SPECTRUM

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A report on underrepresented minorities in astronomy

The (Un)Changing Face of the Ivy League
by the Yale Graduate Employees and Students Organization

Part of the lore that harmonizes an image of the United States as an open, democratic society with the realities of sharp and durable hierarchies of wealth and power is the notion that elite universities facilitate upward mobility. This idea rests on a belief that those institutions have a paramount mission to pursue knowledge and that that mission impels them toward valuing openness of inquiry, as well as recognizing and cultivating merit wherever it may exist. In the more breathless expression of this narrative, elite colleges and universities stand above, indeed provide a refuge from, the society's class and other asymmetries. In a less romantic key, they recruit new members to an elite defined by merit.

This perspective on the role of Ivy and other elite institutions of higher education is of fairly recent provenance. Before World War II they were by and large and unabashedly preserves for the children of the upper classes; pedigree mattered far more than anything else. Under pressure of democratizing forces unleashed by extramural social movements and upheaval, these institutions increasingly came to accept the broader view of their mission and were led increasingly to act on the implications of that view. To their credit, most of these colleges and universities have made signifi-

Underrepresented Minority Women Faculty: All But Invisible
by Donna J. Nelson and Diana C. Rogers

In some disciplines, there is no representation of underrepresented minority (Black, Hispanic, or Native American) women on the faculty at all. In the "top 50" computer science departments, there are no women in tenured or tenure-track positions. With the exception of one Black "full" professor in astronomy, there are no female Black or Native American "full" professors in the physical science or engineering disciplines surveyed.

Similarly, in physics there are no Black female professors, and in

HIGHLIGHTS:

- *Learn about cognitive science research that helps explain the origins of stereotypes, and how to combat them.*

- *Find up-to-date statistics on underrepresented minority women faculty in the United States.*

- *Learn about outreach efforts to teach minority youth about light and optics.*

- *Read about the changing demographics of the nation's higher education pipeline.*

The (Un)Changing Face of the Ivy League (cont'd)

(Continued from page 1)

cant strides toward opening access for faculty and students from other populations, though, as this report shows, there are reasons to be concerned about both the pace and the trajectory of this trend.

As the prevailing discourses in national politics move steadily rightward, there is a real danger that these universities could be drawn with it and abjure their commitments to diversity. Lawrence Summers's combative tenure as Harvard's president has certainly underscored this possibility.

In this environment, it is important for us to be clear of the difference between the self-congratulatory image of these universities' lofty role and commitments and to recall that they are also corporations, fund-raising machines, and agencies for the reproduction of class privilege. In no area in the last three decades has this other face of elite colleges and universities been more clearly exposed than in their labor relations. Yale has been among the worst, the most aggressive, but hardly the only institution that, in response to employees' attempts to assert their own voices and concerns in the university's operations, has traded the high-toned patter of openness and reasoned discussion for the equivalent of the Wal-Mart labor relations manual.

This approach absolutely contradicts any serious commitment to diversity. As this report suggests, the effort to preserve and expand the strides that have been made in the broadening the pools of faculty and students, as well as disciplinary perspectives, at those institutions cannot be separated from the struggle to extend effective voice and opportunity to all the workers who participate in making them what they are.

The Shrinking Academic Pie

Ivy League universities have hired significant numbers of new faculty to meet their teaching and research needs. However, they have primarily created jobs off the tenure track ("non-ladder" jobs), as illustrated in the graph below. These positions, as distinct from tenure-track jobs, are usually temporary appointments, either to be renewed or terminated on an annual or semester-by-semester basis. They pay less than tenured and tenure-track jobs, 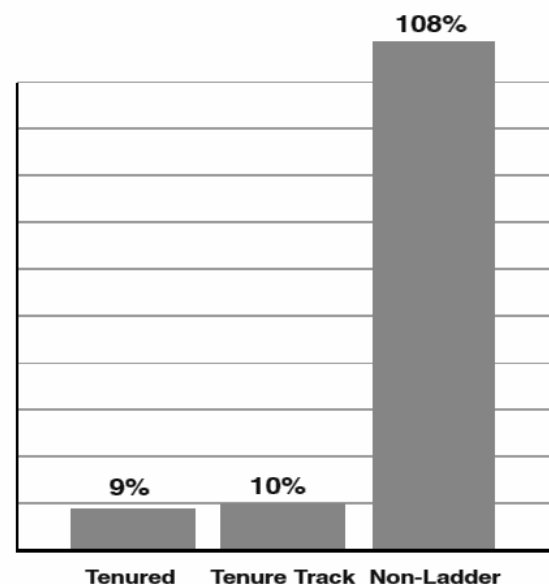often provide few or no employment benefits such as health care and sometimes carry higher teaching loads. However, they require the same educational experience: a doctoral degree, teaching experience, and research publications.

As a result of the Ivy League universities' reliance on non-ladder faculty jobs, new scholars are competing for an ever-shrinking pool of secure, desirable faculty positions, while the number of unstable, poorly compensated faculty positions skyrockets.

In addition to hiring large numbers of non-ladder faculty, Ivy League universities have also turned increasingly to graduate employees to meet their teaching and research needs. Graduate employees—the teaching and research assistants, instructors, and lecturers the Ivy League universities draw from their own graduate schools— like non-ladder faculty, are usually paid far below the levels of their tenured and tenure-track colleagues and have little job security or institutional voice. Universities' heavy reliance on graduate teachers and researchers further serves to reduce the need to hire additional faculty members. As many observers have noted, the result is that for many graduate students the completion of a PhD often signals the end, not the beginning, of a long teaching career.

Increase in the number of Ivy League Professors, 1993 to 2003

(Continued from page 2)

Non-Ladder Jobs as a Means to "Diversify"

In the shrinking pool of new desirable faculty positions, few women and people of color are to be found. Instead, those good academic jobs are likely to be filled by white and male scholars, as the chart on page 5 illustrates.

As women, underrepresented minority scholars and international scholars finally gain access to faculty jobs at Ivy League universities, many find

that the only positions available to them are unstable, non-ladder positions: jobs in which it is difficult to make a secure living, engage in meaningful academic research, or obtain any voice in the university. In 2003 in the Ivy League:

- Black and Hispanic PhDs were 4 times more likely to get hired into non-ladder positions than into tenure-track positions. In comparison, white PhDs were only 2.5 times more likely to get hired into non-ladder jobs.
- Women were 3.2 times more likely to land a non-ladder position than a tenure-track one. Men were only 2.6 times as likely to get hired into non-ladder jobs.

From 1993 to 2003, the percent of people of color in tenured positions has not significantly changed. Black scholars inched up from 2.2% to 2.5% of tenured faculty. Hispanic scholars went from 1.2% to 1.4% of the tenured faculty. Women have seen a greater increase, from 14% to 20% of tenured faculty. Women average only 1 in 5 tenured faculty in all fields of study—not just the sciences where their underrepresentation is being questioned.

International scholars have filled the growing number of non-ladder faculty positions. From 1993 to 2003, the number of non-ladder international faculty has increased by 142% compared to an overall increase of 108% in non-ladder faculty.

Among new doctorates earned from 1989 to 1993, underrepresented minorities represented 6.5 percent and women represented 45 percent. Yet Ivy League universities have not significantly drawn on this pool to correct the historic patterns that kept people of color and women out of their tenured ranks. In spite of the increasing numbers of women and people of color with doctorates, women and people of color continue to be excluded from the best faculty positions.

An Unequal Start

The lack of access to good faculty jobs for women and people of color in the Ivy League begins in doctoral programs, where the next generation of faculty is trained. In the Ivy League, people of color are represented in doctoral programs at rates significantly below the national average for doctoral programs, and below the rates of minority enrollment in undergraduate programs.

The (Un)Changing Face of the Ivy League (cont'd)

Doctoral Degree Program Enrollment, 2001

	Ivy	National
Black	3.7%	8.9%
Hispanic	3.1%	5.3%
Asian/Pacific Islander	7.1%	5.1%
American Indian/AK Native	0.3%	0.6%
International Scholars	34.7%	13.1%
Women	46.0%	58.2%

As shown in the table above, blacks are less than half as likely to be enrolled in Ivy League doctoral programs as in doctoral programs nationally. And while women constitute almost 60 percent of students enrolled in doctoral programs nationally, in the Ivy League they are only 46 percent.

Forging an Equitable Ivy League

So what steps can academics take? By securing organizing rights, bargaining collectively, and achieving binding contracts for their work, teachers and researchers can break down the two-tiered Ivy League, reduce the universities' reliance on non-ladder positions, and ensure that women, people of color and international scholars have equal access to the best opportunities for teaching and research.

First and foremost, academic workers must address the fundamental problem of today's academy: access to good jobs is diminishing for all academic workers. On this front, faculty unions outside the Ivy League have provided a road map for solutions. Contracts at several universities limit the portion of temporary and part-time faculty, ensuring that the number of tenured and tenure-track positions grows with the university, preserving good jobs for academics of every background. Faculty unions at Cooper Union, the Connecticut State University system, and Eastern Washington University have placed limits on the number or portion of part-time and temporary faculty that can be hired, and ensured that tenured and tenure-track positions are preserved and expand.

Second, through collective bargaining, the terms and conditions of those working in such non-ladder or part-time positions can be improved immensely. For example, unionized adjuncts have been able to raise compensation levels, win health and pension benefits, and substantially increase job security and employment opportunities.

Bargaining for contracts also allows academic workers directly to reverse inequalities in a number of specific areas:

1. *Union contracts have addressed pay inequities, fair workload, and transparency in job descriptions, remuneration and criteria for promotion at every level of academic work.*

It is widely established that when workplaces unionize, women and people of color generally secure the greatest net improvement in benefits across a given profession. Union contracts have increased compensation for the lowest paid groups, often women and people of color, and have increased access to employment opportunities. The NYU graduate employee contract, the only one of its kind at a private university, while increasing wages overall by approximately 40%, had the greatest impact on those employees at the low end of the scale. The part-time faculty union contract at Rutgers requires the university to post full-time teaching positions publicly in each department so that union members have access to applying for full-time jobs.

2. *Union contracts can codify anti-discrimination practices that are binding and enforceable within the university community.*

In recent years, a host of academic unions have taken stands, during contract negotiations, to include specific language barring discrimination in academic employment.

- The graduate teaching assistant union at the University of California negotiated anti-discrimination clauses into their contracts that give teaching assistants the right to a grievance procedure when discriminatory practices are in place.
- The union at the University of Michigan has an anti-discrimination clause as well as a designated Affirmative Action Representative in the Office of Equity and Diversity Services and the ability to engage in special conferences with the university on issues of affirmative action.
- At the University of Wisconsin-Madison, the university is required to seek the advice and counsel of the graduate employee union in reviewing and modifying its Affirmative Action plans. The union also negotiated a $50,000 fund for diversity and harassment training.

(Continued from page 4)

As these examples show, collective bargaining has allowed academic workers both to actively change discriminatory practices as well as create a means to punish instances of discrimination. Union contracts provide binding and immediately enforceable standards, thus violations can be addressed in a timely, fair and effective manner. In contrast, the understaffed federal government agencies cannot always offer the same relief. University grievance procedures are often created to protect the university from lawsuits rather than redress student and employee grievances. Through a union contract, university employees have direct access to protection from discrimination.

3. *Union contracts can guarantee the disclosure of comprehensive statistics relevant to assessing a university's progress (or lack thereof) in making their jobs and programs accessible.*

A contentious debate persists, inside and outside of universities, about the precise nature and causes of inequalities confronting women, people of color, and international scholars. Ivy League universities have long exacerbated this situation by failing to supply complete and timely data about their progress (or lack thereof) in guaranteeing
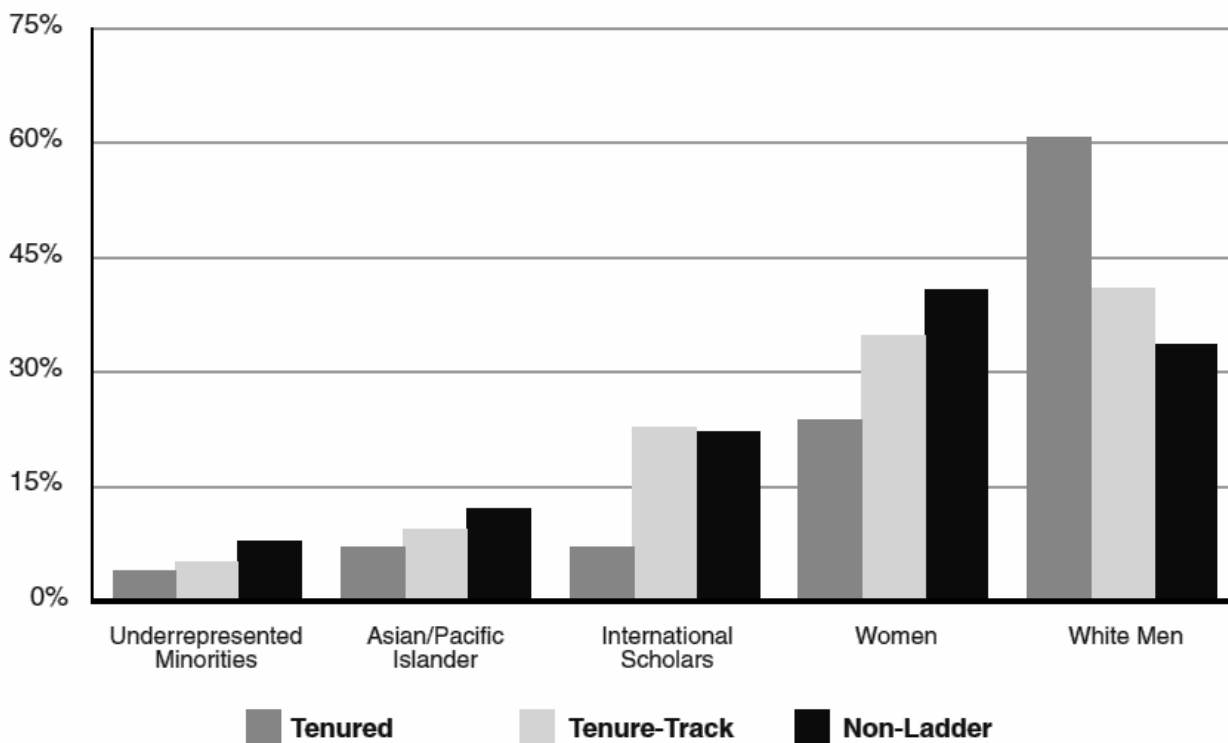
equal access to university positions. As noted above, Cornell is the only Ivy League University which publishes detailed diversity statistics—and even there, the complete transparency of the data is difficult to judge. In many cases, academic workers must turn to government data from previous years to gain some insight into the actual situation at their own universities.

Collective bargaining makes it possible to guarantee specific obligations for the reporting of data regarding admissions, hiring, retention, promotion, and benefits. The University of Oregon, for example, has agreed to provide statistics to its graduate teachers' union about the gender, ethnicity and citizenship of its graduate students and its graduate teachers upon the union's request. Without such transparency of information, it will remain impossible to measure whether a university's efforts are succeeding or failing in the creation of an accessible, equitable workplace.

4. *Union contracts can directly remove obstacles in the academic ladder that disproportionately jeopardize the prospects of women, people of color, and international scholars.*

Ivy League New Faculty Hires 2003

Legend: Tenured, Tenure-Track, Non-Ladder

The (Un)Changing Face of the Ivy League (cont'd)

Unless universities are compelled fundamentally to restructure certain features of access, employment, and promotion, no amount of oversight or "diversity initiatives" will suffice. Union contracts raise wages and improve conditions for academic workers allowing talented scholars to make careers in the academy.

• **Economic barriers to academic careers are only deepening**. Given the rising costs of undergraduate education, many potential scholars, especially people of color, enter academic careers with significant amounts of debt. Moreover, in some Ivy League departments, it has become commonplace for Ph.D. programs to require a master's degree for admission which means tens of thousands of dollars of additional debt. With the dearth of tenure-track positions, and the prospect of part-time non-ladder employment after earning a Ph.D., in addition to a low income while earning a Ph.D., many promising scholars are unable to complete their programs or never start at all. Every Ivy League university needs to acknowledge the close connection between economic and racial equity. Without a serious overhaul of academic pay—and additional measures, like need-based loan forgiveness—Ivy League academic positions face the prospect of becoming inaccessible to all but the most economically privileged individuals.

• **Women face profound obstacles to equal advancement up the academic ranks**. Embedded in the controversy over Harvard President Lawrence Summers' recent questioning of the innate ability of women to do science was his (all too true) assertion that women scholars face both discrimination in evaluation of their abilities and, for many, additional responsibilities for raising families. What President Summers failed to acknowledge is that current standards for academic promotion— standards for parental leave, time to degree, tenure timeline, employment flexibility and child care options—are no more intrinsic or eternal than was the principle of single-sex education thirty years ago. Academic unions have successfully negotiated affordable health care, child care benefits, and paid leave, along with academic and employment promotion policies that accommodate scholars with families. In so doing, academic workers can signifi-cantly level the playing field for women and men in today's academy.

5. *Union contracts, by enhancing job security, help insure and strengthen academic freedom.*

Women and people of color who are in non-tenured positions without job security, are vulnerable to attacks on their academic freedom. Such workers may be discouraged from espousing controversial positions or undertaking risky but potentially ground-breaking projects.
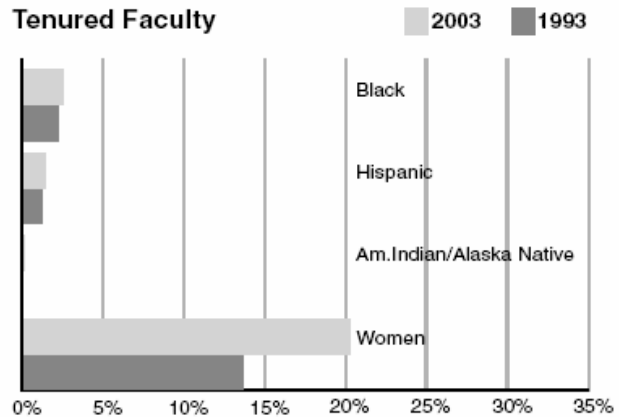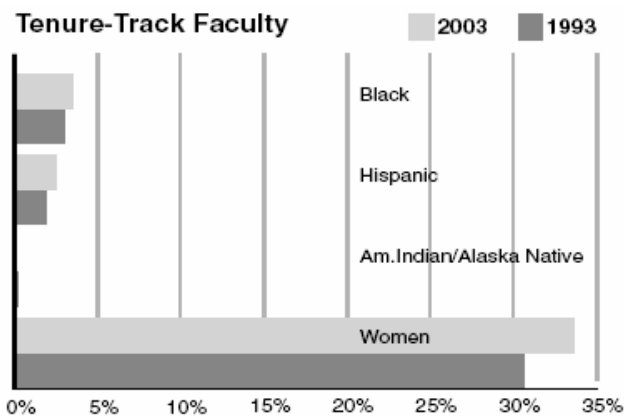
Legislative Solutions

In addition to the solutions that union contracts offer, the public can also demand more from universities. First and foremost, students and parents deserve accurate, timely information about whether the colleges and universities they attend have created a two-tier system for hiring and promoting that significantly affects people of color and women. This information should be readily available and easy to understand for students and their parents. For example, college websites should include this information, and it should be made available to prospective students.

The Connecticut General Assembly is considering legislation to make this important information available to students who apply to private colleges in Connecticut. It is important for students to know before they go to college whether the faculty in their fields of interest include people of color and women. Students of color are more likely to seek role models of the same race, and several studies show that role models help increase students' expectations for their own success. Furthermore, students of color disproportionately chose faculty of color as mentors. Finally, some studies show that a diverse faculty improves educational outcomes for all students.

Mandated disclosure of diversity data to student applicants could help fix problems over the long term, without the need for more heavy-handed state regulation. The market forces of higher education would work naturally to persuade universities to change their practices in order to continue attracting the talented women students and students who are people of color.

(Continued from page 6)

Conclusion

This list of potential remedies should itself be an indictment of the status quo in the Ivy League. So long as Ivy League administrators remain unchecked in applying corporate values to teaching and research—shifting an ever-growing share of work onto those in insecure, part-time, low status positions, and denying them the right to organize—the two tiered academy will persist. But the American public must not give up on its expectations that universities, including Ivy League universities, will fulfill their promises to make an excellent education available to high-achieving students, regardless of their backgrounds, and to provide academic jobs that are worthy of the academic accomplishments of the scholars who make the university great.

Appendix: Did Ten Years Make a Difference?

From 1993 to 2003, the number of Ivy League faculty grew. During this time, tenured and tenure-track faculty were hired, some retired, and some moved on to other universities or other careers. Yet over the course of this ten year period, the presence of underrepresented minorities has increased only slightly. The percent of women faculty increased, but not in proportion to the percent of women who were on the tenure-track at the time.

The number of **tenured faculty** climbed from 5,474 to 5,973. With that growth:
- Black professors hovered at 2% of tenured faculty.
- Hispanic professors hovered at 1% of tenured faculty.

- American Indian/Alaska Native went from 2 to 6 total tenured professors across the 8 Ivy League universities.
- Women professors went from 14% to 20% of tenured faculty.

Tenure-track faculty is where a significant increase might be expected from the growing numbers of doctorates awarded to people of color and women. From 1993 to 2001, women earned 42% of doctoral degrees and underrepresented minority scholars earned over 7% of the doctoral degrees nationwide. The number of **tenure-track faculty** grew from 3,230 to 3,560 between 1993 and 2003. During that time:
- Black professors hovered at 3% of tenure-track faculty.
- Hispanic professors went from 2% to 3% of tenure-track faculty.
- The number of American Indian/Alaska Native faculty remained constant at 5 tenure-track professors across the 8 Ivy League universities.
- Women professors went from 31% to 34% of tenure-track faculty.

This article is excerpted with permission from "The (Un)Changing Face of the Ivy League," published February 2005, by the Graduate Employees and Students Organization (GESO) of Yale University. The full report, including references and citations, can be downloaded from: http://www.yaleunions.org/geso

Underrepresented Minority Women Faculty (cont'd)

(Continued from page 1)
eight of the nine physical science and engineering disciplines surveyed, Native American female professors are nonexistent. Underrepresented minority (URM) females fare much better in the social sciences and the life sciences. The few female URM faculty in the "top 50" science and engineering departments are detailed in the Table below.

The data show URM women are less likely than either White women or men of any racial group to be "full" professors and to be awarded tenure. The few "full" professors in each discipline are designated by asterisks after the corresponding number. Other studies have also concluded that URM minority females are less likely to get tenure than White women or men of any racial group. Are universities training an insufficient number of minority women or are qualified women looking outside the academy? The data indicate that both are true, but to varying degrees in different disciplines.

Relatively few URM women earn advanced degrees in science and engineering. The reason for this, according to Professor Cheryl Leggon, is the lack of encouragement they receive. She cites the National Center for Education Statistics that found that "Hispanic and African American women do not persist in science because they are not encouraged to do so." Professor Leggon believes this lack of encouragement has critical implications. She states that numerous studies have shown that "not encouraging women to persist (in science or engineering) produces the same result as actively discouraging them." But the data also show that universities are not taking advantage of the URM women who do complete the PhD. The data find that only fifty-three are faculty at "top 50" physical science and engineering departments (see Table).

This article is excerpted with permission from "A National Analysis of Diversity in Science and Engineering Faculties at Research Universities," and is a continuation of data presented in the June 2004 issue of SPECTRUM. The full report is available from:
www.now.org/issues/diverse/diversity_report.pdf

Physical Sciences and Engineering	Black females	Hispanic females	Native American females
Chemistry (FY2003)	1	5*	1
Math	2	7***	0
Computer Science	0	0	0
Astronomy (FY2004)	2*	2*	0
Physics	0	8***	0
Chemical Engineering	2	3	0
Electrical Engineering	7	3	0
Mechanical Engineering	3	2*	0
Civil Engineering	2	3*	0
Total	**19**	**33**	**1**
*URM female "full" professor	1	10	0
Social Sciences and Life Sciences			
Economics	5***	7***	0
Political Science	26*****	6	0
Sociology	32*******	12**	0
Psychology	22***	26*****	3
Biological Sciences	9*	13**	0
Total	**94**	**53**	**3**
*URM female "full" professor	19	12	0

Light and Color for Minority Middle Schoolers
by Toni Feder, Physics Today

Underrepresented middle-school children are the focus of a new optics outreach program. "It's all about fun and exploration," says Steve Pompea, manager of science education at the National Optical Astronomy Observatory (NOAO) in Tucson, Arizona. "We don't even call it optics. We call it light and color."

Hands-On Optics: Making an Impact With Light (HOO) pairs optics professionals with teachers to work with kids in informal settings such as science centers and after-school programs. The optics professionals will be volunteers culled from the memberships of the Optical Society of America (OSA) and the International Society for Optical Engineering (SPIE). The program's other partners are NOAO, which is developing HOO's experiments, and Mathematics, Engineering, Science Achievement (MESA), an organization with a track record of helping and inspiring underrepresented students to perform well in math and science. In 2000-01, 74% of underrepresented students who received a bachelor's degree in engineering in California had participated in MESA programs.

"It's very unique to get two major professional societies working together," says HOO principal investigator Anthony Johnson, director of the Center for Advanced Studies in Photonics Research at the University of Maryland, Baltimore County. Indeed, several years ago, OSA and SPIE made a controversial and unsuccessful attempt at merging (see Physics Today, November 1999, page 63).

"We are going to go into those areas where kids don't have access," says Johnson. "You've been hearing about the 50th anniversary of Brown v. Board of Education"—the 1954 Supreme Court decision to integrate schools—"and just how separate and unequal it still is. I've been doing this [kind of outreach] for years, but it's great we've been able to set up a more formal structure."

Targeting kids before high school is key, Johnson adds. "A few years ago, I gave a seminar at an inner-city high school. Their eyes glazed over. After they hustled out, two young ladies snuck back into the auditorium. They didn't want their peers to know they were interested in the science. It wasn't cool to be smart. Then I gave the same talk at an elementary school. The bright young faces were all excited. That's the difference between high school

At a test session for Hands-On Optics experiments, sixth graders in Tucson, Arizona, arrange mirrors and lasers to learn about the law of reflection.

and elementary school.

HOO projects will include building kaleidoscopes and telescopes, experimenting with UV and IR light, and arranging mirrors so that a laser shines on a predetermined spot. The program's planners are also developing an optics competition like the egg-drop and bridge-building competitions that MESA sponsors. And to show kids what sorts of careers are possible in optics, HOO will use posters, videos, and class visits by professionals.

The first training program for teachers and volunteers took place last month, and the experiments will be taken into communities in southern California and Washington State this fall. HOO aims to reach 40 000 kids across the US by August 2006.

After that, having used up its $1.7 million in NSF seed money, HOO is supposed to become self-sustaining. Jason Briggs, OSA program manager for HOO, says it's too early to estimate the cost of keeping the program going, but the plan is to raise funding and in-kind contributions from industry. Information about HOO is available on the Web at: http://www.hands-on-optics.org.

Academe's Hispanic Future
by Peter Schmidt, Reprinted with permission from The Chronicle of Higher Education

If they haven't already, college professors and administrators should try to get accustomed to pronouncing names like Alejandro, Jorge, Nuria, and Pilar.

Hispanics have become the largest minority group in the United States and now represent about 13% of the country's population. They account for about half of the population growth in recent years and are expected, given immigration and their relatively high fertility rates, to represent a much larger share of the population and work force in years to come. Of the 5.6 million additional school-age children projected to be living in the United States in 2025, some 5.2 million, or 93%, will be Hispanic, the U.S. Census Bureau says.

Along with growing rapidly, the nation's Hispanic population is spreading out, quickly moving into communities in the South and Midwest where few Hispanics had settled before.

As they show up on campuses, Hispanic students are having a profound influence from the Mexican border to Minnesota, from California to the Carolinas.

In the past decade more than 240 colleges have been designated "Hispanic-serving institutions" by the federal government, meaning that at least a quarter of their enrollment is Hispanic and more than half of their students come from low-income backgrounds. While 49 of the institutions are in Puerto Rico, California has 73; Texas, 38; New Mexico, 20; and Arizona, Florida, Illinois, and New York each have at least 10. Others are located in Colorado, Massachusetts, New Jersey, Oklahoma, Oregon, and Washington. The list grows by about a half-dozen colleges each year.

"Relatively speaking, we are the newest kid on the higher-education block," says Antonio R. Flores, president of the Hispanic Association of Colleges and Universities, which represents Hispanic-serving institutions.

The federal government did not classify colleges as "Hispanic-serving" until 1992. By contrast,

> *"Hispanics are the least-educated major ethnic group. Just 11% of those over the age of 25 have a bachelor's degree, compared with about 17% of black, 27% of white, and 47% of Asian-American adults in the same age bracket."*

historically black colleges and universities date back to 1837. Now some Hispanic-serving institutions, especially in Texas, have such large Hispanic enrollments that they are seeking to make the education of those students a key part of their mission and identity, and they are looking to historically black colleges and universities as potential models, Mr. Flores says.

Many other colleges are establishing new courses geared toward Hispanic students; aggressively trying to recruit Hispanic students, faculty members, and administrators; and overhauling their admissions practices and student services to be more attentive to Hispanic needs. Meanwhile, the Bush administration says it is committed to helping more Hispanics get into college.

'Black and White Paradigm'

There is still plenty of room for improvement. Hispanic students remain severely underrepresented and underserved in higher education. Colleges have made some progress. Since 1980, the number of Hispanics enrolled in colleges has more than tripled, to nearly 1.5 million, outpacing the rate of Hispanic population growth, which has more than doubled to about 38.8 million. Hispanics' share of all bachelor's degrees awarded has risen from about 2.3% to about 6.2%.

But though Hispanics represent about 18% of the college-age population, they account for just 9.5% of all students at the nation's higher-education institutions, and just 6.6% of enrollments at four-year colleges.

Over all, Hispanics are the least-educated major racial or ethnic group. Just 11% of those over the age of 25 have a bachelor's degree, compared with about 17% of black, 27% of white, and 47% of Asian-American adults in the same age bracket. More than two-fifths of Hispanic adults over 25 never graduated from high school, and more than one-fourth have less than a ninth-grade education.

In terms of overall Hispanic educational at-

(Continued from page 10)

tainment, "we were doing better in the '70s than we are in the 21st century," says Raul Yzaguirre, president of the National Council of La Raza, one of the nation's largest Hispanic-advocacy groups.

In many parts of the country, colleges' efforts to serve minority populations remain focused almost solely on black students, even where local Hispanic populations are burgeoning. In Atlanta, the Hispanic population increased nearly tenfold, to about 290,000 during the 1990s. But Hispanics account for just a dozen of the 1,900 students enrolled at Atlanta Metropolitan College, which has a 95% black student body. Harold E. Wade, the college's president, says predominantly Hispanic neighborhoods have cropped up "within walking distance" of his two-year public institution, but "a lot of Hispanic youngsters who have migrated into this area have not reached college age yet," and their parents don't enroll because they "have come here to work and to take care of families here and in Mexico."

Throughout the nation, "we are still seeing education through a black and white paradigm," Mr. Yzaguirre says. Hispanic students, he says, "are not being given the proper priority."

Hispanic men remain especially underserved. A report issued by the American Council on Education found that between the late 1970s and the late 1990s, the college-participation rate for Hispanic men remained essentially unchanged, at 31%. For Hispanic women, the college-participation rate increased from 27% to 37%.

Swimming Against the Tide

Several trends may be making it even harder for Hispanics to get a college education:

- Last year loans accounted for nearly 70% of all federal financial assistance available to college students, up from about 56% two decades ago. Raymund A. Paredes, vice president for programs at the Hispanic Scholarship Fund, the nation's largest private provider of scholarships to Hispanic students, says the shift from grants to loans "is having a very serious impact on the Latino community," which is relatively poor and leery of taking on debt. Many more Hispanics would be attending college if they could get grants rather than loans, and many more would pursue advanced degrees "if they could get out from under this debt that they incur as undergraduates," he says.
- Given their relatively high rate of poverty, His-

EXPLOSIVE GROWTH

In millions	1990	2002
Hispanic population	22.4	38.8
U.S. population	248.8	288.4

Growth 1990-2002	
Hispanic	73%
U.S.	16%

SOURCE: U.S. Census Bureau

panic students have been hit hard by the stiff increases in public-college tuition and the cuts in state financial aid that have come in recent years.

- Because many Hispanics inhabit the nation's fastest-growing regions (and are driving much of that growth), they are especially likely to live near colleges that have been resorting to enrollment caps to hold down costs. They are also disproportionately likely to be turned away when colleges raise their admissions standards to curtail enrollment growth or bolster their own reputations, since the standardized-test scores of Hispanics tend to be significantly lower than those of whites.
- Legal and political assaults on affirmative action may also be taking a toll on Hispanic enrollment. Wherever selective colleges have been forced to limit or abandon their use of race- and ethnicity-conscious admissions, the result has been an immediate drop in the share of Hispanic applicants they accept. Hispanic enrollment has rebounded somewhat when colleges have aggressively used alternatives to affirmative action, such as considering socioeconomic status or automatically admitting those near the top of their high-school classes. But the effectiveness of such policies toward ensuring Hispanic access, especially in graduate and professional schools, remains in dispute.

In the past two years, legal challenges have also been mounted against scholarship, internship, and academic-support programs reserved specifically for minority students. Several colleges have either abandoned the programs or opened them up to all races and ethnicities, based on their lawyers' advice that the programs are legally vulnerable.

FEATURE ARTICLE

Stereotypes: Perspectives from Cognitive Science Research

by William von Hippel

Stereotypes influence the perception, interpretation, and evaluation of others, sometimes blatantly but often in a manner so subtle that they are outside of awareness. Because they serve basic cognitive and motivational functions, stereotypes are highly resistant to change.

On February 4, 1999, just after midnight, 22-year-old Amadou Diallo entered his apartment building. He was spotted by members of the Street Crime Unit, an elite corps of New York City police officers who had been extraordinarily successful in reducing crime, but were often criticized for being too aggressive. In particular, in a practice known as "racial profiling," the Street Crime Unit was routinely selecting African American and Hispanic men to be stopped and frisked. That winter night in 1999, Amadou Diallo was targeted to be one of them. Four white, plainclothes police officers from the unit spotted Diallo, who matched the general description of a suspected rapist. The police thought that Diallo looked suspicious as he appeared to duck into his building to avoid them. As they approached and ordered him to freeze, he reached into his pocket and began to pull out a wallet. Thinking that the wallet was a gun, the police opened fire. Nineteen of their forty-one shots hit Diallo, and he lay dead in the vestibule. Diallo was unarmed.

In the days and weeks that followed, numerous protests erupted in New York City and around the country. The controversial use of "racial profiling" came under national attention and renewed attack. The four officers responsible for the shooting of Diallo were acquitted of any wrong-doing, but many felt that their stereotypes of African Americans played a critical role in their misperception of his wallet as a gun, and their decision to fire so many bullets. In contrast, various politicians, columnists, and citizens defended the police, noting how difficult it is to make life-or-death decisions in the blink of an eye. Although we'll never know what role stereotypes played in the Diallo shooting, the research discussed in this chapter makes it clear that things might have turned out very differently if Diallo had been White.

The Diallo tragedy, and much of the research discussed in this chapter, focus on race. Nevertheless, race is but one kind of group membership that can influence people's thoughts, feelings, and actions toward others. Stereotypes, prejudice, and discrimination also emerge as a function of people's gender, sexual orientation, age, physical appearance, economic class, religion, and a variety of other social categories. Watch the news and you might see stories about genocide in Rwanda, "ethnic cleansing" in Bosnia, neo-Nazi violence in Germany, and hate crimes against gays, Jews, and Blacks in the USA. Despite the magnitude and prevalence of all this violence, it is really just the tip of the iceberg, as stereotypes change the way that people interact with each other in countless subtle ways all over the globe.

This article is divided into four parts. First, we consider the origins and formation of stereotypes. We then examine how stereotypes are maintained, often in the face of inconsistent information from the environment. Next, we discuss how and when stereotypes are applied, with special attention to the consequences of stereotype application for those who are the targets of stereotypes. We conclude with a discussion of ways that stereotypes can be changed.

1. Stereotype formation

Stereotypes are consensual beliefs about the characteristics and traits of a group of people. Although stereotypes are not necessarily negative (e.g., Blacks are stereotyped as athletic), even positive

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stereotypes tend to take on negative connotations when used to describe members of other groups (e.g., Black athleticism is seen as a sign of a primitive nature). This is one of the ways in which stereotypes and prejudice (negative attitudes toward members of other groups) are inter-related. There are numerous origins of such stereotypes. From a historical perspective, it has been argued that slavery in America gave rise to the portrayal of Blacks as inferior, just as the surprise attack on Pearl Harbor in World War II fostered a belief that the Japanese are sneaky. From a political perspective, stereotypes are viewed as a means by which groups rationalize war, religious intolerance, and economic oppression. From a social/cultural perspective, it has been argued that different social roles and real differences between groups contribute to perceived differences.

The formation of stereotypes involves two related processes. The first is *categorization,* by which people sort themselves and others into groups. The second is a process by which people perceive groups to which they belong *(ingroups)* as being different from groups to which they do not belong *(outgroups).* These two processes reflect not only basic cognitive operations but also cultural and motivational factors. Because these two processes are fundamental to social interaction, stereotypes form very early in life. For example, children in the USA have been shown to endorse stereotypes concerning Blacks by the age of five, and to endorse gender stereotypes at an even earlier age.

1.1 Social Categorization

People routinely sort objects into groups rather than think of each as unique. Just as we categorize a new piece of furniture as a chair, and thereby know how to properly interact with it, we also sort each other into groups on the basis of gender, race, age, and other attributes. In a manner similar to object categorization, social categorization is natural and adaptive. By grouping people the way we group foods, furniture, and other objects, we form impressions quickly and use past experience to guide new interactions. In this way we are able to

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"go beyond the information given," making inferences about people whom we've never met without expending a great deal of energy or effort.

There are, however, serious drawbacks to the information gained and energy saved through social categorization. First of all, our categorizations may rely on erroneous beliefs, or may lump people together who have little in common. Second, even in cases in which the stereotype is associated with real group differences, categorizing people leads us to overestimate the differences between groups and to underestimate the differences within groups. Third, once people are sorted into categories, they often are evaluated and remembered with reference to the category. Thus, people tend to notice minority group members more than majority group members, one consequence of which is that negative behavior from a minority group member tends to stand out in people's minds more than negative behavior from a majority group member. This process is known as *illusory correlation*, and it leads people to favor majorities over minorities even when the overall pattern of behaviors is identical across groups. Finally, because people can't choose many of the groups they belong to (e.g., gender and race), all members of the group tend to be associated with the stereotypic labels whether these labels accurately describe them or not. This process is often unfair and demeaning to those who are targets of stereotypes, and as the Diallo case shows, it can be dangerous to members of groups who are marginalized in society or perceived as violent.

1.2 Ingroups versus outgroups

The second process that promotes stereotyping follows directly from the first. Although grouping humans is much like grouping objects, there is a critical difference. When it comes to social categorization, the people doing the categorizing are members or nonmembers of the categories they use. The tendency to carve the world into ingroups and outgroups, or "us" and "them," has a number of important consequences. Perhaps the most important consequence is ingroup bias, or the nearly uni-

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versal tendency to favor members of one's own group over members of other groups. Ingroup bias is so ingrained that the simple act of placing people into randomly determined groups can create it, and indeed the mere mention of the words "us" and "them" leads automatically to associated positive and negative emotions.

1.3 Social, cultural, and motivational factors

Social categorization and ingroup/outgroup distinctions reflect basic cognitive processes; they are by-products of how people think. They are also influenced, however, by situational factors, such as the motivations that people have in particular settings and the cultural context in which they live. For example, people are more likely to rely on stereotypes when they are feeling bad about themselves, as stereotypes help them denigrate others and thereby feel relatively better by comparison. Stereotypes and prejudice are also magnified when people are in conflict with each other, as the act of stereotyping facilitates dehumanization, which in turn enables people to be more ruthless with each other than they might otherwise be. It is also clear that people learn stereotypes through role models, conformity to group norms, and immersion in their culture more generally. Like hairstyles and taste in music, stereotypes are affected by peers, family, and immediate culture.

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2. Stereotype maintenance

People tend to perceive and explain events differently as a function of whether the events are consistent or inconsistent with their stereotypes, and these perceptual and explanatory processes are biased in favor of stereotype maintenance. A large number of experiments show that even when members of two groups behave identically, people who hold different stereotypes of the two groups will typically see them as different from each other in ways that are stereotype-consistent. In addition, subtyping and self-fulfilling prophecies are two important processes that help maintain stereotypes in the face of what otherwise might be disconfirming evidence.

2.1 Subtyping

One of the unnerving paradoxes of stereotyping is that people often manage to hold negative views about a certain group even when they like individual members of the group. Gordon Allport recognized this phenomenon almost half a century ago, when he wrote, "There is a common mental device that permits people to hold prejudgments even in the face of much contradictory evidence. It is the device of admitting exceptions…. By excluding a few favored cases, the negative rubric is kept intact for all other cases." Confronted with a woman who does not seem particularly warm and nurturing, for example, people can either develop a more diversified image of females or toss the mismatch into a special subtype—say, *career women.* To the extent that people create this subtype, their existing stereotype of women-in-general will remain intact.

2.2 Self-fulfilling prophecies

Stereotypes not only influence perceptions of other groups, they can also influence how other group members actually behave. Through the mechanism of self-fulfilling prophecies (whereby people hold a belief that causes them to change their behavior, which in turn causes their original belief to come true), stereotypes can bring about their own reality. For example, when teachers think that their poor or minority students are more likely to be disruptive, and less likely to perform well academically, they tend to challenge them less and discipline them more. The consequence of this pattern of treatment is that poor and minority children don't learn as much, and because they aren't intellectually stimulated they tend to act out in the

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classroom. This behavioral pattern only confirms the teachers' original stereotypes, leading to more discipline and less mental challenge. The unfortunate consequence of this spiraling behavioral sequence is that poor and minority children tend to perform much worse in school than their well-to-do and majority counterparts, in the USA, the UK, and around the world. Self-fulfilling prophecies also emerge in a variety of settings outside of the classroom, and all groups are occasionally victims and perpetrators of the process.

3. Stereotype application

Stereotypes often color the interpretation of events, particularly events that are ambiguous or learned second-hand. For example, imagine learning that a nurse got into a fight at work. Now imagine learning that a construction worker got into a fight at work. What images of these actions come to mind? Research shows that people interpret "getting into a fight" differently as a function of who did it, and then falsely remember that they learned rather than imagined the stereotypic information (e.g., that the nurse got into an argument and the construction worker got into a fist-fight). This is a fundamental effect of stereotyping: People are likely to think of others as more stereotypic than they actually are, and often do not recognize that they are interpreting behaviors in a stereotypic fashion.

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3.1 The importance of ambiguity

Because most people do not want to admit that they are stereotyping (either to themselves or to others), they tend to rely on their stereotypes only when the situation provides them with ambiguity about the cause of their behavior. As an illustrative example, consider a classic experiment conducted by Melvin Snyder and his colleagues at Dartmouth College. Snyder and colleagues brought people into the laboratory under the auspices of completing a questionnaire, and asked them to have a seat in a nearby room to fill it out. In reality, Snyder wasn't interested in the questionnaire; he only cared where the people sat down. Only two seats were available, one of which was next to a physi-

cally disabled person and one of which was next to a person who wasn't disabled. In front of each empty chair sat a television, and half the time the two TVs were presenting the identical program and half the time they were showing different programs. When the two TVs were showing the same program, most people sat down next to the disabled person. But when the two TVs were showing different programs, most people avoided the disabled person (and it didn't matter which TV was showing which program).

The reason that the television programming was so important is that when the two TVs were showing different programs, they provided an excuse for participants to avoid the disabled person. The different programming on the TVs created ambiguity (for both self and other) about whether the choice of seating had anything to do with the person in the next seat, or was really caused by the program being shown. In contrast, when the two TVs were airing the same program, if the participant avoided the disabled person the meaning of this behavior would be crystal clear to both self and other. Under this circumstance, there would be no ambiguity about whether people were avoiding the disabled person, a behavior that most of us would be embarrassed just for considering. These results suggest that stereotypes and prejudice will influence behavior toward members of other groups only when other aspects of the situation could legitimately be the cause of the behavior. Numerous other studies have supported this general idea that people will typically only show evidence of stereotyping when the situation provides an excuse for what would otherwise be obviously stereotypical judgments or behavior. Because the everyday world provides numerous situational details that could potentially be the source of what is really stereotypical behavior, these results suggest that subtle stereotyping should be quite common, and indeed it is. From shopping malls to employment agencies to the courtroom to housing and schools, Blacks and other minorities face stereotypes that limit their opportunities in ways that are so subtle that frequently they themselves are unaware that

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stereotypes are at work.

3.2 Automatic stereotyping

Because most cultures are suffused with stereotypes, people often automatically activate their stereotypes when they are exposed to members of groups for which popular stereotypes exist. Just as most of us automatically think of "butter" when someone says "bread," we also tend to automatically think of concepts relevant to a stereotype when we think of members of a stereotyped group. We can try to prevent the stereotype from influencing our judgments or behaviors (and non-prejudiced people do just that), but because we are often unaware that a stereotype has been activated, it can affect us despite our best intentions to the contrary. That being said, there are people for whom automatic stereotype activation is less likely, and there are circumstances in which automatically activated stereotypes are more or less likely to be applied. In particular, people are likely to form stereotypic impressions when they're busy, pressed for time, or unable to think carefully (e.g., due to exhaustion or intoxication) about the unique attributes of the person they encountered. In contrast, people often manage to inhibit or replace their stereotypic thoughts, and even prevent their activation, when they are highly motivated to form an accurate impression or be egalitarian in their judgments.

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3.3 Stereotype application from the target's perspective

In a provocative theory that has attracted a great deal of attention, Claude Steele recently proposed that in situations in which a negative stereotype can apply to someone, people may fear being seen "through the lens of diminishing stereotypes and low expectations." Steele calls this predicament *stereotype threat,* because it hangs like "a

threat in the air" when the individual is in the stereotype-relevant situation. This predicament can be particularly threatening for individuals whose identity and self-esteem are invested in domains in which the stereotype is relevant. Steele argues that stereotype threat plays an important role in diminishing the performance and identification of stereotyped group members. [*Editor's Note: An article about stereotype threat by Claude Steele can be found in the June 2002 issue of SPECTRUM.*]

According to Steele's theory, stereotype threat can hamper achievement in two ways. First, the "threat in the air" can directly interfere with performance, by increasing anxiety and triggering distracting thoughts in performance situations. Second, if stereotype threat is chronic in a particular domain, it can cause people to *disidentify* from that domain—to dismiss the domain as no longer relevant to their self-esteem and identity. To illustrate, imagine a black and white student who enter high school equally qualified in academic performance. Imagine that while taking a particularly difficult test at the beginning of the school year, each student struggles on the first few problems. The white student may begin to worry about failing, but the black student may also have a large set of additional worries about appearing to confirm a negative stereotype of Blacks. Even if the black student doesn't believe the stereotype at all, or doesn't believe that it describes himself, the threat of being reduced to a stereotype in the eyes of those around him can trigger anxiety and distraction, impairing performance. And if he experiences this threat in school frequently—perhaps because he stands out as one of only a few Blacks in the school or perhaps because he is treated stereotypically by others—the threat can eventually wear him down. To buffer himself against the threat, he may learn to disidentify with school; if so, his academic performance will be-

come less relevant to his identity and self-esteem. In its place, some other domain of life, such as social success or a particular non-academic talent, will become a more important source of identity and pride. The unfortunate consequence of this process is that once people disidentify with school, their academic performance tends to suffer because they no longer put the same time and energy into academic activities.

4. Stereotype change

4.1 Intergroup contact

Modern stereotypes are difficult to overcome because they manifest themselves in indirect ways, and even the perpetrators are often unaware that they are relying on stereotypes. Is there a solution to this problem? According to Gordon Allport's contact hypothesis, one way to reduce stereotyping is to bring members of different groups into contact with one another. The contact hypothesis states that four conditions facilitate the positive effects of intergroup contact: people should have equal status, common goals, cooperative means to achieve those common goals, and intergroup contact should be sanctioned by relevant authorities. The results of hundreds of experiments in dozens of countries have generally confirmed this hypothesis, although this research has also shown that intergroup contact can also make stereotypes worse if people feel anxious or threatened in the contact situation.

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4.2 The jigsaw classroom

As is noted above, cooperation and shared goals are important for intergroup contact to be successful. They can break down the psychological barrier between groups, leading members to recategorize the two groups into one and reducing ingroup favoritism: "They" become part of "us". Yet the typical classroom is filled with competition, a factor that usually leads to increased stereotyping. To combat this problem in the classroom, Elliot Aronson and his colleagues developed a cooperative learning method called the jigsaw classroom.

In newly desegregated public schools in Texas and California, they assigned fifth-graders to small racially and academically mixed groups. The material to be learned within each group was divided into subtopics, much like the way a jigsaw puzzle is broken into pieces. Each student was responsible for learning one piece of the puzzle, after which all members took turns teaching their material to one another. In this system, everyone—regardless of race, ability, or self-confidence—needs everyone else if the group as a whole is to succeed. This method produced impressive results. Compared with children in traditional classes, those in jigsaw classrooms grew to like each other more, liked school more, were less prejudiced, and had higher self-esteem. What's more, academic test scores improved for minority students and remained the same for majority students. Much like an interracial sports team, the jigsaw classroom offers a promising way to create a truly integrated educational experience. It also provides a model of how to use interpersonal contact to promote greater tolerance of diversity.

4.3 Undoing automatic stereotype activation

The situations in which people find themselves have an important influence on the degree to which they rely on stereotypes, but long-term personal decisions not to stereotype others can be important as well. Low-prejudice people in particular are often successful at regularly bypassing their stereotypes, as they seem to focus on personal information about individual members of stereotyped groups and thus have an easier time keeping stereotypic thoughts out of mind. This may be the best strategy for avoiding the influences of stereotypes: Rather than try to suppress thoughts about a stereotyped group, try instead to activate thoughts about the individual who happens to be a member of that group. Keep in mind, however, that unlearning stereotyping is much like trying to break other bad habits; it takes a long time, lots of practice, and you can't be discouraged if you slip up on occasion. Indeed, accidentally relying on stereotypes and thereby being unfair to someone is one of the most

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important motivators that helps low-prejudice people maintain vigilance so that they don't make such mistakes in the future.

In addition to a personal commitment to breaking the stereotype habit, there are two other factors that may help put the brakes on stereotype activation. These are:

• *Taking the perspective of a member of a stereotyped group.* For example, in one experiment people spent a few minutes writing about a day in the life of an elderly man. Some of the participants were asked to suppress their stereotypes about the elderly while writing, and others were asked to take the perspective of the elderly man himself while writing. Both groups were equally good at not using stereotypes in their stories. But on a subsequent task in which their activation of the elderly stereotype was measured, those who had earlier tried to suppress the stereotype showed strong evidence of stereotype activation, but those who had taken the perspective of the elderly man did not.

• *Being motivated to be fair and egalitarian toward other groups.* A number of experiments have shown that this motivation can be very effective in reducing stereotype activation. This goal is chronic in some people, but it also can be induced temporarily in others, such as when people are made to feel that they recently have *not* been fair to others. When people feel that they have violated their own personal or cultural standards of fairness and morality, they become less likely to activate negative stereotypes of others. Conversely, if they feel that they have demonstrated their fairness and virtue, they may ironically become more likely to activate negative stereotypes.

In sum, a variety of cognitive, motivational, and social/cultural factors come together to cause people to rely on stereotypes even when they would rather not. This combination of factors contributes to the pervasiveness and perniciousness of stereotyping. When situations or personal standards and motivations cause people to see and value others as individuals rather than group members, however, they often can put stereotypes aside. Learning and applying stereotypes tend to be all-too easy; resisting stereotypes, in contrast, requires effort, practice, and motivation. Nevertheless, the benefits to society that such resistance can bring are enormous, and thus researchers continue to study when and how stereotypes can be changed, weakened, and undone.

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Academe's Hispanic Future (cont'd)

Leaks in the Pipeline

Policy analysts often speak of the various sectors of education as pieces of a pipeline. At every stage of that pipeline, Hispanic students are getting stuck or spilling out. Their problems begin in their early years, when many Hispanic children receive little exposure to English, and they are much likelier than white children and nearly as likely as black children to be living in poverty. Several studies have shown that the schools they enter tend to be some of the nation's most segregated and poorly financed, and more likely than others to be staffed by teachers with little experience in their fields.

By the age of 17, Hispanic high-school students, on average, have the same reading and mathematics skills as white 13-year-olds. More than a third of the states recently surveyed by the National Center for Education Statistics said that their Hispanic students were significantly more likely than others to drop out. And those who earned their diplomas were less likely than their white peers to have taken rigorous college-preparatory courses such as Algebra II and chemistry, according to a report issued last month by the Education Trust, a nonprofit research and advocacy organization based in Washington, D.C.

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"The curriculum matters hugely," says Paul Ruiz, one of the Education Trust's chief researchers. "A robust curriculum is the single greatest predictor of college success."

It is not that Hispanic families fail to see the value of education. Family surveys conducted by the Education Department show that more than 9 out of 10 Hispanic parents expect their children to attend college—a figure in line with the results for both black and white parents. But Hispanic children are much less likely than white children to have a parent who attended college. "It is absolutely the case that they have parental support, but they don't have anybody in the family who really knows the ropes," says Tomás A. Arciniega, president of Cali-

fornia State University at Bakersfield, which has an enrollment that is about 36% Hispanic, and serves the children of many Mexican and Central American migrant workers employed by local farms and food-processing plants. Like many colleges, his institution is collaborating with local community-college district and public schools to try to get more Hispanic children to go to college.

The educational problems of Hispanic Americans don't end at the college door. Hispanic freshmen are less likely than white students to progress to upper-division courses, and those who make it to the third year of college are less likely to earn bachelor's degrees, according to the Inter-University Program for Latino Research, a consortium of 18 Hispanic-focused research centers.

On the whole, Hispanic students are far likelier than white students to be enrolled in two-year colleges, to be working to support themselves or their families, or attending college part time—choices they often can't help making but that reduce their chances of earning bachelor's or advanced degrees. "The biggest challenge that these kids have to face is, How do they balance what they see as their responsibility to help out at home now that they are young adults and, at the same time, follow their dream of going on to college?" says Mr. Arciniega. He routinely urges faculty and staff members to sit down with students who also work and convince them of how much more money they will earn in a lifetime with a degree. "We are constantly hitting on the note that college is important," he says.

Only black students have a worse college-graduation rate than Hispanics, and Hispanics have the lowest rate of graduate-school enrollment of any major racial and ethnic group. At the very end of the educational pipeline, Hispanics earn just 4% of the doctorates awarded by colleges. A report issued last month by the American Council on Education says that the number of Hispanics earning doctorates or professional degrees actually declined slightly in recent years. Those statistics help ex-

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plain why Hispanics account for just 2.9% of full-time college faculty members and just 3.2% of college administrators.

Repairs in just a few segments of the education pipeline could produce significant increases in the number of Hispanics earning degrees, according to the Inter-University Program for Latino Research. In a 2001 report, it crunched the numbers and determined that if Hispanic high-school students earned their diplomas and went on to four-year colleges at the same rate as white students, the result—all other things remaining equal—would be a 25-% increase in the number who earn bachelor's degrees each year. Increases of 12% in the number of baccalaureates annually awarded to Hispanics could be produced by ensuring that those in two-year colleges transfer to four-year colleges at the same rate as white students, or by ensuring that those who are freshmen at four-year colleges graduate at the same rate as white students.

Among the institutions that have mounted concerted efforts to retain Hispanic students is Lehman College of the City University of New York system, which has about a 47-% Hispanic enrollment. It operates a program that keeps freshmen together in groups of 25 to 30 to provide one another with support. The faculty members involved share information about particular students and seek to integrate the curriculums of their respective classes so that students in an English-composition class can be working on assignments that they can turn in to their sociology professor.

"This program is costly because you have to pay faculty for additional hours of meetings with each other and with students," Ricardo R. Fernandez, president of Lehman College, says. But, he says, "the students like it," and he is confident that the program keeps many from dropping out during their crucial first year.

St. Philip's College, a public two-year institution in San Antonio, Tex., has the distinction of being classified as both historically black and His-

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panic-serving, with an enrollment that is about a fifth black and half Hispanic. Angie S. Runnels, its president, says Hispanic students there clearly benefit from support services developed for black students, such as tutoring programs; instructional laboratories focused on reading, writing, and mathematics; and an approach to student advising that disperses counselors into academic divisions and departments to ensure adequate guidance. "We are particularly interested in students who are the first generation in their families to experience college," Ms. Runnels says.

Partly because they offer night classes and training for specific jobs, for-profit colleges have proved especially adept at recruiting and retaining Hispanic students, even though they often charge more than public institutions.

Many experts on Hispanic college students believe that their educational attainment would improve, especially in graduate and professional schools, if they were more willing to travel long distances to colleges well suited to meet their needs. "An emphasis on close family ties is one characteristic shared by most Latinos regardless of national origin or income, and among Latino immigrants this often translates into an expectation that children will live with their parents until they marry," says a report by the Pew Hispanic Center.

A Diverse Group

Despite their linguistic and cultural similarities, the nation's Hispanic residents are very diverse. Experts on educating them generally agree that getting a larger proportion through college will require focusing on educational differences that the collective term "Hispanic" now masks.

For instance, Cuban-Americans ages 18 to 24 are slightly more likely than white students their age to be enrolled in college, and 90% attend full time, more than any other racial or ethnic group. They are also about as likely as white students to go on to graduate school. In contrast, Mexican-

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American students in that age bracket are about half as likely as their Puerto Rican or Cuban-American peers to be attending two-year colleges.

Puerto Ricans, many of whom travel back to the island often or for extended periods, as family or work needs dictate, can have distinct educational needs tied to their mobility. "You can have a kid who will start in Puerto Rico in September and be in New York in November," says Felix V. Matos Rodriguez, director of the Center for Puerto Rican Studies at Hunter College.

"It all depends on what circumstances they come here for," says Eduardo J. Padrón, president of Miami Dade College, where the enrollment is two-thirds Hispanic. "If they come here as a result of political circumstances, what you find is that some of them are better prepared than our native students. If the immigration is economic immigration, what you find is that most of these people come with a lack of knowledge of the culture and language. Even in their own language, they are not well prepared."

It also matters greatly whether Hispanic students or their parents were born in the United States or abroad. Statistics that represent Hispanics as a group often are severely skewed by the foreign-born, who account for about 40% of the overall Hispanic population. One example: On average, Hispanic males 25 and older have 10.6 years of schooling. When immigrants are taken out of the equation, however, Hispanics' educational attainment rises to 12 years.

About 44% of adult Hispanic immigrants dropped out of school before getting their high-school diplomas, compared with about 15% of those born here. More than half of foreign-born Hispanic children who had dropped out of schools in their native lands never set foot in schools in the United States.

The Pew Hispanic Center has found that foreign-born Hispanic teenagers are more likely than other immigrants their age to have come to the United States to work rather than study. They earn a lot more money than black people and white peo-

ple their age—a reflection of long hours rather than high pay—and they're a key source of low-skilled, low-wage labor for agriculture and other industries. Because the nation's immigration policies place a heavy emphasis on bringing in the family members of legal U.S. residents, the current influx of the poor and uneducated props open the door for immigration by people with similar backgrounds.

"America needs a highly educated work force, but we have an immigration policy that is importing huge numbers of undereducated immigrants," says David Ray, a spokesman for the Federation for American Immigration Reform, a nonprofit advocacy group in Washington. "You get a cheap, exploitable employee for the business owner, and an additional tax burden for the American worker."

When Hispanic families come here illegally, paying for college can be especially tough. Many states' public colleges require undocumented immigrants to pay the same, comparatively high tuition as nonresidents, although a few states, including California, New York, and Texas, have agreed in recent years to let them pay in-state rates. They are ineligible for federal financial aid for college, and for many scholarships and grants awarded by colleges and private foundations. "A lot of donors are uncomfortable about helping undocumented students," says Mr. Paredes of the Hispanic Scholarship Fund, which provided more than $26-million in aid to more than 7,500 Hispanic college students during the 2002-3 academic year.

The educational prospects improve substantially for the U.S.-born children of Hispanic immigrants, who account for about 28% of the total Hispanic population and attend college at the same rate as whites. That is especially true of people whose families came here from the Dominican Republic. Ramona Hernandez, director of the Dominican Studies Institute at City College, in New York, says she believes, based on personal experience and anecdotes, that Dominican immigrants place an exceptionally high value on education.

"I used to show off my books on the train," says Ms. Hernandez. "I wanted people to see I was

> *"Statistics that represent Hispanics as a group often are severely skewed by the foreign-born, who account for about 40 percent of the overall Hispanic population."*

Academe's Hispanic Future (cont'd)

going to college. I wanted to share that information on the subway train as I was commuting from Lehman College to my home in the Bronx."

As with other immigrant groups, members of the so-called "second generation" of Hispanics—the U.S.-born children of the foreign-born—tend to have a fire in the belly that makes them achieve at levels that their own children, the "third generation," can't match. Among the U.S.-born children of U.S.-born Hispanics—the children of the "third generation" and beyond—just 36% of 18- to 24-year-old high-school graduates are in college. The second generation of Hispanics catches up with the white population in terms of college attendance, but its descendants lose some of that ground.

Moving Into New States

About half of the nation's Hispanics live in just two states, California and Texas. Eight other states—Arizona, Colorado, Florida, Illinois, Nevada, New Jersey, New Mexico, and New York—account for more than a fourth. But Hispanics also are rapidly moving into states where relatively few had lived just a few decades ago. During the 1990s, their numbers more than doubled in Kentucky, Minnesota, and Nebraska, more than tripled in Alabama, Tennessee, and South Carolina, and more than quadrupled in Arkansas, Georgia, and North Carolina.

"Members of the so-called 'second generation' of Hispanics—the U.S.-born children of the foreign-born—tend to have a fire in the belly that makes them achieve at levels that their own children, the 'third generation,' can't match."

Many colleges in these states are just beginning to find ways to serve Hispanic students. Carl Patton, president of Georgia State University, says his institution established a Hispanic-student-services office and is working to increase Hispanic enrollment, now at about 3%, to 8% to reflect Georgia's Hispanic population.

"We have found that the way you get these students is from word of mouth," he says. "A stream of students starts to come from the good schools, and those students will tell other students."

In Minnesota, Minneapolis Community and Technical College has joined with U.S. Bancorps to set up a program to train Hispanic bank employees, in response to a threefold increase in the city's Hispanic population during the 1990s. Phillip L. Davis, the two-year college's president, says the program is popular because it trains students for existing jobs and is not just based on "off-in-the-distance speculation about what the job market will look like." In states like California, Florida, Illinois, and Texas, public colleges are feeling top-down pressure to better serve Hispanic students as Hispanic legislators grow in number and flex more muscle.

For public colleges in those states, improving services for Hispanic students is becoming "a budget issue," says Gilbert Cárdenas, director of the Inter-University Program for Latino Research. "They realize that if they are going to get the support of the elected officials, they have to be more sensitive to the broader needs of the state."

The Bush administration has taken note of the educational problems of Hispanic Americans. Since 2001 it has increased federal spending on colleges classified as "Hispanic-serving" by about 36%, to $93-million. It has also overseen a $39-million, or 64-%, increase in spending on colleges of education to prepare teachers to work with students who do not speak English at home.

In October 2001, President Bush signed an executive order establishing the President's Advisory Commission on Educational Excellence for Hispanic Americans. In a report issued last March, the panel warned: "Hispanics are not maximizing their income potential or developing financial security. This leads to lost tax revenues, lower rates of consumer spending, reduced per-capita savings, and increased social costs."

Among its recommendations, the commission urged the federal government to conduct much more research on the needs of Hispanic students; hold colleges accountable for improving Hispanic graduation rates; and undertake a nationwide public-awareness campaign aimed at helping Hispanic parents navigate the nation's education system.

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Upon the release of the commission's report, Secretary of Education Roderick Paige said: "We're not letting any more Hispanic kids slip through the cracks. It's a disgrace, and it's going to stop."

Ronald Reagan, and every president since, worked with similar panels on Hispanic education, with mixed results. Mr. Yzaguirre, of the National Council of La Raza, resigned as the head of such a commission under President Bill Clinton because, he says, in six years not a single federal agency had complied with an executive order instructing them to provide the panel with an inventory of programs for Hispanic students. The report from the newest commission says that it too had trouble getting federal departments and agencies to provide basic information about their services to Hispanic students.

Such developments have made many Hispanic advocates cynical about the prospect of the federal government's bringing about real improvements any time soon.

"We don't need any more reports," says Lauro F. Cavazos, who worked with such panels as secretary of education under Presidents Reagan and George H.W. Bush. "We know what the problem is. We know what the solutions are. There just has to be a will to do it, to bring about the change."

For Many Hispanics, College is an Obstacle Course

Hispanic high-school graduates are more likely to go on to college than their white peers, yet are less likely to earn bachelor's degrees. They are deterred by several obstacles tied to poverty and immigration, and others that they inadvertently create for themselves by focusing as hard on paying bills as they do on getting through college. Among the biggest obstacles:

- Poor academic preparation. On average, Hispanic students score 9% to 11% lower than white students on standardized college-admissions tests. More than one-fourth of Hispanics enter college needing remedial English courses, compared with one-tenth of white freshmen, and more than half need remedial mathematics, compared with less than one-third of their white peers. On average, Hispanic students' college grades are lower, and those who need to play catch-up generally end up taking longer to earn a degree.
- Parents who never attended college. More than

two out of five Hispanic freshmen at four-year colleges are the first in their family to attend college, compared with about one out of five white freshmen. Those whose parents can't speak English are even less likely to get sound advice from their families about college.

- Worries about tuition. More than three-fourths of Hispanic freshmen at four-year colleges report having major concerns about paying for school, compared with one-fifth of white freshmen. Hispanic students tend not to take advantage of all the financial aid that is available to them, particularly loans, which usually account for most of the available assistance.
- Not transferring from two-year colleges. About 40% of 18- to 24-year-old Hispanic college students are enrolled in two-year institutions, compared with 25% of black and 25% of white students. Of those who do not start at four-year institutions, 39% have no degree and have dropped out within four years. Of those who begin at four-year institutions, just 18% leave college without a degree within four years.
- Enrolling in college part time. About 25% of traditional-age Hispanic college students are enrolled part time, compared with 15% of white students. Part-time college students of any race or ethnicity are more likely than full-timers to drop out.
- Enrolling later in life. Among the traditional college-age population, 33% of Hispanic high-school graduates and 42% of white high-school graduates are enrolled in undergraduate programs. Traditional-age college students are more likely than older students to earn their baccalaureates and go on to earn advanced degrees. About 4% of Hispanic high-school graduates 25 and older are enrolled in undergraduate programs, making them twice as likely as their white counterparts to still be working toward undergraduate degrees at that age when they are more likely to have children and other responsibilities distracting them from their studies.

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