more hands-on experiences, they do not necessarily foster opportunities for students to practice inquiry in instruction when it is defined simply as *the single process of students asking relevant questions about issues to which they do not possess predetermined answers.*

In covering content, teachers may ask students so many questions that there is little time for students to inquire.

Student discovery is key to effective inquiry, in that students must become involved in processes that, when practiced, allow them to discover the answers to their inquiries. Examples of such "discovery" processes include mathematical manipulation of data, searching appropriate websites for interpretations, etc. The questions students ask and the opportunity they have to discover the answer are closely linked. Our studies have produced the following findings that can help provide a better understanding of students' practice of inquiry/discovery:

• Inquiry/discovery-oriented instruction can be viewed as existing at one end of an instructional continuum with didactic instruction at the opposite end. Yet it is possible to carry out instruction that offers students an opportunity to practice inquiry/discovery processes at various levels along this continuum. The role of discussion in instruction is almost always incorrectly associated by educators with the didactic end of the continuum, but discussion is a natural outgrowth of inquiry/discovery processes.

• Students' efforts toward discovery depend upon readily available and varied sources of information, such as appropriate textbooks, handbooks, field guides, websites, CD ROMs, and contact with knowledgeable professionals. Teachers who limit sources of information to a single textbook—and to the teachers' own answers to student questions—don't prepare students for the real world of work. Even when varied resources are available, teachers tend to be impatient and to use their time to cover a great deal of content rather than to uncover concepts and principles. In doing so, teachers may ask students so many questions that there is little time for students to ask their own questions or to inquire.

• While hands-on laboratory experiences can and should play a central role in offering students the opportunity to practice inquiry/discovery processes, such experiences in themselves do not assure that student inquiry/discovery will occur. Hands-on experiences work only when they are the central component of well-planned sequences of lessons designed to explore problems, develop procedures for addressing problems, carry out agreed-upon procedures that provide answers to student inquiries, and allow follow-up discussion.

• Students who are given an opportunity to experience higher levels of inquiry/discovery in instruction surpass those who experience didactically oriented instruction, not only in learning content but also in the development of first- and second-language skills. And when the inquiry/discovery approach is emphasized—for instance, in subjects like science that naturally encompass mathematics and language—these skills are also enhanced.

• Our research also indicates that science teachers in grades 7–12 and in the early postsecondary years spend 90 percent of their time during laboratory-based instruction responding to students' procedural questions, leaving little or no time for students to practice and develop skills associated with inquiry. Couple this with the pressure to cover a great amount of content, and one can see why the present overcrowded curriculum has been blamed for the unacceptable performance of American students on the Third International Mathematics and Science Study (TIMSS) assessment.

Inquiry/discovery in instruction has also been referred to by terms such as "student centered, "progressive," and "constructivist," thus creating confusion among teachers and other educators about a non-didactic approach to instruction. We have proposed that this approach be referred to as inquiry/discovery and that it be simply and functionally defined. This is a necessary first step in assuring that reform in instruction occurs and that the reform becomes widespread and lasting. ■

Frank X. Sutman is a senior scholar in education at Temple University and director of Rowan University's Curriculum Development Council.

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INSIDE

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Currently on the web:

The Research Feature
This month's focus is on new physical education programs, with online links and other resources.

The Forum Feature
The Great Homework Debate, featuring Etta Kralovec and John Buell, the authors of *The End of Homework*, and others

Also visit our past research features, including those on student journalism, the arts in education, and cooperative learning.

Getting a Jump on Good Health

As obesity rises and activity levels fall, many schools are trying new phys ed curricula that aim to teach students healthy practices that will last a lifetime

By Sara-Ellen Amster

Remember how discouraging it was in gym class to always get stuck out in right field during softball games or to be the first one eliminated in dodge ball? Remember the embarrassment of futilely trying to do chinups or climb a rope in front of 30 other kids? For many adults, attitudes about physical fitness and health were shaped by demoralizing experiences in physical education (PE) class—a factor that may in part help explain that while athletes and models are idealized in the popular press, obesity and inactivity among the general population persist.

Now some schools are working with education and health researchers to implement new PE programs that are more engaging and exciting for all children. This development is fueled by a spate of recent studies showing that an increasing number of young people spend their free time gulping snacks or fast foods, watching TV, listening to CDs, surfing the Internet, and playing video games, rather than playing outdoors with friends.

The percentage of overweight young people—14 percent of children aged 6 to 11 and 12 percent of those aged 12 to 17—has more than doubled in the past 30 years. From 1991 to 1997, daily participation in physical education dropped from 42 to 27 percent, according to the Centers for Disease Control (CDC). Less than 20 percent of students who live within a mile of school walk there. In fact, almost half of young people aged 12 to 21 and more than one-third of high school students get no vigorous exercise on a regular basis, says the CDC.

Girls—and especially minority girls—are on average less active than boys, and their participation in PE drops off once they hit middle school, according to a nationwide study of adolescent physical activity published in the June 2000 issue of the journal *Pediatrics*. In the study, researchers at UNC's Carolina Population Center argue that American kids, especially minority girls, don't get enough exercise. Drawn from an analysis of the 1996 National Longitudinal Study of Adolescent Health of 17,766 middle and high school students, the study shows that only 21.3 percent of all adolescents participate in PE classes at least once a week.

In a country of couch potatoes, teaching kids the value of exercise is essential.

These trends come at a time when PE programs are easy targets for budget cuts, as schools divert resources from classes and activities deemed "nonessential" toward more obvious needs, such as technology purchases and preparation for standardized tests. Only Illinois requires a daily PE class for all K–12 public-school students.

Yet in a country of couch potatoes where heart disease, hypertension, and adult-onset diabetes are rampant, teaching kids the value of exercise is essential, says Howell Wechsler, a researcher in the CDC's division of adolescent and school health who specializes in PE. "I think a lot of people are starting to understand the reality of the childhood obesity problem, which has grave consequences if it's not reversed. Policymakers must start realizing you just can't ignore this. Something must be done."

The CDC is supplying seed money to school projects in 20 states and two cities—Milwaukee and New York—in an effort to boost physical activity, improve nutrition,

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and reduce tobacco use among young people, says Wechsler. These programs aim to demonstrate how schools can put into practice the CDC's 1997 "Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People," which encourages teaching physical fitness skills and habits kids can take with them into adulthood.

In September, the National Institutes of Health (NIH) began a new study of adolescent girls, especially minorities, that seeks to uncover ways both inside and out of school that will make girls more interested in physical activity and fitness. Researchers will experiment with PE programs at 30 schools, trying to make them more interesting to students and link the programs to community agencies. After analyzing the interventions, researchers hope to learn whether physical activity levels increased and what connection, if any, that would have to academic performance, says Elaine Stone, a health science administrator at the NIH. "We hope to turn this decline [in children's health] around, so that later on there's less obesity and sedentary behavior and lower health-care costs."

The New PE

The NIH is not alone in its judgment that in order to improve children's health we need to change the way PE classes are structured. Across the country, educators and researchers are experimenting with ways to make physical education more relevant to students' lives, so that students learn that exercise can be an enjoyable and satisfying part of life.

The new PE makes fitness fun and leaves no one on the bench. In most cases, that means doing away with highly competitive team sports that leave many kids on the margins of gym class and those dreaded fitness tests (chinups, situps, laps on the track, etc.) that can publicly humiliate many students.

It means adding a greater variety of games and activities, especially those for small groups, so that all students will enjoy PE, not just athletes. The best programs, say researchers, emphasize cooperation and fair play while making sure everyone gets an equal chance to participate. Nontraditional sports such as skateboarding, handball, and dance may find a place in the curriculum, particularly if children request them.

"We need more sports where everyone can play," says Susan Wooley, executive director of the American School Health Association (ASHA). "For the athletically inclined, interscholastic sports are great, but the kid who is obese and uncoordinated is not going to get picked and will sit on the bench." In addition, research shows that team sports do not interest girls as much as individual and dual activities, according to the NIH's Stone.

Schools that teach mainly team sports do not adequately prepare students for physical fitness as adults, says James Sallis, a San Diego State University psychol-

Unlike traditional gym class, the new PE is designed to help each student develop a personal lifetime fitness program.

ogist who researches physical education. "High schools focus on football, basketball, soccer, and other team sports, but the percentage of adults who do those kinds of things is in the single digits. It's better to teach jogging, tennis, and brisk walking. Why couldn't a high school gym look more like a fitness center?" In addition, many schools have too little or inadequate sports equipment. Teaching 30 students to play basketball with three balls is like "trying to teach reading to a class of 30 with three books," says Sallis. George Graham, a professor of physical education at Virginia Tech University, adds, "Kids are better off without some physical education programs. They turn kids off to physical activity and convince them they are no good [at exercise]. You go into a gym and see a few kids playing basketball and many sitting in the bleachers."

That rings a bell with Sean Gardner, 17, a recent graduate of Hamilton High School in Los Angeles, where PE was required daily through sophomore year. He says some of his classmates balked at PE. "A lot of kids were lazy or they weren't that good at sports and sometimes that would slow down the kids who did want to participate. I'd say the best thing we could do for them is give [disinterested students] more attention and find the things they like to do."

An 'Alphabet of Movement'

SPARK (Sports, Play, and Active Recreation for Kids) is one innovative K–6 PE program currently being used in 700 schools across 16 states. The program emphasizes using small teams to help build both athletic and social skills. For example, in a SPARK softball game, teams are made up of just five players. When a batter hits the ball, fielders must toss it to every player before the batter reaches home. This keeps everyone involved and active in the game, and leads to less goofing off, say teachers who use the program. Soccer is different, too, played on mini-fields by teams of three. SPARK aims to teach kids self-control and an acceptance of personal differences—concepts that can benefit classroom management in other subjects, says executive director Paul Rosengard.

Perhaps SPARK's most successful project is found in the Memphis schools, which contain all of the ingredients of a large urban district (with 102 elementary schools serving 66,000 students, 86 percent of them African American). Phyllis Richie of the University of Tennessee studied SPARK in 19 public and private schools in the Memphis area for two years. Students in the SPARK program were far more active in gym class—in motion at least 50 percent of the time—than students in the control schools taking traditional gym classes. Encouraged by the findings, the city school board plans to hire 250 physical education specialists over the next four years and increase PE classes for K–6 students to a mandatory four days a week.

Another well-studied project is CATCH PE, which is used in more than 1,000 schools in 30 states. CATCH PE, like SPARK, sprang from research supported by the NIH's National Heart, Lung, and Blood Institute. In a three-year trial at 96 elementary schools, CATCH PE was employed to improve children's health, especially cholesterol levels, by reducing saturated fat in school lunches and increasing time spent engaged in

moderate to vigorous activity during PE. Many of the physical education concepts of CATCH, now known as the Coordinated Approach to Child Health, are similar to SPARK. But this program also has a "substantial classroom component" focused on family intervention, smoking prevention, and nutrition, says Thomas McKenzie, a professor of physical education at San Diego State University who helped develop both CATCH and SPARK.

CATCH teaches instructors to reduce the time needed for set-up and to reject elimination games, which can make some kids disinterested by sidelining them, says Peter Cribb, CATCH project director for the University of Texas Health Science Center. For example, instead of sitting down on the bleachers, children who are declared "out" in a game of tag are given reentry tasks, such as jumping rope, before they can rejoin the game, he says. "The CATCH curriculum reflects a fundamental change in what our goals are," says Cribb. Experts who once urged PE teachers to "test, test, test" now say PE testing is less important than inspiring children to choose activities they enjoy and to remain physically active, he says.

More than 650 elementary schools in Texas have adopted CATCH PE, says Cribb, and the University of Texas has trained staff at 300 of them. A study of CATCH by the NIH has found that its lessons persisted into early adolescence for self-reported dietary and physical activities. That's important because middle school is seen as the next critical step for physical education, the place where many children begin to opt out of exercise.

The Exemplary Physical Education Curriculum (EPEC) features more basic lessons geared toward elementary schools. It is used in 10 states, most prominently in Michigan, where 700 PE teachers use the program in half of the state's districts. EPEC has been adapted and extended to middle schools for the current school year, and will be further adapted for high schools.

Students learn how to set up a personal exercise program and monitor their progress, says Glenna DeJong, developer of the nonprofit program. EPEC teaches students "an alphabet of movement" that prepares them for a variety of fitness activities, she says. She adds that EPEC emphasizes social skills, including compassion, putting forth the best effort possible, being responsible, and being flexible. "We hold teachers and students accountable," she says. "We don't believe just running kids around is physical education. We could pay a playground supervisor to do that."

Linda Brown, a physical education teacher for 27 years, says she was apprehensive about using the program, but that it improved her effectiveness by teaching her how to keep all the kids active at once and give students instruction on physical movement in basic steps. The kids get homework assignments just as they do in academic subjects, says Brown. They may have to throw a ball the correct way against a wall 10 times or teach a family member to skip.

Lifetime Fitness

Many high schools are also experimenting with new types of physical education. One such program—Fitness for Life, Personal Fitness, and Conceptual Physical Education—is used by schools for dependents of U.S. military personnel and by high schools in seven states. Unlike traditional physical education programs that may focus on team sports, these programs are designed to help each student develop a personal lifetime fitness program, says Charles B. Corbin of Arizona State University, Tempe. Corbin co-authored a textbook that is commonly used in such courses, and also co-authored the 1998 Physical Activity Guidelines for

continued on page 7

A PE Checklist

Some of the CDC's recommendations for improving physical education and promoting healthy living include:

- ✓ **PE Curricula**—Emphasize fun activities and help students develop the knowledge, attitudes, motor and behavioral skills, and confidence they need to adopt and maintain physically active lifestyles. Make sure there's something for everyone by providing programs that meet the needs and interests of all students. Emphasize skills needed for lifelong activities (e.g., dance, strength training, swimming, bicycling, jogging, and hiking) rather than those for competitive sports. And don't forget to teach kids important behavorial skills like self-assessment, self-monitoring, and goal-setting.
- ✓ **Daily Exercise**—Require daily PE classes that allow students to be physically active for at least 50 percent of the class time.
- ✓ **Resources**—Provide adequate equipment and the physical and social environments needed to encourage all students to take part in safe and enjoyable physical activities. This includes ensuring a student-teacher ratio comparable to those in other subjects.
- ✓ **Parents**—Develop extracurricular sports and recreation programs that parents and students can share.
- ✓ **Teacher Training**—Not just anybody can teach PE. Make sure teachers have the training and professional development they need to instruct students in healthy living.
- ✓ **Health Services**—Assess physical activity patterns among young people and refer them to appropriate programs.
- ✓ **Evaluation**—Regularly look for ways to improve school and community PE instruction, programs, and facilities.

Adapted from "Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People," written by the Centers for Disease Control and Prevention. For a free copy, write to: CDC, MMWR MS(C-08), Atlanta, GA 30333; 800-843-6356. Or read it on the Web at **http://wonder.cdc.gov/wonder/prevguid/m0046823/entire.htm**

For further information

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CATCH PE, Peter Cribb, Director, Center for Health Promotion Research and Development, 7320 North Mopac, Suite 204, Austin, TX 78731; 512-346-6163; fax: 512-346-6802. **www.sph.uth.tmc.edu/catch**

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PE Central, a website with lots of useful resources and information, can be accessed at **www.pecentral.org**

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Will New Standards Bring Peace to the Math Wars?

After a decade of controversy, the NCTM issues new guidelines that continue to favor problem solving while giving a nod to basic skills

By Andreae Downs

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On a rainy May Tuesday, Monica Matrisciano's 5th-grade math class is tackling fractions. For these 19 preteens there are no worksheets, no rules or procedures to learn. Instead, they work on a word problem—how to convert a recipe for 20 medium-sized brownies into a recipe that will feed 240 kids at snack time. In groups of three or four, the students first figure out how many brownies they will need, and then work on multiplying the ingredients by a factor of 12. They have no problem figuring out how many eggs and how many cans of condensed milk they will need (12 of each).

Trouble comes with the flour—a cup and a quarter—and other measurements that involve fractions. Since they have not been taught how to multiply fractions, they have to figure out a method themselves. They all struggle. Some kids add the fractions 12 times. Others convert fractions to decimals, multiply, then convert back into fractions. Matrisciano points out that in this exercise estimation is not an option—too much or too little of any one ingredient could ruin the whole batch.

This is not the kind of math class Matrisciano or her students' parents would have experienced. Gone are the multiplication tables, the drill-and-practice long division. In this Massachusetts public school where a so-called "reform curriculum" is used, Matrisciano aims to help students develop skills of reasoning, inquiry, and discovery, and to understand math concepts and principles. She doesn't give them the answers, or even show them what methods to use. "I want them to synthesize what they knew before and apply it to a situation that is like one they would meet in the real world," she says. Although it is tempting to tell them what methods to use to find the solution, she says, "every time I do, they don't get as much out of it. This is much more thoughtful."

Grassroots Ruckus

Not everyone would agree. Across the United States, dramatic changes in mathematics curricula during the past decade have sparked an intense political and pedagogical debate about what should be taught—and how. Anxious parents look askance at wordy math books. University professors complain that incoming students can't tally a column of figures or move a decimal point correctly. Conservative pundits scoff at "fuzzy" problem-solving and critical-thinking lessons that seem to say that two plus two isn't as simple as all that. For years now, parent-led grassroots groups have raised a ruckus about California's 1992 state frameworks for math reform. Similar squabbles have erupted in states like Texas, Iowa, and Michigan. In Massachusetts, education officials recently passed a controversial curriculum that was the result of a protracted battle with reform-minded educators who say the document is still too focused on computation.

The new NCTM guidelines put more emphasis on basic skills such as computation and offer more detail for the application of standards.

Like most reform controversies, these Math Wars find their origins in *A Nation at Risk*, the 1983 presidential commission report that warned, among other things, that U.S. kids were not keeping up with their overseas counterparts on standardized math tests. In response, the National Council of Teachers of Mathematics (NCTM) issued its *Curriculum and Evaluation Standards for School Mathematics* in 1989. In developing new standards for learning, teaching, and testing mathematics, the NCTM aimed to make math more engaging for all students by emphasizing practical, problem-solving activities in real-life contexts, rather than just arithmetic.

The NCTM's new guidelines, *Principles and Standards for School Mathematics*, issued earlier this year, place a greater emphasis on the importance of basic skills such as computation, provide a set of 10 standards to be applied across the grades, and offer more detail for the application of standards in the elementary and middle grades. The document also makes corrections to the 1989 frameworks, in which some areas of math were overlooked and, incredibly, a few sample problems had incorrect solutions.

Some of the same mathematicians who criticized the earlier standards were consulted on the new version. Already the changes have won praise from critics such as R. James Milgram, a Stanford University mathematician who is aligned with Mathematically Correct, an organization of parents and mathematicians opposed to NCTM-based curricula implemented in California. Milgrim says the new standards acknowledge that getting the right answer and learning standard algorithms are important, something he says the original standards failed to do. "[The NCTM] realized that most students regard the subject as a total tedious bore," he says. "It takes a good deal of maturity to realize that goals worth achieving usually require a huge amount of developed foundational skills and preparation."

Clarification or Correction?

The NCTM regards the revision as a clarification, not a correction, of the 1989 standards. It points to gains on the 1996 National Assessment of Educational Progress (NAEP) and in SAT math scores as evidence that the earlier guidelines

were successful, if sometimes unclear. For example, between 1990 and 1996, student performance on the NAEP math component improved about one grade level. States like Connecticut, Michigan, and North Carolina, which have adopted standards-based curricula and assessments, made the most significant gains. Meanwhile, average SAT math scores increased nationwide from 500 in 1991 to 512 in 1998. Although the NCTM acknowledges that these gains could possibly be attributed to other factors, such as school reform, it insists that they provide important evidence that math reform is succeeding.

Other statistics would seem to support the NCTM position. For instance, in 1999, the 35 Massachusetts districts that scored highest on the 4th-grade state math test were using standards-based curricula, according to the Alternatives for Rebuilding Curricula (ARC) Center in Lexington, MA, a math project funded by the National Science Foundation. In the Los Angeles Unified School District, the number of African American students who completed the first mathematics college-prep course with a C or higher increased by 73 percent between 1995 and 1998, while the scores of Latino students rose 49 percent, according to district data cited by the Achievement Council.

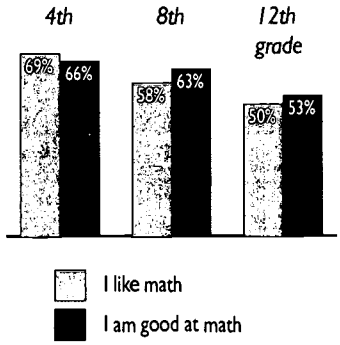
Supporters of the NCTM standards say the most convincing evidence comes from studies of reform-based programs, such as Everyday Math and the Interactive Mathematics Program. Highlights of these studies include the following:

- Researchers Karen Fuson of Northwestern University and William Carroll of the University of Chicago's School Mathematics Project compared test and interview results for 5th graders in the U.S., Taiwan, and Japan. Though the Taiwanese and Japanese students outscored all U.S. students on math problems, those Americans enrolled in Everyday Mathematics, a K–4 curriculum, did much better than U.S. students in traditional math classes, better than the Taiwanese in some cases, and, on average, only slightly worse than the Japanese.
- A study by the Wisconsin Center for Educational Research of students from three high schools noted that students in the Interactive Mathematics Program (IMP) enrolled in college-preparatory math at a higher rate than did those in traditional algebra course sequences. Of high achievers in both groups, those who took IMP on average had higher GPAs and scored higher on the SAT mathematics section than those who took algebra.
- Four studies showed that students in Investigations in Number, Data, and Space, a K–5 curriculum, did more mental arithmetic than students in traditional math classrooms, outperformed them on word problems, and did better in "basic skills," making more accurate calculations.
- Research by Mark Hoover of the University of Michigan and others showed middle school students in the Connected Mathematics Project (CMP) scored better than traditionally schooled students on both the Iowa Test of Basic Skills and in Balanced Assessment, which is weighted more toward problem-solving.
- A study of the Core-Plus Mathematics Project, a high school program, found that its students did better at solving algebraic problems in realistic contexts, especially when they were allowed to use graphing calculators, than students in traditional algebra classes. They did less well than traditionally schooled students at manipulating symbolic expressions.

Despite such apparent success, it may be too early to make grand claims about the standards' effects on student learning. For every success story, critics of the 1989 standards can cite as many examples of "failing" reforms throughout the country. They note that the interpretation of the standards varies in each curriculum, not to mention each district and each classroom. Errors in new materials are common, the quality of teacher preparation differs, and the amount of time each district has spent educating parents and the community has varied widely.

Fast Facts

What Do Students Think About Math?
Grade-school students like math—and their performance in it—more than middle and high schoolers.



Source: National Center for Education Statistics, U.S. Dept of Education; National Assessment of Educational Progress (NAEP), 1990, 1992, 1996.

Questionable Research

Then there's the question of how trustworthy the pro-reform research really is. For instance, *Christian Science Monitor* education correspondent Mark Clayton reported last May that two reform curricula—Core-Plus and CMP—got favorable reviews from the U.S. Department of Education based on research by people affiliated with the curricula's developers. "Nobody, including research ethicists, argues that [the Core-Plus study is] invalid," Clayton wrote, but he rightly noted that an independent review should have been required to shore up the study's credibility.

In fact, much of the research on standards-based curricula is done by people with institutional ties to the curricula, and peer-reviewed publications such as the NCTM's Journal for Research in Mathematics Education are just starting to publish these materials. Norman Webb, a professor of education at the University of Wisconsin, says peer review often has not been done due to a lack of funding for third-party research. When an institution pays for research, they own it, he says, so researchers may not be able to submit their findings for independent review and publication.

Katherine Merseth, executive director of the Harvard Project on Schooling and Children, agrees. "It is always best to have some procedures in place for peer review/bias control. Having said that, I do think the studies that have been done are by and large done fairly well. It's pretty hard to fudge data about student achievement. What gets hard is the more murky area of 'problem-solving,' 'attitude toward math,' and whether these alternative approaches will really lead to greater mathematical understanding. You can define 'math understanding' in many ways."

For further information

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Mathematically Correct, PO Box 22083, San Diego, CA 92192-2083; email: math@mathematicallycorrect.com. **http://mathematicallycorrect.com**

J.R. Milgram. "A Preliminary Analysis of SAT-I Mathematics Data for IMP Schools in California." Unpublished paper, available online at **http://math.stanford.edu/pub/papers/milgram**

National Council of Teachers of Mathematics, 1906 Association Dr., Reston, VA 20191-9988; 703-620-9840; fax: 703-476-2970. **www.nctm.org**

Principles and Standards for School Mathematics. Reston, VA: National Council of Teachers of Mathematics, 2000

D. Resek. "Evaluation of the Interactive Mathematics Program." Paper presented at the annual meeting of the American Educational Research Association, April, 2000. **http://www.mathimp.org/AERA_paper.html**

What About Algorithms?

That question of how to define math is at the heart of the Math Wars, and is the reason they are unlikely to end just yet. Although the 2000 NCTM standards may mollify some critics, contentious issues remain, especially about the need for so-called "basic skills." Richard Askey of the University of Wisconsin writes that the 1989 standards were based on the "naive notion that one can teach conceptual understanding without developing technical skills [at the same time].... The idea that one can teach conceptual understanding without being able to do something really means that the level of the concept one asks students to learn is far too weak."

What about teaching algorithms such as long division and other commonly used ways to solve a problem? Partly in response to such criticism, the new NCTM standards highlight the importance of memorizing basic addition and multiplication tables, as well as their counterparts for subtraction and division; they also point to the need to become "fluent" by spending more time practicing computations with pencil and paper.

Some teachers and curriculum coordinators using curricula based on the 1989 standards have already been supplementing those programs with more paper-and-pencil work. William Kendall, math curriculum coordinator for public schools in Braintree, MA, says when standards-based curricula do not provide enough practice, his teachers simply add worksheets to their lessons. "It's often good to blend curricula," says Kendall. "Kids need practice. It's not enough just to get the big idea and move on, you need practice before you get it right."

In another Massachusetts case, Tammy Tardie, math curriculum coordinator of the Rashi School, a private Reform Jewish Day School, chose a standards-based curriculum, but supplemented it with practice sheets and other materials. "There's no one math program that encompasses everything," she says. "We added computation because there has to be some drill, even if it's games so the kids don't realize its drill."

In her book *Knowing and Teaching Elementary Mathematics: Teachers' Understanding of Fundamental Mathematics in China and the United States,* researcher Liping Ma trumpets the importance of teachers understanding the standard algorithm as well as alternatives—and to know why the standard one has been accepted as the most efficient—so that they can communicate this understanding to students.

Many elementary-grade standards-based curricula encourage the use of manipulatives—beans, sticks, figures, blocks—to help children understand the ideas behind arithmetic before giving them paper-and-pencil problems to solve. Ma, who studied the differences in math teaching and teacher understanding in the U.S. and China (whose students outscore Americans in math), found that in many U.S. classrooms the use of manipulatives was not always firmly tied to math concepts. She also found weaknesses in U.S. elementary schoolteachers' understanding of fundamental arithmetic.

For every success story, critics of the 1989 standards can cite as many examples of failing reforms throughout the country.

Ma examines the differences in teacher knowledge of elementary mathematics in China and in the U.S., as well as how that is manifested in the classroom. "To lead a thoughtful discussion ... a teacher needs a thorough comprehension of [the] topic. He or she should know these various solutions of the problem, know how and why students came up with them, know the relationship between the nonstandard ways and the standard way, and know the single conception underlying all the different ways," she writes. Ma suggests that to improve mathematics instruction in the U.S., more attention must be paid to preservice teacher training, teacher preparation time, and professional development.

Principles and Standards clearly articulates the need for teacher training, a factor too easily overlooked. School departments often don't realize that changing to standards-based math requires more than just adopting new textbooks, says Peg Bondorew, associate director for mathematics at Northeastern University's Center for the Enhancement of Science and Mathematics Education. "One of the most important components of a successful implementation is in the professional development and support for the teachers." Unfortunately, she says, many school systems still think a day's training should suffice. In fact, says Bondorew, "most elementary teachers have to relearn to teach arithmetic, since they only know a few rules, and don't really understand the mathematics behind them."

The research of Stanford University's Linda Darling-Hammond suggests that training should include not only instruction in math but also in math education. Darling-Hammond's work shows that students learn more from teachers who take university courses in math education than from those who simply take more high-level math courses—in other words, that knowing how to teach math is more important than simply knowing mathematics. "Sometimes very bright people who are not taught to teach are very poor teachers because they don't know what it is to struggle to learn, and haven't thought much about how people learn," she says. "Content is important, but it isn't enough."

Teachers' ability to adapt curricula to the needs of each student is crucial to improved instruction in any curriculum, she says. According to Darling-Hammond's research, the better trained the teacher, the more likely he or she will be able to be flexible in meeting the learning needs of each student.

In many respects, the Math Wars have generated more heat than light, but there are clearly areas in which proponents and opponents of standards-based curricula agree: the need for rigorous math education and improvement of the traditional curricula, and the need for better teacher training in math are two cases in point. What remains to be seen is whether the two sides will see the new NCTM standards as a fresh opportunity to cool the rhetoric and work together to improve math education for all children. ⊠

Andreae Downs, a Massachusetts-based reporter, writes frequently about education. She wrote about standards-based reform for the March/April 2000 issue of the Harvard Education Letter.

Huck Finn

continued from page 8

budgetary or other reasons do not have access to many novels by African Americans who were Twain's contemporaries. But even if a district does have a budget that allows it to purchase class sets of Frances Harper's *Iola Leroy,* for example, it is still important to include a Twain novel, especially *Adventures of Huckleberry Finn,* in the curriculum.

Through the controversy surrounding this book alone, Twain brings into schools what all of us in this country desperately need, yet fear, most: discussions—frank discussions—about race, race relations, interracial relations, race language, racial stereotypes and profiling, and, ultimately, true and unadulterated racial equality. Does he ask all the pertinent questions and provide effective and lasting solutions? No. How could he? How could African American writers such as William Wells Brown, Frances Ellen Watkins Harper, Ralph Ellison, George Schuyler, or even the Rev. Dr. Martin Luther King Jr. do the same?

In no way am I asserting that this novel is the ultimate answer to discussing race relations in this country or even in the English/language arts classroom. What I am asserting is that change begins, must begin, with one individual. And while that one individual who connects with someone else will not cauterize the racial chasm, the connection does create a ripple in the great racial ocean that continues concentrically. By questioning racism in his own time and provoking discussion in ours, Twain provides just such a connection for many students. □

Jocelyn Chadwick is assistant professor at the Harvard Graduate School of Education. She is the author of The Jim Dilemma: Reading Race in Huckleberry Finn.

Physical Education

continued from page 3

Children, published by the National Association for Sport and Physical Education. Students learn to adopt a holistic approach to physical fitness, focusing on self-management skills, learning to eat well, exercising to manage stress, and building consumer skills such as selecting a fitness club or evaluating a fitness video. Computer fitness programs aid both teachers and students in the course.

A lifetime of good health begins with a few small steps, say proponents of this new PE. With the release of increasingly bleak studies of children's health, schools may need to sharpen their dual focus on developing students' minds and bodies. "If we can't keep children healthy and well and resistant to disease, then they are not going to be able to realize the academic successes that they've had," says Judy Young, executive director of the National Association for Sport and Physical Education. While making a connection between physical fitness and academic achievement is dubious—is it even necessary to do so?—few would dispute the worthiness of teaching students to make physical fitness a lifetime aim. □

Sara-Ellen Amster, a former assistant editor of the Harvard Education Letter, *is a graduate student at UCSD. She wrote about teaching writing through pop culture in the July/August 2000 issue.*

new and noteworthy

Kindergartners: Where They're Coming From

What are typical kindergarteners like and what do they know? The knowledge, skills, and behaviors of new students are addressed in an essay found in this year's edition of *The Condition of Education,* published by the National Center for Education Statistics. According to the report, "Entering Kindergarten," a typical kindergartner (66 percent) can recognize letters of the alphabet by name and has a basic grasp of how written English should look on paper—that it is read left to right, top to bottom. Twenty-nine percent know the beginning sounds of words, and 17 percent know the ending sounds. Just 2 percent read basic words by sight and just 1 percent read words in context. Girls enter school slightly ahead of boys in reading, [illegible]verage.

In math, most first-timers (94 percent) can recognize single-digit numerals, identify geometric figures likes circles and squares, and count to 10. A smaller majority (58 percent) can count beyond 10, though only 20 percent can read double-digit numerals or identify something's ordinal position (e.g., fifth cupcake in a row of cupcakes). The essay is based on data gathered through the US Department of Education's Early Childhood Longitudinal Study, Kindergarten Class of 1998–1999—a study of 19,000 children in 940 public and private schools throughout the nation. Assessors will continue to track the children's progress through the 5th grade.

The average kindergartner is 5fi years old. Those who begin school at or near the age of six have advantages over their younger peers, according to the study: they are closer to being able to read and do arithmetic; know more about nature, science, and society; are less prone to problem behaviors; and show more persistence in their work.

Nearly half of all kindergartners (47 percent)—and two-thirds of those from urban areas—come from families with one or more risk factors: that is, their mothers have less than a high school education, they come from families that receive federal assistance, come from single-parent homes, or they have parents whose primary language is not English. According to the report, kindergartners from multiple-risk families have a less positive approach to learning than those from single- or no-risk backgrounds. □

For further information

N. Zill and J. West. "Entering Kindergarten: A Portrait of American Children When They Begin School" in *The Condition of Education 2000.* Washington, DC: National Center for Education Statistics, 2000: xvi–xlvii.

Available at no charge. Ask for publication 2000-062. Education Publications Center, NCES, PO Box 1398, Jessup, MD 20794-1398; toll-free: 877-433-7827. http://nces.ed.gov/pubsearch

Why Huck Finn Belongs in Classrooms

Twain's work sparks the kind of frank discussions about race and race relations that we need—and fear—to have

By Jocelyn Chadwick

In the American Library Association's recently published list of the 100 most frequently challenged books of the 1990s, *Adventures of Huckleberry Finn* ranked fifth. In fact, Samuel Clemens/Mark Twain had the dubious distinction of having written two of the only three pre–twentieth-century books on the list. (*The Adventures of Tom Sawyer* was number 83, and Helen Bannerman's blatantly racist *The Story of Little Black Sambo* was number 90.) Clearly, much controversy remains about whether Mark Twain had racist attitudes and whether he displayed those attitudes in his works, especially *Adventures of Huckleberry Finn.*

Stereotypes in his portrayal of the character Jim, excessive use of the racial slur "nigger," and a paternalistic attitude toward African Americans are among the charges made against Twain by his would-be banners. Are these charges valid, and if so, do they implicate Mark Twain as a racist? Twain scholar Lou Budd has asserted that Twain had "conflicting, conflicted attitudes' about the racial issues of his time. And while I acknowledge the likely truth in Budd's assertion, I would also argue that, given the time in which Twain wrote, this can be seen as a minor indictment of Clemens the man and an even lesser one of Twain the writer.

As an African American, I know that I would rather be in a room with a person who is working through his position on race and inequality than with an incorrigible racist. Certainly racist attitudes of any kind, even if they stem from "conflicting, conflicted attitudes" and membership in a culture steeped in racial oppression, are unacceptable. But what are essential and substantial are the decisions we make and the concomitant actions we take as a result of our attitudes. We cannot, therefore, overlook the works of Twain that do address the issues of race and stereotype. Clearly, Twain used his writing to work through issues of race for himself and his society, and when I read Twain's satires, I feel that he "gets it." Despite the culture surrounding him, Twain understood deeply that racism is wrong. For Twain to have depicted in *Adventures of Huckleberry Finn* a young hero who questioned racial inequality and an African American who was caring, compassionate, and strongly committed to his freedom was revolutionary indeed.

Moreover, *The Tragedy of Pudd'nhead Wilson* more than nods at Twain's interest —or, rather more appropriately, his concern—about race. In this novel Twain turns on its proverbial ear the misconception of racial inferiority as evidenced through language acquisition. Roxy, a slave woman who gives birth to a child sired by the slave master, switches her baby with that of the slave master's wife to avoid having her son sold down South. Both children grow up adapting perfectly to their environments. Through the strength of Roxy's character and the results of her actions, Twain makes clear that racial inferiority is not inherent (as many in his time believed) and that voice and language can be acquired by anyone who is put in the right environmental circumstances.

Consider the Context

Twain's views and depictions of African Americans must also be considered in the context of African Americans' changing notions of themselves between 1835 and 1910. We know concretely through African American periodicals published during the period and through slave narratives published both during the period and during the early 1930s through the WPA project that African Americans viewed themselves and their place in the North and South in varying ways. But one constant that emerges over and over again—from the precise and articulate periodicals such as *The Elevator* to the narratives transcribed in heavy Southern dialect—is the desire to be understood and appreciated as a thinking individual. This is a view of African Americans that Twain, especially in *Pudd'nhead Wilson*, depicted strongly. Paralleling this view, too, was an abiding and deep appreciation among African Americans for any white person who displayed a scintilla of concern, let alone a proclivity for voicing or displaying that concern. If the African Americans of Twain's time could recognize the extraordinariness of whites who dared question the prevailing social structures, can't we as contemporary readers do the same?

If the African American of Twain's time could recognize the extraordinariness of whites who dared question the prevailing social structures, can't we as contemporary readers do the same?

By now, I'm sure it's clear that I believe *Adventures of Huckleberry Finn* must remain in classrooms throughout the country. It is educative not only for African Americans, but for anyone sitting in an American literature survey course. Does it stand in lieu of a good, substantive American history class that addresses African Americans' experiences under slavery? Of course not, but it certainly rounds out that experience. This is especially true in school districts that for

continued on page 7

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