$1 million to endow a professorship in Native American education at the University of Wisconsin at Milwaukee. The state university system will match the endowment for another professorship.

"It's a survival issue for native people," says Carlotta Bird, the director of instruction at Zuni Public Schools in New Mexico, an Indian-controlled public school district. Hers is a recurring sentiment among Indian educators. For although their numbers are small, Indian students represent the next generation of their tribes. Unlike immigrants, Native Americans have no preserved point of geographic and cultural reference, no "old country." It is only in America that the traditions and languages of Indian tribes live and die.   ■

THE HIGH-STAKES TESTING MANIA HURTS POOR AND MINORITY STUDENTS THE MOST.

Testing, Testing

GARY ORFIELD AND JOHANNA WALD

With education among the electorate's top priorities, the phrase "higher standards" has become ubiquitous in political campaigns across the country. Ever since the publication of the Reagan Administration's *A Nation at Risk* in 1983, the standards-based school reform movement has galvanized a broad coalition from right to left. Conservatives and business leaders are drawn to its pledge to improve the accountability of a public school system they see as an entrenched bureaucracy, as well as to its goal of preparing a more globally competitive work force. At the same time, the movement's underlying premise, that all children can learn at high levels, has won over many liberals and civil rights advocates, who are rightly concerned about teachers and schools lowering their expectations for poor and minority students.

Unfortunately, this movement has all too frequently been reduced to a single policy: high-stakes testing. This policy links the score on one set of standardized tests to grade promotion, high school graduation and, in some cases, teacher and principal salaries and tenure decisions. To date, about twenty-five states have adopted some version of this policy, and the number of legislatures considering similar measures is growing. Both Al Gore and George W. Bush vigorously promote the use of standardized tests. President Clinton recommended in his State of the Union address that test-preparation manuals be made available to all children.

Yet despite the political popularity of the testing "solution," many educators and civil rights advocates are suggesting that it has actually exacerbated the problems it sought to alleviate. They claim that these policies discriminate against minority students, undermine teachers, reduce opportunities for students to engage in creative and complex learning assignments, and deny high school diplomas because of students' failure to pass subjects they were never taught. They argue that using tests to raise academic standards makes as much sense as relying upon thermometers to reduce fevers. Most compellingly, they maintain that these tests are directing sanctions against the victims, rather than the perpetrators, of educational inequities.

The implications of these arguments were serious enough to lead The Civil Rights Project at Harvard University to commission a series of studies on the educational and social impact of high-stakes testing policies from some of the nation's top scholars in this field. Some of their most significant findings include:

§ High-stakes tests attached to grade promotion and high school graduation lead to increased dropout rates, particularly for minority students. George Madaus and Marguerite Clarke of Boston College discovered a strong association between high-stakes testing and increased dropout rates. They cite studies showing that in 1986 half of the ten states with the lowest dropout figures used no high-stakes tests. The other half employed testing programs that could be characterized as low stakes. Nine of the ten states with the highest dropout rates used standardized tests in decisions about high school graduation.

The effects for minority students can be discerned from a study by Aaron Pallas of Michigan State University and Gary Natriello of Columbia University, who examined the racial and ethnic disparities in performance on the Texas Assessment of Academic Skills (TAAS) between 1996 and 1998. By the spring of their senior year, almost twice as many black and Hispanic students as white students had not passed the TAAS exit-level tests required to obtain a Texas high school diploma. The authors concluded that "these tests are, and will remain for some time, an impediment to the graduation prospects of African American and Hispanic youth." In another study, Columbia's Jay Heubert points out that students of color are almost always overrepresented among those who are denied diplomas on the basis of test scores.

§ Using tests to retain students in the same grade produces no lasting educational benefits. Robert Hauser of the University of Wisconsin has found that retaining students in the same grade creates huge management problems in the classroom, is extremely expensive for the school system and dramatically increases the likelihood that the retained student will eventually drop out.

Gary Orfield is a professor of education and social policy at the Harvard Graduate School of Education and Kennedy School of Government, and co-director of the Civil Rights Project at Harvard University. He recently co-edited Religion, Race and Justice in a Changing America *(Century Foundation) and* Chilling Admissions: The Affirmative Action Crisis and the Search for Alternatives *(HEPG), and is currently co-editing a book on high-stakes testing. Johanna Wald is a researcher and writer/ editor for the Civil Rights Project.*

Moreover, African-American males are disproportionately represented among those who are held back. The Congressionally mandated 1999 National Academy of Sciences report *High Stakes: Testing for Tracking, Promotion and Graduation* cites five other studies that draw similar conclusions about the negative effects of retaining students.

§ High-stakes tests narrow the curriculum by encouraging a "teach to the test" approach in the classroom. Most curriculum experts recommend that students approach topics from a variety of perspectives, using all of their senses, over extended periods of time. Many high-stakes tests, however, rely upon multiple-choice questions, ask students to interpret isolated passages unrelated to larger themes or units, and require them to adhere to rigid writing formats that allow little room for deviation. Linda McNeil of Rice University and Angela Valenzuela of the University of Texas argue that while increasing numbers of students in poor schools in Houston may be passing the TAAS reading section, they "are not able to make meaning of literature…nor to connect reading assignments to other parts of the course such as discussion and writing." As Clifford Hill of Columbia University wrote recently in a *New York Times* Op-Ed, test preparation has come to "invade" the school day in poor schools in New York City, with worrisome effects: "Learning to take reading and writing tests is not the same as learning to read and write, especially when test prep materials do not meet basic standards."

Moreover, test preparation is far more likely to dominate teaching in high-poverty schools than in affluent ones. Such instruction has all but replaced the curriculum in Houston's poor schools, according to McNeil and Valenzuela's research. Also, high-poverty schools hire a large number of uncertified and inexperienced teachers who tend to focus exclusively on test preparation, as John Lee of the University of Maryland has found.

§ There is very little evidence linking test scores with economic productivity. According to Henry Levin of Columbia, the US economy is highly competitive despite the fact that our students lag behind other countries in test performance on some international comparisons. In fact, those countries that do score particularly well on tests may be suffering in the global economy because their curriculum is too narrow and does not yet offer the range of learning opportunities available to students in US schools.

Many states are using tests in ways that directly contradict the recommendations of the National Academy of Sciences, the Department of Education's Office for Civil Rights and other experts. The Office for Civil Rights' 1999 resource guide states that "a decision or characterization that will have major impact on a student should not be made on the basis of a single test score." Even one of the nation's most prominent advocates for the standards movement, Robert Schwartz, president of ACHIEVE, wrote recently, "Common sense suggests that states should not rely solely on the results of one-shot assessments." Educational testing service leaders also strongly warn against using test scores alone to make high-stakes judgments about students. Yet many school districts, according to Columbia's Heubert, use tests designed for other purposes to make tracking, promotion and graduation decisions.

If, as all these studies suggest, high-stakes tests both discriminate against poor and minority students and are educationally unsound, we are still left with the dilemma of how to achieve the

dual goals of equity and excellence. Dozens of studies offer convincing evidence that children in poor schools make academic gains when they have access to quality early-childhood education programs, when they are taught in small classes by skilled and committed teachers, and when they are given assessments linked to appropriate and immediate responses.

The single most important factor in raising academic performance in poor schools appears to be the presence of experienced, competent and caring teachers. Disadvantaged youths currently are taught by the least prepared and most transient instructors in the system. Devising incentives for recruiting and maintaining highly qualified teachers and for retraining existing staff in high-poverty schools should be the top priority of those serious about raising standards.

Student assessments, of course, are essential to realizing improvements in students and schools. Several groups and individuals, including Clifford Hill, Project Zero at the Harvard Graduate School of Education, the New York Performance Standards Consortium and the Coalition for Authentic Reform in Education (CARE) in Massachusetts have developed alternative modes of evaluating student performance. These share the following characteristics: (1) they are designed in collaboration with—rather than imposed upon—teachers; (2) they are varied enough to reflect the differing learning styles of students; (3) they address the curriculum actually taught in the classroom; and (4) they provide timely feedback linked to both student remediation, when necessary, and curriculum revisions. Standardized tests can play a role in such a restructured system. As recommended in *High Stakes*, test scores, combined with other assessments, can be very useful in identifying curricular weaknesses and in targeting students in need of additional support.

It is also possible to hold schools accountable for academic performance without penalizing students unfairly. One obvious way is to measure progress as well as outcome. By taking only standardized scores—which are heavily correlated with parents' income and level of education—into account, most current systems automatically reward schools in affluent areas. They also set up a destructive dynamic between teachers and struggling students. With their livelihood and reputations riding on scores alone, faculty are motivated to dismiss low performers in favor of those more likely to score well. One principal in Chicago even admitted that he expelled chronically truant students to boost his schools' test scores. A focus on improvement over outcome will alleviate that dynamic. Tennessee, for example, puts a central focus on the "Value Added" by a school's program.

Unfortunately, despite recent revelations of the high numbers of likely student "casualties" to high-stakes testing policies—especially among poor and minority children—many politicians have discovered that vows to bring about "world-class standards" and to "end social promotion" play well on the evening news. For the most part, the media continue to accept at face value claims that high-stakes tests represent a necessary form of tough love for struggling schools. Still, there are indications that the movement to suspend the high-stakes aspect of testing is gaining momentum. It has found an ally in Senator Paul Wellstone, who recently introduced legislation prohibiting the misuse of these tests. Delaware just decided, under intense protest, to postpone its new testing policies, and Virginia, Massachusetts and other states are currently experiencing fierce opposition to their testing requirements. Hopefully such public pressure will lead to the adoption of more effective and equitable uses of assessments within a restructured school reform movement. ∎

LETTERS
C O N T I N U E D

(Continued From Page 2)

market needs to be kept in its place. That's not happening in The New U. Were I an undergraduate, I might well enroll in Aronowitz U, for I happen to like what's on offer. Still, the type of curriculum proffered in *The Knowledge Factory* is a throwback to the "core curriculums" that, at most places, were abandoned in the sixties as too constricting. Rather than give students latitude to make decisions for themselves, at AU the master planner is all-powerful. To me, that represents a sharp turn to the right.

DAVID L. KIRP

PERMATEMPS & PAYROLLERS

Seattle

∎ Christopher D. Cook's March 27 article on contingent work, "Temps Demand a New Deal," while comprehensive, touched only briefly on a dynamic that has major implications for contingent workers. These workers are often lumped together as one group—"temps" who move from job to job. There are, indeed, many of these true temps, and they do need the legal protections that Cook clearly outlined. But there is also

a large, usually hidden, group of "permanent" workers who are mislabeled by their employers as "temporary workers," "contract workers," etc. Many of the Rhode Island factory workers in Cook's article are actually long-term employees working year-in, year-out for the same employers. These workers are deliberately misclassified as temps to deny them equal pay and benefits. This practice is called "payrolling," because the only connection between the workers and the agencies pretending to be their employers is the payroll check. Payrolling of "permatemp" workers is a huge business. More than 1,500 companies offer this service over the Internet. One company, Comforce, promises employers to "cut labor costs by as much as 50 percent."

These phony employment schemes will have a huge impact on public retirement and health-care systems as workers age. A typical temp agency 401(k) contribution is $150 per year—a far cry from the average 6 percent employer contribution. Only 7 percent of temporary staff have employer-sponsored health plans. Older workers with chronic health conditions will end up on Medicaid, and that's just a small piece

of the potential burden on public systems.

If we acknowledge that these so-called temporary workers are deliberately mislabeled, we can challenge these practices through organizing, legislating and litigating. (After a lawsuit was filed against ARCO, former "contractors" were suddenly converted to bargaining unit employees at an ARCO California plant.)

This is a great opportunity for labor to be creative with new strategies to convert disfranchised temporary workers into regular employees with real benefits. DAVID WEST
The Center for a Changing Workforce

AHEM, IT'S -FIGHTER, NOT -SLINGER

Elkins, W.Va.

∎ In his review of Sam Shepard's *True West*, "Decline of the West" [April 24], David Yaffe says that Bob Dylan and Shepard's song "Brownsville Girl" is about a John Ford picture called *The Gunslinger*. It isn't. It's about Henry King's *The Gunfighter*. Yaffe's book about jazz and American literature sounds fascinating, *if* he's more careful. JOE GOLDBERG

Software testing is the process of finding errors in the developed product. It also checks whether the real outcomes can match expected results, as well as aids in the identification of defects, missing requirements, or gaps. Testing is the penultimate step before the launch of the product to the market. It includes examination, analysis, observation, and evaluation of different aspects of a product. Professional software testers use a combination of manual testing with automated tools. Software Testing Guide. I grew up in the waterfall era, where testing was seen as a separate activity to programming, done by a different group of people, and carried out after programming was done. Â Self-Testing Code is the name I used in Refactoring to refer to the practice of writing comprehensive automated tests in conjunction with the functional software. When done well this allows you to invoke a single command that executes the tests - and you are confident that these tests will illuminate any bugs hiding in your code. We, as testers are aware of the various types of Software Testing such as Functional Testing, Non-Functional Testing, Automation Testing, Agile Testing, and their sub-types, etc. Each of us would have come across several types of testing in our testing journey. We might have heard some and we might have worked on some, but not everyone has knowledge about all the testing types. Each type of testing has its own features, advantages, and disadvantages as well. Software testing is not what it was a decade ago. In the last few years, it has transformed a lot. In this article, you will learn: Page Contents. What is Software Testing. Definition of Software Testing. Why do we need Software Testing. What if there is no Software Testing in the Software Development Process. 1. Cost-effectiveness. 2. Customer Satisfaction. 3. Security. 4. Product Quality. What are the different types of Software Testing? Manual Testing: Automation Testing: Testing Methods: Static Testing: Dynamic Testing We have categorized these software testing types on the basis of different parameters like â€" based on testing objective, test execution method, test design technique, etc. So, letâ€™ get started. Content. Types of Testing based on the Testing Objective. Types of Testing based on the Test Execution Method. Types of Testing based on Test Design Techniques. Levels of Testing. Types of Integration Testing. Types of Acceptance Testing. Black-box or Specification-based Types. White-box or Structural Testing Types.

Software Testing is a method to check whether the actual software product matches expected requirements and to ensure that software product is Defect free. It involves execution of software/system components using manual or automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify errors, gaps or missing requirements in contrast to actual requirements. Some prefer saying Software testing definition as a White Box and Black Box Testing. It is a test (hence, testing) What does a test do? It gives you two ideas - one: where you are good at, and two: where you need to improve. It also gives you a marks. That gives you an overall idea of what your present level of preparation or...Â Our all-in-one testing solution uses a language that everyone can understand, even non-coders. Try now! Free Trial. Professional software testers use a combination of manual testing with automated tools. After conducting tests, the testers report the results to the development team. The end goal is to deliver a quality product to the customer, which is why software testing is so important. Importance of Software Testing. Itâ€™s common for many startups to skip testing. They might say that their budget is the reason why they overlook such an important step. They think it would lead to no major consequences. In-Depth Videos On Software Testing & Test Automation. All The Hurdles And Lesson Learned Are Beautifully Documented As Blog & Video Tutorials. From API Tes...Â Selenium is the biggest open source automation testing suite that has been making testing seamless. It is widely used for testing among the bigwigs like Google, Netflix, Fitbit, etc. to the emerging startups such as likewise. âœ… What is Selenium Framework? Software testing is not what it was a decade ago. In the last few years, it has transformed a lot. In this article, you will learn: Table of Contents. What is Software Testing. Definition of Software Testing. Why do we need Software Testing? What if there is no Software Testing in the Software Development Process. 1. Cost-effectiveness. 2. Customer Satisfaction. 3. Security. 4. Product Quality. What are the different types of Software Testing? Manual Testing: Automation Testing: Testing Methods: Static Testing