

CONNECTION

THE JOURNAL OF THE NEW ENGLAND BOARD OF HIGHER EDUCATION

Trends & Indicators in Higher Education 2003



VOLUME XVII
NUMBER 5
SPRING 2003
\$3.95

Inside:

- Tom Mortenson on New England's Higher Education Economy
- How to Win the College Ratings Game ... and Lose Your Integrity
- Critical Condition: The Region's Health Care Workforce Crisis
- Beyond High Stakes: Higher Expectations

"I like investment choices, and the 529 CollegeBoundFund gives me plenty of them."



"The 529 CollegeBoundfund from Alliance Capital is one of America's premier college savings plans.

It gives my parents the power of tax-deferred growth. The power of federal tax-free withdrawals for college expenses. A wide variety of investment options to choose from, fifteen in fact.

The power of no income limit and a high limit on how much they can set aside for me.

The power of special gift tax and estate planning features for my grandparents.

The power of Alliance Capital, one of the world's premier investment managers.

You can learn more today by calling your financial advisor or by logging on to collegeboundfund.com.

The 529 CollegeBoundfund. It has everything my parents need to help send me to college."



Paul J. Tavares
General Treasurer

CollegeBoundfundSM

888 324-5057
collegeboundfund.com



William H. Hurry, Jr.
Executive Director

Alliance Capital 
The Investment Professional's Choice



Earn Dollars toward your CollegeBoundfundSM account with the BabyMint college savings accelerator.

*Under a "sunset provision," federal tax benefits expire on December 31, 2010 in the absence of re-enactment. As with all tax-related decisions, consult your tax advisor before investing. Investments are not guaranteed by the State of Rhode Island or otherwise and may lose value. For more information, including a description of fees, expenses and risks, contact Alliance Capital or your financial representative for a free description. Read it carefully before investing or sending money. Alliance Fund Distributors, Inc., member of NASD.

Investment Products Offered

Are Not FDIC Insured May Lose Value Are Not Bank Guaranteed

Your
Partner
in
Student
Health
Insurance



Strong Minds... & Healthy Bodies...

Ensure Success.

We're committed to student health!

The Chickering Group is the largest student health insurance administrator in the nation. We represent the only student health insurance delivery system that provides centralized and 100% student-focused administration of all management services, including account management, customer service, claims processing, managed care and underwriting.

We are proud to be celebrating our fifth year in partnership with Aetna, the leading health and benefits organization in the country. This relationship combines the strengths of Aetna's nationwide network of physicians, hospitals, pharmacies and other providers, with The Chickering Group's two decades of experience administering student-focused health insurance plans.

Coverage and services include:

- Customized benefit plans coordinated with campus student health centers
- National Preferred Provider Network with access to over 500,000 Providers
- Web-based client and member products
- Emergency Travel Assistance Services with Unlimited Medical Evacuation and Repatriation Benefits
- Vision Discount Program with Nationwide Providers

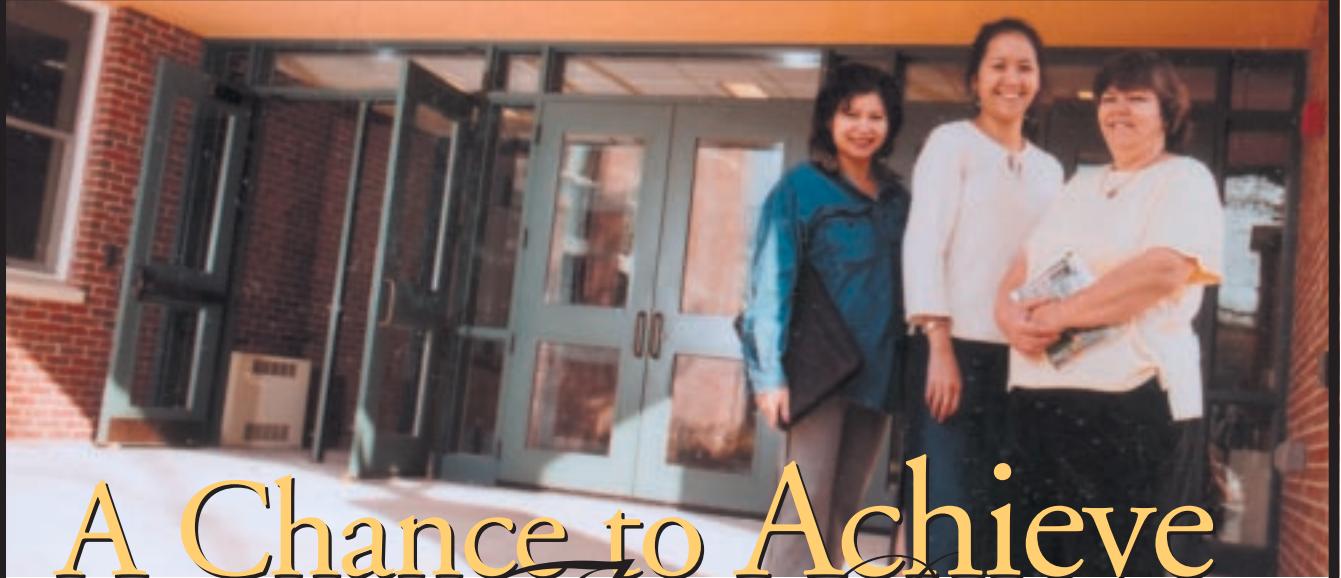
Visit our website at www.chickering.com to learn more about the The Chickering Advantage. Look for the [Become a Client](#) link, and download an insurance questionnaire. Complete this form and fax or email it to us to receive a comprehensive student health insurance plan quote. Call us toll-free at:

1-877-480-3843
fax: 1-617-582-5001
info@chickering.com



The Chickering Group

www.chickering.com



A Chance to Achieve Their Dreams

This year, more than 720 non-traditional adult learners who face barriers to academic success will have an opportunity to earn a college degree.

Through the New England ABE-to-College Transition Project, GED graduates and adult diploma recipients can enroll at one of 25 participating adult learning centers located across New England to take free college preparation courses and receive educational and career planning counseling. They leave the program with improved academic and study skills, such as writing basic research papers and taking effective notes. Best of all, they can register at one of 30 colleges and universities that partner with the program.

Each year, the Project exceeds its goals: 60 percent complete the program; and 75 percent of these graduates go on to college.

By linking Adult Basic Education to post-secondary education, the New England ABE-to College Transition Project gives non-traditional adult learners a chance to enrich their own and their families' lives.

To learn more, contact Jessica Spohn, Project Director, New England Literacy Resource Center, at (617) 482-9485, ext. 513, or through e-mail at jspoahn@worlded.org. (The Project is funded by the Nellie Mae Education Foundation through the LiFELiNE initiative.)



Nellie Mae
Education
Foundation

Opening Doors to Tomorrow



COVER STORIES

- 15** Leading Indicator: New England's Higher Education Economy

Thomas G. Mortenson

- 18** How to Make Your College No. 1 in *U.S. News & World Report* ... and Lose Your Integrity in the Process

Robert L. Woodbury

- 21** The Changing Shape of Learning Technology and Tight Budgets Force a Fundamental Rethinking of the Higher Education Enterprise

Prakash Nair

- 24** Half-Full or Half-Empty? How Institutional Cooperation Could Turn a Wave of Faculty Retirements into an Opportunity

Lorna M. Peterson

TRENDS & INDICATORS

- | | |
|----|----------------------------------|
| 27 | Introduction |
| 28 | Demography |
| 31 | Admissions & Enrollment |
| 38 | Degrees & Educational Attainment |
| 42 | Student Migration |
| 44 | Retention & Graduation |
| 46 | Financing Higher Education |
| 52 | University Research |
| 53 | Faculty Profiles |
| 54 | Index of Figures |

COMMENTARY & ANALYSIS

- 56** A Critical Condition

Solving New England's Health Care Workforce Crisis
Richard M. Freeland and Paul E. Harrington

- 59** Beyond High Standards and High Stakes, We Need Higher Expectations

Blenda J. Wilson and Jay Sherwin

- 61** Community Repositories of Knowledge A Tool to Make Sure Research Pays Off for University Partners

Linda Silka

DEPARTMENTS

- 5** Editor's Memo

Now and Then
John O. Harney

- 7** Short Courses

- 13** Message from the President

Higher Education Reorganization:
To Move a Pachyderm ...
Robert A. Weygand

- 66** Books

Presidential Material Provoking Thought
reviewed by *Joseph M. Cronin*

Ingenuity Four on the History of New England's Economy
reviewed by *Alan R. Earls*

- 69** Campus: News Briefly Noted

- 72** Data Connection

CONNECTION

THE JOURNAL OF THE NEW ENGLAND BOARD OF HIGHER EDUCATION

CONNECTION: THE JOURNAL OF THE NEW ENGLAND BOARD OF HIGHER EDUCATION is published five times a year by the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111-1325 Phone: 617.357.9620 Fax: 617.338.1577 Email: connection@nebhe.org

Vol. XVII, No. 5 Spring 2003
ISSN 0895-6405
Copyright © 2003 by the New England Board of Higher Education.

Publisher: Robert A. Weygand
Executive Editor: John O. Harney
Senior Director of Communications:
Charlotte Stratton
NEBHE/CONNECTION Intern: Monica Deady
Design and Production: tpgcreative, Boston, MA

Director of Advertising Sales and Marketing: Myha Nguyen

Back Issues: Regular issues \$3.95 each; annual directory issue \$14.95.

Advertising rates are available upon request.

CONNECTION is printed in New England.

CONNECTION is indexed and abstracted in EBSCOhost's Academic Search Elite, Academic Search Premier and Professional Development Collection, and indexed in PAIS International and ERIC's Current Index to Journals in Education. A cumulative index of CONNECTION articles and abstracts of recent articles are also accessible on the World Wide Web at www.nebhe.org.

The New England Board of Higher Education is a nonprofit, congressionally authorized, interstate agency whose mission is to promote greater educational opportunities and services for the residents of New England.

NEBHE was established by the New England Higher Education Compact, a 1955 agreement among the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Chair: Carole Cowan, President, Middlesex Community College

President: Robert A. Weygand



CONNECTION Editorial Advisory Board

Kenneth Hooker
Columnist, *Boston Globe*

Richard Barringer
Professor, University of Southern Maine

Laura Freid
Executive Vice President for Public Affairs and University Relations, Brown University

Betsy Keady
Market Director, The Forum Corp.

Arnold Koch
Arnold Koch and Associates

Thomas L. McFarland
Former Director, University Press of New England

Ian Menzies
Hingham, Mass.

Neil Rolde
Sewall's Hill, Maine

EDITOR'S MEMO

Now and Then

I have to confess that in the crush of deadlines, I was tempted for a brief moment to dust off a *trends* commentary from the early 1990s for double duty. Back then, you may recall, a tanking economy was squeezing New England state budgets, and the states, in turn, were squeezing public higher education: *disinvesting for the future*, if you will. Then, like now, the burden of dwindling resources was falling where it always falls, on the shoulders of students and families. Tuition and fees at New England's public colleges were heading skyward, as they surely will again.

Also in the early 1990s, like now, there was talk in some quarters of smashing up the higher education *structure* and replacing it with a new one. (Indeed, the University of Massachusetts president's office was on the chopping block then, as it is today.)

A dozen or so years ago, like now, there was the frustrating realization that when the economy does rebound and jobs reappear, New England will face skilled labor shortages in key science, engineering and technology fields. Then, like now, that realization threatened to accelerate a drift toward higher education-as-job training, at least for those lacking the wherewithal to attend the region's world-class, private liberal arts colleges.

And now, like then, war pervades the higher education enterprise and threatens to sap its strength. War, it turns out, is the Mother of All Higher Education Trends. This time around, the USA Patriot Act and its kin have cast Big Brother as the new Big Man on Campus, compromising privacy and free speech in academia and militarizing university research agendas. Moreover, before a new invasion of Iraq began, the anticipated cost of military operations there, combined with proposed tax cuts, began crowding out education priorities in Washington, such as restoring the lost buying power of Pell Grants for lower-income students. The grants now cover less than 40 percent of the cost of attending a four-year public college, compared with nearly 80 percent in the late 1970s.

To make matters worse, the higher education investment policies of the 1990s make it more difficult for lower-income families to absorb such a setback. As Iowa higher education analyst Thomas Mortenson has noted: "The federal tax credits exclude people too poor to pay federal income taxes from program eligibility. The prepaid tuition and college savings programs are useful only to families with discretionary income available to set aside for future higher education purchases. The merit scholarship programs are strongly tilted toward the affluent, and when they are financed by lotteries, such programs are paid for largely by the poor."

Fortunately, we are not quite back where we started. Our distinguished commentators in this issue also lay out the positive effects of rising educational attainment, the arrival of student-centered learning and the promise of productive inter-institutional cooperation aimed at doing more, or almost as much, with less. And our special annual *Trends & Indicators in Higher Education* feature, prepared by Michael Thomas and Sue Klemer of the New England Board of Higher Education's Department of Policy and Research, provides some reasons for optimism about the small region that has reasonably claimed to be America's higher education capital. The data show, for example, that New England continues to outperform the nation in percentages of people with college degrees and that the region posted important and significant gains in enrollment of minority students during the 1990s.

We trust that this latest effort to take stock of *Trends & Indicators* provides New England policymakers with a baseline reading of higher education's strengths and weaknesses and a sense of where improvement is needed most. And we hope no editor will have reason to reactivate this piece in, say, 2013.

John O. Harney is executive editor of CONNECTION.

If you want to be a teacher, nurse or pharmacist...

If you're studying to be a nurse, teacher or pharmacist and work in Rhode Island after you graduate, Rhode Island Student Loan will give you a 0% interest rate on your student loan for the first four years of repayment.

The Rhode Island Student Loan Authority (RISLA) is a non-profit state authority that has helped thousands of students and their families realize their dreams -- with low cost loans to pay for college and helpful information on admissions and financial aid.

If you'd like to know more, please call us at 1-800-PLUSLOAN or visit us at www.risla.com.



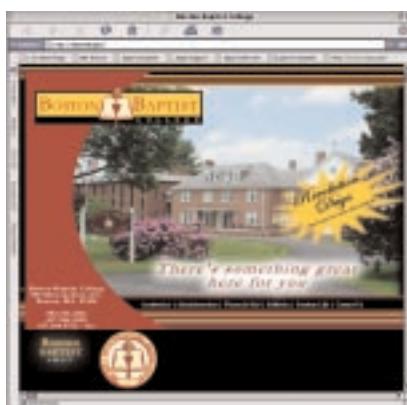
Rhode Island Wants You



Rhode Island
Student Loan Authority
560 Jefferson Blvd.
Warwick, RI 02886

Prime Real Estate on the Web

It may be “nestled in a quiet residential neighborhood just seven miles from the heart of downtown Boston,” as its website notes, but Boston Baptist College also claims a much more important address. In the seat of Boston College, Boston University, the University of Massachusetts Boston, the Boston Architectural Center and the Boston Conservatory, it is Boston Baptist College (enrollment, 111) that snared the desirable Internet URL www.boston.edu.



Founded in 1976, the college prepares students for church ministry in the United States and abroad. When the school looked for a domain name last summer, boston.edu was there for the taking. “It’s pretty wild that it went so long without someone taking it,” says Sean Sears, who teaches and works in the college’s recruiting office. Sears notes that confused web surfers do occasionally contact the college looking for information on one of its more famous neighbors.

Many Internet users guess at web addresses before resorting to search engines, so a domain name has a “pretty serious effect,” says California Internet consultant Thomas Powell.

That’s one reason colleges and universities are paying close attention to their Internet domains and overall cyber-presence. Last November, Harvard hosted a conference exploring its own “digital identity,” including

“management of Harvard’s digital ‘brand.’” Meanwhile, two University of California, Los Angeles (UCLA) administrators wrote in the *Educause Quarterly* that UCLA planned to try to lock up any new top level-domain names that were applicable such as www.ucla.biz and www.ucla.tv. The university would also snatch up foreign domains such as .ca and .jp, in countries where, for example, UCLA merchandise might be sold.

Information Fluency

Remember when employers looked for “computer savvy” workers? That’s not good enough anymore. Not even close. The labor market demands “information-fluent” graduates—people who have: 1) “computer literacy,” so they know, say, how to open a Web browser; 2) “information literacy,” so they know *when* to open the browser; and 3) “critical thinking skills,” so they can navigate copyright laws and Web-era ethical issues.

To certify that liberal arts graduates are information-fluent, the Virginia Foundation of Independent Colleges developed a test called Tek.Xam. At first, it was a grueling affair: an eight-hour test to be completed in one day. Some test-takers were literally

driven to tears. A new and improved version called Tek.Xam II tests skills in general computing, Internet concepts, word processing, presentation, spreadsheet use, database input and web authorship. Upon completion, test-takers get a score and a report on their strengths and weaknesses.

Information fluency is a hot topic. With funding from the Associated Colleges of the South, a consortium of Furman University, Rollins College, Southwestern University and Millsaps College recently launched the *ACS Online Journal for Digital and Information Fluency* for faculty, students and library and information technology staff.

In New England, Springfield College was awarded a three-year \$240,000 grant from the Davis Educational Foundation to establish a center for information literacy. The center, to be located in the college’s library, will train students to access specific information on the Internet, assess the reliability of the information and use it effectively, ethically and legally.

Employee Turnover

It is frequently suggested that employee turnover is costly to employers. First, there is the cost of lost productivity

Snippets

Peak Season

“Finals, midterms and exams are the best time to sell Ritalin and Aderol. The rest of the year, you can sell lots of hydrocodone...”

—Drug dealer quoted anonymously in an article on pharmaceutical drug abuse at the University of Vermont, which appeared in the Feb. 18, 2003 edition of the student newspaper, the “Vermont Cynic.”

Left Behind

“After months of a rhetorical drum roll underscoring the importance of education, the president has jumped out of a cupcake.”

—Harvard Civil Rights Project Co-Director Christopher Edley Jr. on President Bush’s proposed 2004 Title I budget of \$12.3 billion. The No Child Left Behind Act enacted one year earlier called for \$18.5 billion in funding for the 38-year-old federal program that helps states and local districts provide educational opportunity for the nation’s neediest students.

while a position is vacant and other workers operate shorthanded. Then there is the cost of recruiting applicants through advertising and search firms, screening them and providing relocation expenses and signing bonuses. Finally, of course, there is training. But how costly is all of this?

An analysis of federal data by the Employment Policy Foundation suggests that replacing a lost employee costs approximately 25 percent of the person's annual salary plus benefits. So a full-time employee who earns \$38,500 in salary and \$50,000 in total compensation would cost about \$12,500 to replace. A big company with up to 40,000 full-time employees could face turnover costs between \$75 million and \$250 million, depending on turnover rates.

Turnover rates range from just 10 percent annually in government jobs to 44 percent annually in retail, and are higher among part-time and seasonal workers.

The foundation concludes the analysis with a bit of understatement: "Companies that can achieve a lower than average turnover rate gain a competitive advantage."

A separate study of midsized to large companies by the human resource consulting firm of Towers Perrin and Gang & Gang finds that more than half of employees feel negatively about their work experience, and one-third feel intensely negative about it, mostly because of growing workloads and lack of support from management.

The study also finds that 28 percent of discontented workers are actively looking for new jobs or planning to leave their companies, while 43 percent are open to a good offer. "Equally disturbing," notes the report, "fully a quarter of these individuals plan to remain with their current employer ... 'hanging on' to their jobs and, potentially,

adversely affecting others with their negative attitudes."

Into Africa

Five years ago, fewer than 2,000 of the 40,000 foreign students studying at New England colleges were from Africa, and, in turn, only 350 New England college students studied in Africa, according to a CONNECTION analysis of data from the Institute for International Education (IIE). And though New England lies just 4,000 miles from Dakar, Senegal—not much farther than Paris, and several thousand miles closer than Tokyo, partnerships between the two places were virtually non-existent [CONNECTION, Summer 1999].

That may be changing. More recent IIE data suggest that more than 5,500 African students studied at New England colleges in 2002, and more than 400 New England college students studied in Africa.

Specializing in Higher Education Finance for 20 years

Advest is a leading underwriter of Higher Education Bond Issues in the Northeast and has acted as underwriter or financial advisor to over 75 colleges, universities and independent schools.

Advest's banking services include:

- Underwriting Bond Issues
- Financial Advisory Services
- Debt Capacity and Credit Analyses
- Evaluating Privatized Housing Options

Recent Transactions:

- \$75,000,000 – University of Hartford (CT)
- \$80,000,000 – University of Connecticut
- \$ 7,000,000 – Walnut Hill School (MA)
- \$14,000,000 – Clark University (MA)
- \$10,000,000 – Western New England College (MA)
- \$17,000,000 – Connecticut College
- \$25,000,000 – Rhode Island School of Design

Megan Sansons

Vice President, Public Finance

(617) 348-2351

100 Federal Street, Boston, MA 02110

megan.sansons@advest.com

Scott Gibson

Managing Director, Public Finance

(860) 509-2175

90 State House Square, Hartford, CT 06103

scott.gibson@advest.com

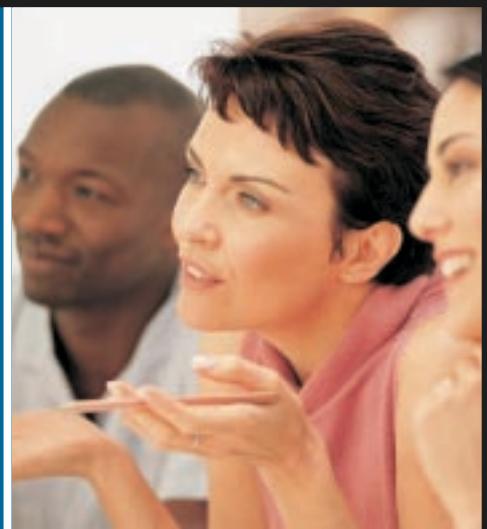
Advest
Serving Investors Since 1898

www.advest.com

Advest, Inc. Member: NYSE, NASD, SIPC. A member of The MONY Group.



Isn't it time... to finish what you started?



There has never been a better time to finish what you started by completing your education and earning your degree at Cambridge College. According to the 2002 U.S. Census, individuals with an undergraduate degree can expect to **earn over \$600,000 more in lifetime earnings** than those working with a high school education. Graduate degree holders could **earn over \$1,011,000 more** than those with a high school education. Isn't that the kind of earnings potential you want for your future?

We can help!

Cambridge College is famous for its **adult learning model**. Our staff of educational experts has helped thousands of adults just like you earn their undergraduate or graduate degrees. We'll help in your search for financial assistance, accept up to 90 prior college credits (undergraduate programs only), and complement your busy schedule with our weekend and evening classes. Cambridge College is perfect for working adults or adults in transition.

Isn't it time to finish what you started? Talk to the experts at Cambridge College. Before you know it, you'll be graduating to a better, brighter future.

**Get your undergraduate or
graduate degree from
Cambridge College...
call today.**

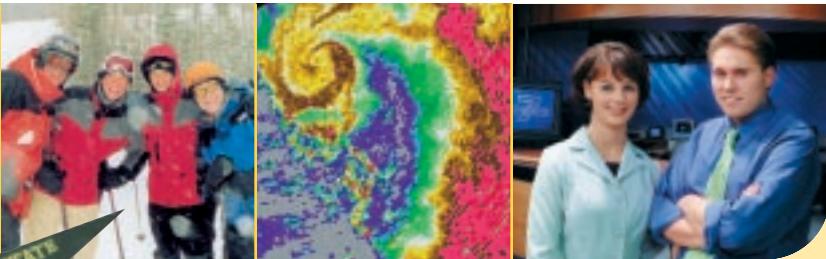


**Cambridge
College**

Where adults learn their
way to a brighter future.

1-800-877-4723 or www.cambridgecollege.edu

Accredited by the New England Association of Schools & Colleges.
1000 Massachusetts Ave., Cambridge, MA 02138 • On the redline!



At Lyndon State College, we're
passionate about a few things.

Fresh powder.

Satellite data.

Breaking news.

And you.



ASSOCIATE DEGREES

- Business Administration
- Computing
- Design and Graphic Communication
- General Studies
- Geographic Information Systems
- Interactive Digital Media
- Nursing
- Television Production
- TV News

BACHELOR DEGREES

- Accounting
- Business Administration
- Computer Information Systems
- Design and Graphic Communication
- Elementary Education
- English
- Environmental Science
- Health Sciences
- Human Services
- Interactive Digital Media
- Liberal Studies

MATHEMATICS

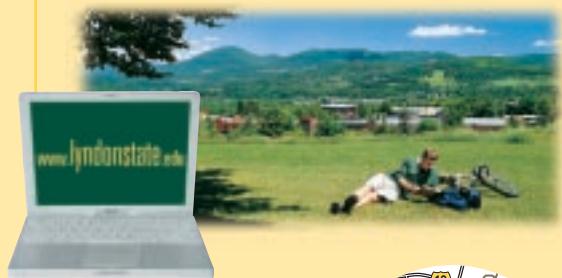
- Meteorology
- Psychology
- Recreation Resource and Ski Resort Management
- Natural Sciences
- Secondary Education
- Small Business Management and Entrepreneurship
- Social Sciences
- Television Studies

MASTER DEGREES

- Master of Education
- Master of Science for Teachers

HIGHLIGHTED DEGREE PROGRAMS ARE NEBHE ELIGIBLE. CONTACT US FOR DETAILS.

LYNDON STATE COLLEGE | ADMISSIONS OFFICE | PO BOX 919 | LYNDONVILLE, VT 05851 | 802 626-6413 OR 1-800-225-1998 | WWW.LYNDONSTATE.EDU



To learn more, call our
Admissions Office
at **1-800-225-1998**
or visit us online at
www.lyndonstate.edu



At exit 23, I-91

LYNDON STATE COLLEGE VERMONT
LSC
Experience it!

In addition, small but important connections between New England higher education and Africa have proliferated over the past year. Under an agreement between Worcester Polytechnic Institute and three African universities, two WPI students traveled to Namibia to help the southwestern African nation develop technology-oriented vocational education programs. With National Science Foundation support, University of Maine graduate students and local school teachers studied in Kenya before developing educational units on the Kenyan rainforest to be used in local science classes. Plymouth State College faculty and students spent the summer in Tanzania pursuing an interdisciplinary course in natural history.

In addition, former Zambian President Kenneth Kaunda became the first Balfour President-in-Residence under a program that brings former African heads of state to Boston University. Meanwhile, Zimbabwean journalist Geoff Nyarota, who has been harassed by President Robert Mugabe's government, was named a Nieman Fellow at Harvard.

Public Access

Do public higher education institutions provide more access for low-income students than their pricier private counterparts?

Not in Minnesota, according to a study conducted by Jenny B. Wahl, an associate professor of economics at Carleton College, for the Minnesota Private College Research Foundation. The study notes that median family income is higher among students at Minnesota's heavily subsidized, low-tuition public institutions than at the state's private institutions. The percentage of students with family incomes of \$60,000 or more is also higher at the publics.

Private college associations have long argued that state investment in higher education should go directly to students, while public systems have argued for investment in the

Shifting Priorities

What a difference five years makes in America's state capitals. Following are *Governing* magazine's "Ten Legislative Issues to Watch" in the states for 1998 and 2003.

1998	2003
Tax Relief	Robust budget surpluses prompt states to consider fifth straight year of income and property tax cuts.
School Reform	School reform buzz focuses on vouchers, tuition tax credits, charter schools and "limited school choice."
The Internet	States look to capture lost sales tax revenue and head off new vices on sprawling Internet.
Managed Care	Health care reformers eye HMO patient rights, maternity and mental health coverage.
Animal Waste	Midwestern and Southern states raise concerns about livestock's effect on water pollution.
Electricity Deregulation	States begin restructuring energy industry, as consumers from homeowners to big businesses seek lower rates.
Child Development	Revelations in brain research pique interest in early childhood education.
Stadium Deals	The National Conference of State Legislatures reports that at least a dozen states have unresolved stadium issues; franchise owners push for more deals.
Ethics/ Campaigning	Seeking to raise the ethical stature of politics, states consider banning soft money and reforming lobbying regulations.
Affirmative Action	At least half the states plan to debate race-based preferences.
Budget Shortfalls	Largest budget shortfalls in half-century lead to talk of program cuts and tax increases.
Homeland Security	States respond to the threat of terrorism without promised billions in federal homeland security funds.
Health Costs	States grapple with rising costs of Medicaid and prescription drugs.
Education Standards	Federal No Child Left Behind law mandates new education standards, but states may not get the funds to implement them.
Air Quality	Federal inaction on clean air prompts states to consider alternative energy sources and conservation measures.
Insurance	Rising costs of medical malpractice and homeowners insurance has states exploring reforms.
Welfare	Congress takes a pass on reauthorizing federal welfare reform just as states deal with rising caseloads.
Privacy	With identity theft in the headlines, states revisit privacy. In Massachusetts, hundreds of thousands of consumers jump on the chance to be put on a "no call" list shielding them from telemarketers.
Election Reform	Thanks to the Florida election fiascos, voting machines and election rules are due for upgrades.
Medical Worker Shortage	There are too few nurses, too few who speak foreign languages and too few nursing faculty.

public institutions to keep tuition down. In Minnesota, almost 90 percent of higher education spending goes to public institutions rather than to students. Wahl contends

that the subsidized, low tuition entices students to "accept a lower-quality education," which results in a "lower social payoff from higher education."



Everything to plan and pay for college under one hat.



At the New Hampshire Higher Education Assistance Foundation Network, our mission is to help New Hampshire students and their families plan and fund higher education. It's all we do. So we have all the experts, the affordable lending options and the services to help you plan and pay for college. And you'll always get a real person on the phone. Call the NHHEAF Network today. Or visit us on the web.

Planning • Loans • Servicing

1-800-525-2577
www.nhstudentloans.org
 4 Barrell Court,
 Concord, NH 03302

Sliding Scales

What if college pricing followed the airline model with tuition constantly changing according to seat availability?

That's one of several strategies kicked around by 18 public college presidents and chancellors from the West who gathered last summer in San Diego to look for ways to adjust to inadequate state support.

The group, convened by the national Society for College and University Planning (SCUP), focused its brainstorming in part on allowing "the free market to affect tuition policy, with complementary financial aid policies to ensure access."

One official noted that his state raised tuition by 19 percent, only to see a 24 percent increase in applications. Another reported losing market share to a competitor whose prices were twice as high.

"Serious research and consideration should be given to varying tuition by program," SCUP reports, "since earning power after graduation varies considerably and, coincidentally, many (though not all) of the most expensive programs—engineering, science, technology—also have higher earning potential."

Specifically, the group noted that campuses could follow the University of Oregon's lead and offer cut rates for classes at less popular hours when buildings might otherwise sit idle. Conversely, they could charge more for upper-division courses that cost more to offer, or for new, highly specialized programs. Or they could use the airline model. Something by the window, please.

Majorly

The total number of majors declared by Middlebury College students grew four times faster than total enrollment at the Vermont college during the 1990s.

Middlebury's student body grew by 8 percent between 1991 and 2001, but the total number of majors mushroomed by 34 percent, according to the Middlebury student newspaper.

College officials attribute the rise to large numbers of students declaring double or even triple majors as a hedge against tough job market conditions for college graduates.

"Some students choose two majors because they simply want to achieve depth in two disciplines or areas," says Middlebury Dean of Faculty Robert S. Schine. "Others choose two majors, or an array of majors and minors, in order to be able to present these as 'credentials' to future employers or graduate schools. The motive is careerism."

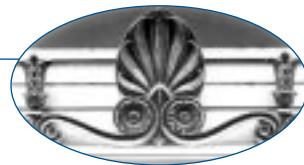
Last year, fewer than half of Middlebury's 2002 graduates left the college with just a single major in one discipline. And Middlebury is not alone. A November 2002 *New York Times* article on the increasing prevalence of multiple majors cited a Boston University student who graduated last spring with a *quadruple* major.

In 2000, MIT tightened rules for double majors and banned triple majors outright.

Middlebury officials, worried that multiple majors restrict a student's freedom to explore diverse fields, also have considered a proposal to limit the number of majors to two. Says Schine: "A liberal arts education should combine depth in a chosen area—the major—with the requirement to range freely over the rest of the curriculum."

Comings and Goings

Connecticut Commissioner of Higher Education **Valerie F. Lewis** was chosen president-elect of the State Higher Education Executive Officers. She begins serving as president of the Denver-based national association in the fall of 2003. ... **Paul Mattera**, senior vice president and chief public affairs officer with Liberty Mutual Group, was elected chair of the New England Council, the region's oldest business group. ... **Lisa K. Mitchell** became president of Ohio-based Student Loan Funding, after 12 years in various positions with the Sallie Mae subsidiary.



Higher Education Reorganization: To Move a Pachyderm ...

ROBERT A. WEYGAND

There are few places where higher education is in such turmoil as it is in Massachusetts, where Gov. Mitt Romney has proposed profound changes in the administration of the state's public colleges and universities. His plan calls for abolishing the University of Massachusetts System as we know it and the system president's office, and creating a new secretary of education overseeing K-20 education, as well as seven regional higher education boards linked to regional economic development councils in those same locales. This would be in addition to the existing state Board of Higher Education structure.

The hierarchy proposed in Massachusetts would work this way: presidents of individual campuses would report to their campus board of trustees, the chair of which would be appointed by the governor. Those chairs, in turn, would form regional higher education district boards. These district boards would then be answerable to the Massachusetts Board of Higher Education, which would answer to the new secretary of education, who of course, would report directly to the governor.

The governor contends that greater collaboration with regional economic development boards will make higher education more responsive to the workforce needs of the regions and the state. He suggests that decentralization of administration, the addition of personnel and creation of multiple boards will create greater efficiency and achieve his vision of what higher education should be in Massachusetts.

Opponents argue that the proposed administration is inefficient, that it will create more, rather than less, bureaucracy, that it wastes education dollars, and is really a thinly disguised ploy to remove the politically powerful University of Massachusetts System President William Bulger from office.

Radical reorganizations dampen faculty and staff morale and productivity.

Re-examination of mission and reorganization can be healthy exercises in government, especially when one is confronted by the hard economic choices that Romney and the Massachusetts Legislature are faced with today. But reorganization is not healthy when its sole purpose is to eliminate powerful people or personnel. Furthermore, radical reorganizations, like the one proposed in Massachusetts, usually do not render immediate financial savings. But they do dampen faculty and staff morale and productivity. And most importantly, they undercut grassroots support for moving large systems in desired directions.

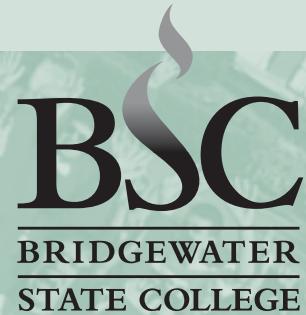
In fact, what's more likely to work in higher education is the "pachyderm approach," according to University of Southern Maine President Richard Pattenade. You can push and prod a pachyderm to move in a particular direction, says Pattenade, but you will expend a lot of energy, perhaps even hurt yourself in the process. Maybe after some time, you will move the large animal in the direction of your choice. Or conversely, you can

carefully select your desired destination, place a bowl of peanuts there, and watch the speed at which the pachyderm moves in your targeted direction. In other words, if you want to move a large animal—or a higher education system—a well-thought-out set of incentives and disincentives is far more effective and efficient than pushing and prodding.

Unfortunately, the issue facing Massachusetts has become one of personalities: Romney and Bulger. While the media is enjoying this rift, the victims will be students. This controversy must shift from a debate about powerful individuals to a debate about the quality of educational opportunity for Massachusetts residents. This will require strong leadership from both sides, as well as the Legislature, which will eventually play the most pivotal role in resolving the controversy.

Massachusetts and the nation are facing a third year of economic downturn, crises around the globe, reduced consumer confidence and, now, a controversy in higher education. Parents and students need strong leadership that comes from understanding, sensitivity and a firm desire to improve the quality of education. Personality conflicts have no place in this arena. This situation should be resolved quickly, and to the benefit, not the detriment, of the students of Massachusetts.

Robert A. Weygand is president and CEO of the New England Board of Higher Education and publisher of CONNECTION.



TECHNOLOGY

- Ranked one of the Top 50 Most Wired Colleges + Universities in the nation by *Yahoo Internet Life* magazine

STUDENTS + ALUMNI

- 11th largest college or university in Massachusetts for undergraduate enrollment and the 16th largest for graduate enrollment
- Approximately 9,000 undergraduate and graduate students
- The largest state college in the Massachusetts Public Higher Education system
- Approximately 42,750 living undergraduate and graduate alumni



CAMPUS



- Situated on 235 acres in the center of Bridgewater, located in the geographic heart of Southeastern Massachusetts

Provides a broad range of degree programs through its three schools

- School of Education and Allied Studies
- School of Arts and Sciences
- School of Management and Aviation Science



FOR MORE INFORMATION

Undergraduate Admissions
508.531.1237

Graduate and Continuing Education
508.531.1261

General
508.531.1200

Web site
www.bridgew.edu

LEADING INDICATOR: NEW ENGLAND'S HIGHER EDUCATION ECONOMY

THOMAS G. MORTENSON

Nowhere is higher education so obviously ingrained in a region's economic vitality as it is in New England.

Students from all over the world enroll in New England's premier institutions of learning and research. They bring resources to finance their education and living expenses, which then reverberate and multiply through local and state economies.

Human capital-based industries driven by New England's college-trained talent fuel New England's local and state economies.

Higher education has contributed directly to New England's extraordinary success in the "Human Capital Economy" of the past three decades. But today, the New England states face a variety of economic and demographic challenges. How well these challenges are addressed today will determine New England's future prosperity compared with other regions and, increasingly, other industrialized countries. So, how can New England preserve the engine of its economic vitality?

Educational attainment

New England is home to 5.1 percent of the U.S. population age 25 and over, but 5.3 percent of the nation's high school graduates and, more importantly, 6.2 percent of those with at least a bachelor's degree. In 2000, 31 percent of New England's population age 25 and over held bachelor's degrees or more—the largest share of any of the eight regions of the country. Nationally, 26 percent of adults have bachelor's

degrees. The college-educated adults and workers of New England provide the foundation for economic success in the Human Capital Economy.

Income trends

In the years following World War II, the incomes of individuals, families, cities and states at all levels of educational attainment were rising. But in the early 1970s, a fundamental change occurred that marked the advent of the Human Capital Economy: income growth after 1973 was limited to those with college educations. Real incomes of those with high school educations or less began to decline. Real incomes of college graduates continued to increase. Economic welfare and the prosperity of individuals, families, cities and states began to be redistributed according to educational attainment. This continues today.

New England has prospered in the Human Capital

New England's Human Capital in 2000

Educational Attainment of Population Age 25 and Over

	Completed High School		Earned Bachelor's or More	
	Percent	U.S. Rank	Percent	U.S. Rank
United States	84%		26%	
New England	87%	3	31%	1
Mideast	85%	5	28%	3
Great Lakes	86%	4	24%	7
Plains	89%	2	27%	5
Southeast	82%	7	23%	8
Southwest	81%	8	24%	6
Rocky Mountain	89%	1	29%	2
Far West	83%	6	27%	4
Connecticut	88%	13	32%	6
Maine	89%	12	24%	28
Massachusetts	85%	31	33%	3
New Hampshire	88%	14	30%	8
Rhode Island	81%	42	26%	18
Vermont	90%	7	29%	10

Note: Mideast includes Delaware, Maryland, New Jersey, New York, Pennsylvania and the District of Columbia.
Source: U.S. Census Bureau.

Economy that has emerged since 1973. Between 1973 and 2001, New England had the fastest growth in real per-capita personal income of any region in the country. New England's per-capita personal income increased by nearly 70 percent, compared with 46 percent nationally and 55 percent in the Southeast, the country's second-fastest growing region.

Since 1973, the three states with the fastest growing per-capita personal incomes in the United States were Massachusetts, New Hampshire and Connecticut. The other three New England states had per-capita personal income growth rates that were also well above the national average.

New England's economic prosperity is driven by its college-educated workforce. Across the 50 states, the correlation between per-capita personal income and the share of state populations age 25 and over with a bachelor's degree or more was .78 in 2000. That is,

each 1 percent increase in the proportion of a state's population age 25 and over with at least a bachelor's degree added \$773 to state per-capita personal income.

Other data reveal that the relationship between income and education has been strengthening since 1973 when the Human Capital Economy began. This relationship shows up in state data reported since 1989 as well. In 1989, the correlation between state per-capita personal income and the share of people 25 and over with a bachelor's degree was .70. Economic growth measured by state per-capita personal income has been greatest in those states with the best educated workforces. This helps explain New England's extraordinary economic growth between 1973 and 2001.

High school preparation

The foundation for college is laid in high school. The 1983 federal report *A Nation at Risk* called for a substantial strengthening of the high school curriculum. However, across the United States, the rate at which public high schools have retained freshmen through to graduation has declined since the report appeared. Between 1982 and 2000, the public high school graduation rate for the United States declined from 75 percent to 67 percent.

Several New England states have successfully bucked this trend, and public high school graduation rates actually increased between 1982 and 2000.

High school graduation is good insurance against falling into poverty for individuals and states. Compared with other states, the New England states have done a good job getting their ninth-graders through high school to graduation. And indeed, in 2000, the poverty rates in the New England states were all below the national average.

New England Income in the Human Capital Economy

	Per-Capita Personal Income		U.S. Rank in Income Growth, 1973-2001
	1973 (2001 Dollars)	2001	
United States	\$20,884	\$30,472	+46%
New England	\$21,878	\$37,115	+70%
Mideast	\$22,945	\$34,968	+52%
Great Lakes	\$21,742	\$30,103	+39%
Plains	\$20,977	\$29,313	+40%
Southeast	\$17,610	\$27,246	+55%
Southwest	\$18,550	\$27,439	+48%
Rocky Mountain	\$19,861	\$28,859	+45%
Far West	\$23,208	\$32,047	+38%
Massachusetts	\$22,116	\$38,907	+76%
New Hampshire	\$19,442	\$34,138	+76%
Connecticut	\$24,865	\$42,435	+71%
Vermont	\$18,120	\$28,594	+58%
Maine	\$17,207	\$26,723	+55%
Rhode Island	\$19,809	\$30,215	+53%

Note: Mideast includes Delaware, Maryland, New Jersey, New York, Pennsylvania and the District of Columbia.
Source: Bureau of Economic Analysis

Public High School Graduation Rates

	1982		2000		Change	
	Rate	U.S. Rank	Rate	U.S. Rank	Rate	U.S. Rank
United States	75%		67%		-7%	
Connecticut	71%	36	77%	10	+6%	+26
Maine	70%	38	77%	12	+7%	+26
Massachusetts	76%	22	75%	15	-1%	+7
New Hampshire	78%	12	74%	19	-4%	-7
Rhode Island	73%	31	70%	29	-3%	+2
Vermont	78%	15	79%	7	+1%	+8

Source: Based on data from National Center for Education Statistics.

College continuation rates

The proportion of public and private high school graduates who continue their educations in college as degree-seeking freshmen the following fall is the *college continuation rate*. Tracking this by state requires following students across state lines because many students, especially in New England, go to college in another

state. Nationally, 18 percent of freshmen left their home states in 2000 to start college. In New England, the proportion of freshmen leaving their home state was much higher: 60 percent left Vermont, 53 percent left New Hampshire, 48 percent left Connecticut, 43 percent left Maine, 37 percent left Rhode Island and 31 percent left Massachusetts.

(To be sure, interstate migration of college students in and out of these small states is a story in itself. Large numbers of New England students bypass in-state subsidized public institutions for more expensive institutions elsewhere, sometimes just to “get away from home.” Moreover, in New England the out-migration of students from New England is more than offset by the in-migration of students from other regions, who represent one in four freshmen at New England campuses.)

College Continuation Rates					
1992		2000		Change in	
Rate	U.S. Rank	Rate	U.S. Rank	Rate	U.S. Rank
United States	54%	57%		+2%	
Connecticut	57%	15	62%	+5%	+1
Maine	49%	42	54%	+6%	+9
Massachusetts	59%	10	69%	+10%	+8
New Hampshire	56%	17	59%	+3%	-6
Rhode Island	62%	7	66%	+4%	+2
Vermont	56%	20	45%	-11%	-25

Source: Based on data from National Center for Education Statistics.

In the fall of 2000, the college continuation rate for the United States was 57 percent. Four of the six New England states had higher college continuation rates; two had lower rates. In five New England States, the college continuation rate increased by more than the national average between 1992 and 2000. Only Vermont and New Hampshire slid in rank between 1992 and 2000.

Looking to the future

The number of public high school graduates in the United States will grow by 9 percent between 2000 and 2012, according to projections by the National Center for Education Statistics. But this growth will not occur everywhere. The number of high school graduates will increase in four New England states: by 16 percent in Connecticut, 10 percent in Rhode Island, 7 percent in Massachusetts and 6 percent in New Hampshire. But the number will decline by 16 percent in Vermont and by 12 percent in Maine.

Moreover, the students in New England's K-12 pipeline who are headed toward traditional college age increasingly come from low-income families. In five of the six New England states, the proportion of K-12 students approved for free or reduced-price school lunches (incomes less than 185 percent of poverty level)

grew between 1993 and 2001. The increases were largest in Rhode Island (5 percent), Connecticut (2 percent) and Vermont (2 percent). Only in New Hampshire did the proportion of K-12 students approved for free or reduced-price school lunches decline during this period—and by less than 1 percent. (Nationally, the proportion of children approved for free or reduced price school lunches increased from 37 percent to 40 percent between 1993 and 2001.)

Meanwhile, state investment in higher education in New England is very modest due to the strength of the private sector of higher education. State and local governments in New England spend less of their tax resources on higher education than any other region of the country. In fiscal 2003, New Hampshire ranked 50th among the states in state tax “effort”—state tax fund appropriations per \$1,000 of state personal income—in support of higher education. Massachusetts ranked 49th; Vermont, 48th; Connecticut, 47th; Rhode Island, 46th; and Maine, 31st.

Nevertheless, all the New England states have been reducing their state higher education investment effort over the past 25 years. New Hampshire, for example, reduced its investment effort by 50 percent between fiscal 1978 and fiscal 2003. Rhode Island’s

investment declined by 48 percent, Vermont’s by 48 percent, Massachusetts’s by 37 percent, Connecticut’s by 33 percent, and Maine’s by 5 percent. The current state budget climates suggest substantial further reductions in investment in higher education and attendant tuition increases at public campuses.

With growing populations of low-income students headed toward college age and sharp increases in public college charges, state policies in New England must focus on need-based student financial aid.

There is no more essential responsibility for states than preserving higher education’s contribution to New England’s prosperity. Institutions, both public and private, will raise tuition charges to students and their families to finance the delivery of educational services. Most students will require need-based financial aid to pay these costs. How well states help them to do so will determine a large part of New England’s future prosperity in the Human Capital Economy.

Thomas G. Mortenson is an Iowa-based higher education policy analyst and publisher of “Postsecondary Education Opportunity.” He is senior scholar with the Pell Institute for the Study of Opportunity in Higher Education in Washington, D.C.

HOW TO MAKE YOUR COLLEGE NO. 1 IN U.S. NEWS & WORLD REPORT ... AND LOSE YOUR INTEGRITY IN THE PROCESS

ROBERT L. WOODBURY

The annual "America's Best Colleges" issue of *U.S. News & World Report* is to the news-magazine what the annual "Swimsuit" issue is to *Sports Illustrated*. Both are best sellers that make big money for their publishers. And both succeed because they are sexy, glamorous, superficial and largely without redeeming social value. But "America's Best Colleges" has evolved into something else too: a universally recognized barometer and instigator of major higher education trends, many of them, perverse.

College presidents and their staffs, trustees and special university task forces across the nation analyze one year's *U.S. News* charts and immediately begin plotting how they might raise their college's standing in the next issue. This is not surprising; the results of a rise in rank are significant, and the consequences of a dramatic fall can be severe.

U.S. News bases its rankings on multiple statistical measuring sticks, each with a different weighting, arrayed across seven major categories. These include: academic reputation, student selectivity, student retention, faculty resources, financial resources, alumni giving and graduation rates.

Following are some strategies that colleges across the country could adopt, if they haven't already, to improve their scores on one or more of these measuring sticks—and, thereby, raise their rankings. These strategies should carry warning labels, however, because most contribute to bad public policy and undermine the integrity of the institution itself. Any college or university adopting these strategies should not be naïve about the questionable role they are playing in a bigger game.

Produce an application deluge. An important measure of success is selectivity; and selectivity begins with lots of applications for admissions. So a college should market itself to as many audiences as possible,

encourage applications from one and all whether or not the applicant can get in or is interested in the place, make it as easy as possible to complete and pay for an application, and promote the notion that the college is the ideal "back-up" or "alternative" institution.

Admissions staff should not discourage any students from applying even if their chances of getting in are slim or their interests better pursued elsewhere.

Reject as many as possible. The second half of the selectivity equation is to accept the lowest percentage of those who apply, which means disappointing as many applicants as possible. The trick is to not accept any applicant who won't actually enroll (called "yield" among the professionals) or, as at least one institution has tried, turn down those who are most able and most likely to go elsewhere. To minimize turndowns from students, colleges can: use as many early decision dates as possible; pay careful attention to clues from interviews or prior applicant profiles; use financial or other inducements with wavering students; recognize that amenities like classy dormitories are more persuasive than numbers of periodicals in the library; and actively recruit the "chosen."

Spend money. This is not a game for those who would conserve resources, encourage efficiency, preserve capital for the long run or control the escalation of tuition rates. The gross amount of resources per student, largely irrespective of how it is spent, is a critical measure in the ratings game. So raising tuition, increasing the amount and variety of fees, seeking a quick jump in the annual fund and taking a larger percentage yield from endowment can be a productive strategy, at least in the short run. If the university's reputation rises, then the long run will take care of itself.

Let SATs reign. The currency of the day, whatever the controversies and protestations, boils down to test scores and high school grades. If a college's average SAT or ACT scores (as well as high school class ranks) are going up, its ratings will rise; if its average scores are in decline, its rank will probably decline as well. One easy strategy is to make SAT or ACT submissions voluntary, which, quite logically, tends to raise the

average of those submitted. A more comprehensive strategy is simply to “buy” students with higher scores. Through liberal use of merit awards, tuition discounts and other manipulations of financial aid systems, one can target those applicants with higher scores who tend to be wealthier, whiter and less eligible for need-based financial aid.

Avoid nontraditional students. Whether the measuring stick used by *U.S. News & World Report* is test scores or persistence of first-year students or average time-to-degree or percentage of alumni giving, the system is stacked against colleges that enroll part-time, commuter, older, at-risk or more ethnically and racially diverse student bodies. Any institution that raises the proportion of full-time, higher-income, so-called traditional, residential students will be on its way to raising its ranking. This goal can be advanced through recruitment strategies, program changes, “profiling” of applicants, increased use of financial aid based on merit as opposed to need and sophisticated marketing.

Create reputation. The key factor in the ratings game is not the objective quality of an institution’s educational standing nor is it a determination of the qualitative difference a college has made in the life and learning of a student (what professionals call “value added”). The most heavily weighted factor is an institution’s reputation for quality as voted by a very particular audience of peer presidents, provosts and admissions officers. And reputation carries a momentum that is self-perpetuating without any necessary correlation with quality. Key strategies then would include the following: practice careful target marketing on a regular basis to the primary voters, namely other presidents, provosts and admission officers; hire a consulting firm that specializes in placing a college’s name in key national or regional media outlets such as *Time* magazine or the *Today Show*; attract extraordinary national media attention leading to the “Flutie effect” (Boston College quarterback Doug Flutie’s gridiron exploits, mostly in one game, led to a dramatic rise in applications to Boston College); and seek a “halo” effect by changing the name or apparent standing of the institution (say, changing one’s title from “college” to “university”).

Change the rules or change the league. *U.S. News* tinkers with its formulae every year and listens carefully to suggestions from the stream of college presidents who visit or contact its offices annually. Over the years, presidents have argued for—and won—changes in the systems that, not surprisingly, enhance the standings of their institutions. A far bolder scheme, which has worked for some institutions, is to change the peer group in which a college is placed. A common one, in the past, was to engineer a switch from the category of Public Comprehensive to Public Liberal Arts;

today one might move from Public Bachelor’s to Public Liberal Arts. Several colleges, *voila*, have suddenly risen from a mediocre standing in a former classification to a top ranking, often on a “regional” basis, in their new categorical home.

Exploit statistical keys to the illusion of quality. *U.S. News* attempts to find proxies for quality that might suggest that quality really exists. For example, a comparison of the average salary of professors or the percentage of faculty with Ph.D.’s or faculty/student ratios or the percentage of classes with fewer than 20 students all affect ratings. Some of the measures, of course, are dubious indicators of whether students are learning, and all the measures can be misleading. (A “good” faculty/student ratio doesn’t mean that faculty are necessarily spending time with students.) In any case, each of these measures can be recalibrated to the college’s benefit. For example, the belief that small

Everyone will be diminished by the pettiness of the game and the illusion that minute changes in ranking mean something.

classes benefit learning is commonly accepted. An effective strategy then might be to create a course schedule where all classes enroll between 10 and 19 students or more than 100, rather than a distribution pattern that scheduled most classes with between 20 and 50 students. With some imagination and statistical brainstorming, most of the gauges of quality can be reformulated to achieve a better score.

Pursue a comprehensive strategy of quick fixes. The goal of the game is to achieve a noticeable jump in ranking in a short time. Baby steps don’t work. A strategy might be to create a one- or two-year surge in the ratings game by some combination of the following: a major allocation of funds and marketing for merit scholars; the dropping of programs such as football or elementary education that may attract lower scoring SAT students; accepting a smaller than usual entering class; reducing the number of nontraditional students; implementing a one-year program to manipulate quality indicators such as class size; employing an expensive political-style marketing firm to woo the small group of peer academic administrators who do the voting; launching a special campaign to dramatically increase the percentage, not necessarily the amount, of alumni giving; and pursuing a variety of other tactics that directly match the yardsticks used by *U.S. News*.

Get with the program. Ultimately, what’s more important than any particular strategy is understanding the assumptions, approach and methodology that

governs the ratings game. When *Consumer Reports* rates and compares cars, it measures them on the basis of categories such as performance, safety, reliability and value. It tries to measure “outputs”—in short, what the car does. *U.S. News* mostly looks at “inputs” (money spent, class size, test scores of students, degrees held by faculty), rather than assessing what the college or university actually accomplishes for students over the life of their enrollment. If *Consumer Reports* functioned like *U.S. News*, it would rank cars on the amount of steel and plastic used in their construction, the opinions of competing car dealers, the driving skills of customers, the percentage of managers and sales people with MBAs and the sticker price on the vehicle (the higher, the better).

Perverse effects

There is a problem with all this, of course. If all colleges and universities adopt these strategies, as an increasing number are, then the success of any single institution in raising its rank will be frustrated. If everyone does it, no one will get ahead and everyone will be diminished by the pettiness of the game and the illusion that minute changes in ranking mean something.

But the *U.S. News & World Report* rating system

and higher education’s response to it wield a far more pernicious impact. Values that we used to claim were important to the integrity and social value of our colleges and universities are being eroded.

First, the tyranny of the ratings in a very competitive business tends to distract us from what we, whether professionals or interested citizens, truly believe makes for a quality education for students in general and the differing needs of individual students in particular.

The rankings denigrate the achievements of “lesser” colleges and universities that make an enormous difference in students’ lives.

Second, the deeply held commitment to educational opportunity for lower-income students, people of color, nontraditional and part-time students, is frustrated when ratings depend so heavily on attracting the high test scorers with merit scholarships and other schemes that not only disadvantage the poorer and less experienced, but undervalue such assets as commitment, character, perseverance, leadership and creativity.

Third, the rankings denigrate the enormous value-added achievements of “lesser” colleges and universities that make an enormous difference in students’ lives while giving preference to far wealthier institutions which may have only a marginal impact on the lives of already advantaged students.

Fourth, there seems to be no place in the ranking criteria for a college’s role in civic education and the contribution of the institution to local, regional, national and global well-being.

The ranking of colleges and universities by neat formulae and dubious statistical measures is distorting, illusory and, ultimately, harmful to democratic values we all share. The real losers are, once again, the less advantaged among us. And when they lose, we all lose.

Robert L. Woodbury is former chancellor of the University of Maine System and former director of the John W. McCormack Institute of Public Affairs at the University of Massachusetts Boston.

The New England Board of Higher Education congratulates the recipients of the first

New England Higher Education Excellence Awards

U.S. Senator Edward M. Kennedy of Massachusetts for more than 40 years of national **leadership** in ensuring accessible and affordable higher education.

Dr. Marja Hurley, professor of medicine at the University of Connecticut Health Center, for **innovation** in her work as the founding director of the Health Professions Partnership Initiative.

The Massachusetts Institute of Technology (MIT) for **institutional achievement** in diversity initiatives and community outreach.

Eleanor M. McMahon (posthumously) for **lifetime achievement** in teaching, promoting innovation and shaping Rhode Island education over her 52-year career.

www.nebhe.org

THE CHANGING SHAPE OF LEARNING

TECHNOLOGY AND TIGHT BUDGETS FORCE A FUNDAMENTAL RETHINKING OF THE HIGHER EDUCATION ENTERPRISE

PRAKASH NAIR

Reforms in America's colleges and universities seem to be driven not by a quest for quality, but rather, by the need to deal with financial woes.

In recent years, flat or declining state appropriations and difficult market conditions have led to a variety of cutbacks on both public and private college campuses. Yet nobody has argued effectively that these cuts have reduced the quality of our higher education system. The primary reason for this seems to be that even the higher education officials who know how quality suffers from budget cuts are reluctant to admit it, because if they do, they will be accountable for solutions. And real solutions to the problems confronting higher education are not just expensive. They also require massive organizational and governance changes that scare conservative establishments. So instead of making major reforms, institutions make incremental cuts to distribute the pain. At the same time, they continue to use outdated measures of success such as graduation rates. Until there is a willingness on the part of the American higher education establishment to set up a completely different accountability system than the one they now have, American colleges and universities will continue on their road to irrelevance.

To understand the future of the American campus, it is important to look at a few broader trends.

Technological advances—often emerging from U.S. corporations and universities—continue to fuel an Information Revolution. But just as American manufacturers lost ground to global competitors, the American technology sector is no longer the 800-pound gorilla in the world of intellectual capital. U.S. communications companies, for example, have taken a beating as the Internet era allows intellectually driven jobs to leave America for developing countries like India and China.

In addition, education itself is a commodity in the global marketplace. In a fast-changing world, an important characteristic for the delivery of quality educational programs is agility—the ability to define and redefine

program offerings to match rapidly changing needs. This is foreign to the way the larger institutions operate.

As if these forces weren't challenging enough, colleges also face an unprecedented push for accountability from the public and elected officials. The lack of adequate performance measures tied to funding hurts the highest-quality higher education institutions financially and makes it more difficult for them to adjust. Another area in which accountability is being manifested is the support, or lack thereof, that higher education institutions get from their local constituents. Many universities see themselves as regional and national resources. But if local communities feel alienated, they will not support them in tough times. Local communities did not prevent state legislators from slashing higher education budgets last year. Not surprisingly, in many states, community colleges, which serve the immediate needs of their local communities, find it easier to preserve their government funds than do universities.

A requirement to attend lectures could be dropped in favor of a system where students are offered online guidance both from instructors and peers.

Taken together, these trends offer a few cues for campus planners. Among them:

Adopt student-centered models. American campuses are largely "instructor-centered" with pre-established curricula and a teacher firmly in charge, commanding everyone's attention. But in the new environment, colleges should focus on delivering education that is highly relevant to the individual. A new level of "personalization" will entail customizing not only the content of the curriculum, but the learning process itself. Colleges and universities that focus on personalization will integrate the idea of multiple intelligences into the education delivery process in the way that many schools have done. They will not only build more

flexibility into core curricula, but also offer many different ways for students to earn college credit. A requirement to attend lectures, for example, could be dropped in favor of a system where students are offered online guidance both from instructors and peers. The Pew Charitable Trusts has already funded an initiative at several universities to deliver high-enrollment, introductory courses online. The success of this venture could lead to a rethinking of the very idea of the large lecture course—a mainstay at most universities.

Student-centered models will employ various media to deliver instruction and measure learning by using portfolio-based systems rather than test-based assessments. This trend will reinforce the notion that what students can do is more important than what they know. Customization of the learning experience for all students will also have dramatic impacts on the way the campus is organized physically and administratively and in the way faculty are deployed. For that reason, colleges can be expected to move slowly in this area.

Become more market-driven. Educating the “whole person” is good in theory, but it fails when such curricula are made compulsory for graduation. The reality is that

Certifications are often valued in the computer industry over a generic computer science degree from a good university.

the whole person is a real person, not some statistical average. Mandated holistic curricula fail because they lump everyone into the same category. The new market-driven higher education providers see demand for customization in education, as opposed to mass production. So they offer only what a student needs to gain a particular skill that has current value in the world of work. That’s why “certifications” such as MCSE (Microsoft Certified Systems Engineer) and CCDP (Cisco Certified Design Professional) are often valued in the computer industry over a generic computer science degree from a good university.

With the certification model, education becomes a truly lifelong endeavor that does not end when a degree is awarded. The University of Wisconsin’s Department of Engineering Professional Development employs this model very successfully, offering market-driven courses on campus and in other locations that are convenient to those taking the courses. The university is particularly good at getting feedback from course-takers and continuously making adjustments to keep courses relevant and current. The program benefits lifelong learners—and the university’s bottom line.

Develop “Centers of Excellence.” Large comprehensive high schools have discovered they have two

chief problems: they are large and they are comprehensive. This is true of large higher education institutions as well. A way to get around the anonymity of large, amorphous organizations is to create smaller, specialized “schools-within-schools” or, better still, independent “signature” programs like San Diego’s High Tech High or the School of Environmental Sciences—the “Zoo School”—in Minneapolis.

By offering courses of interest to local residents at times when facilities are least used, an institution may enhance its relevance in the community while increasing revenues.

Colleges and universities increasingly realize that they cannot retain their competitive edge if they try to be all things to all people. So the concept of signature programs—or Centers of Excellence—is gaining strength in higher education as well. The Society for College and University Planning recently held out the example of Tennessee. “Taking into account factors like historical mission, strengths and unique opportunities, Tennessee allocates resources to institutions to maintain or create distinction in certain programs,” the society reports. “As a result, one institution has the Center of Excellence in the Creative Arts, another the Center of Excellence in Manufacturing and so on. Oregon has similar Center of Excellence programs and also, a Targeted Investment Model that directs resources to selected university programs in an effort to achieve national status.”

Be a good neighbor. Beyond the need to garner local support to sustain government funding, higher education institutions are finding that community and business partnerships are good for business and good for learning. By offering courses of interest to local residents at times when facilities are least used, for example, an institution may enhance its relevance in the community while increasing revenues. Similarly, local businesses as well as hospitals, schools and day-care centers offer opportunities for institutions to strengthen local ties and increase opportunities for philanthropic contributions while affording students authentic learning experiences through internships.

Integrate distance learning technologies. Distance learning represents one important slice of the fast-growing information and telecommunications technologies that have already changed the way we learn and the fundamental organization of business and industry. And the next-generation Internet, known as Internet 2, will bring unprecedented power to transmit information across global networks with full video and audio capabilities.

By accessing information from anywhere in the world and dispensing it instantly, the college or university can become more immediate and dynamic to greater numbers of constituents and thereby broaden and strengthen its resource base. The global outreach afforded students and staff allows local colleges and universities to develop world-class partnerships and be competitive with the best universities in the world.

Integrate wireless technologies. The need for ultra high-bandwidth connections to support sophisticated technologies and high-fidelity video and audio transmissions comes just as there is an explosion in relatively low-bandwidth wireless appliances. Students in campuses across America are now enjoying the benefits of wireless connectivity, allowing anytime, anywhere access to online learning materials as well as instant connectivity to the campus network, the Internet, to one another and to instructors.

The viability of wireless communications got a shot in the arm with the recent approval by the Institute of Electrical and Electronics Engineers of a new high-speed wireless standard that permits data transmissions at speeds of up to 54Mbps, allowing wireless users across the campus to upload and download files and access the Internet more easily. As wireless technologies proliferate in and out of higher education, campuses that do not provide wireless connectivity will be at a competitive disadvantage.

Moreover, wireless technology will have a direct impact on the way campuses are physically arranged and used. For example, planners need to understand that learning and research can now occur in the nooks

Campuses that do not provide wireless connectivity will be at a competitive disadvantage.

and crannies of the campus as well as in libraries and labs. Along with anytime, anywhere access to information comes an increase in student-directed learning and independent research. That means there will be less need for formal learning areas on campus such as classrooms and lecture theaters. Additionally, media centers and libraries can begin to get smaller.

Wireless technology also changes the dynamics within the classroom. Earlier this year, a *New York Times* reporter described a wireless classroom at Washington's American University this way: "From the back row of an amphitheater classroom, more than a dozen laptop screens were visible. As Prof. Jay Mallek lectured graduate students on the finer points of creating and reading an office budget, many students went online to Blackboard.com, a website that stores course materials,

and grabbed the day's handouts from the ether. But just as many students were off surfing. A young man looked at sports photos while a woman checked out baby photos that just arrived in her e-mailbox."

Design flexible facilities. Fields like tissue engineering and robotics will place demands on facilities that are hard to envision today. But the buildings will be around a lot longer than the technologies and the curric-

There will be less need for formal learning areas on campus such as classrooms and lecture theaters.

ular offerings. That is why open plan, subfloor systems that permit infinite variations of the workspace, interior partitions and interior equipment will need to be evaluated. Technology has often been an afterthought in building design. Now, good planning from the ground up will allow buildings to "bend" and be better prepared to accept new and emerging technologies.

Facilitate social interaction. As technology transforms so-called "formal" learning functions, campuses will be valued more and more as centers of social interaction and other forms of "informal" learning opportunities. This will increase the need for study lounges, meeting rooms, plazas, reading cafes, green zones and other attractive open areas for informal interaction and exchange of ideas. In the design of the Canning Vale campus in Western Australia, I stressed to our architects the importance of the "spaces between buildings." That campus was designed with several "learning neighborhoods" organized along a "learning street" where much of the informal learning would take place.

All these reforms address goals that are important to elected officials and the public but they do so in a manner that preserves the fundamental purpose of the enterprise: to provide the best opportunities for a relevant, high-quality education. Higher education institutions have to show their constituents that they are learning communities whose economic, social and cultural benefits accrue to their local neighborhoods and regions.

Unlike the trend in the school market, there is no chance of hundreds of new college campuses being built in the United States anytime soon. The challenge for campus planners, then, will be to preserve America's rich tradition of excellence while responding to the inexorable forces of change in the global economy.

Prakash Nair is a school planning consultant based in New York City and founder of Urban Educational Facilities for the 21st Century. He can be reached at Prakash@designshare.com.

HALF-FULL OR HALF-EMPTY?

HOW INSTITUTIONAL COOPERATION COULD TURN A WAVE OF FACULTY RETIREMENTS INTO AN OPPORTUNITY

LORNA M. PETERSON

Difficult days lie ahead for colleges and universities, and some real challenges as well. One challenge is that an entire generation of scholars will be retiring in critical numbers over the next several years. A national survey conducted three years ago by the University of California at Los Angeles revealed that nearly one-third of the nation's full-time professors were age 55 or older, up significantly from the end of the 1980s. Now, complicating the likely wave of faculty retirements, many higher education institutions nationwide will be experiencing budget cuts as deep as 5 percent.

To those who see the glass as half-empty, departments will be losing faculty at a time when their budgets are ill-prepared to recruit and hire replacements, let alone expand into new areas of knowledge. But to those who see the glass half-full, these retirements present an opportunity to bring about substantive change without sacrificing what's of value.

Downward spirals, after all, do give way to periods of expansion. In the early 1990s, for example, colleges and universities nationwide experienced a downturn similar to today's. New England public land-grant universities suffered devastating cuts, while private colleges ran unanticipated and uncustomary deficits. Yet, in an editorial that year, I ventured that "There are areas of growth we will be able to undertake, but only if we do so together."

In fact, Amherst, Hampshire, Mount Holyoke and Smith colleges and the University of Massachusetts Amherst have been working together as members of the Five Colleges consortium since 1965. We've learned that cooperation affords possibilities for riding out the vicissitudes of the economy and addressing change in the academy. It comes down to a simple truth: colleges and universities can do more together for less.

Now, we again find ourselves confronting dramatic change with the threat of drastically reduced resources. Rapidly advancing technologies and an emerging global economy call upon us to revitalize the curriculum. Yet, demographic projections warn of faculty retirements on an unprecedented scale—as high as 50 percent in some fields—over the next few years. These pressures coincide with what the *Chronicle of Higher Education* earlier this year described as "another downer of a year for college endowments." The typical college portfolio lost 6 percent in 2001-02. For some institutions, it was the third straight year of losses.

The Five Colleges now are looking at how further collaboration might help them cope with the new faculty demography. Not all positions lost to retirements can be replaced, we know, and certainly not at all the institutions. Nor can we meet all the demands for new courses and new programs on every campus. What we *can* do, working in consort, is to preserve in the aggregate, if not at each institution, the integrity of the curriculum, including the traditional offerings that make our liberal arts curriculum so rich and comprehensive.

Demographic projections warn of faculty retirements on an unprecedented scale—as high as 50 percent in some fields.

Specifically, we encouraged the faculty to take account of projected losses within their own departments at each campus and to explore ways in which coordination of course offerings and in hiring replacements might maintain what's essential while ensuring a robust and vital curriculum that takes account of new knowledge and new ways of understanding the world. Those conversations helped frame a proposal to the Andrew W. Mellon Foundation, in which we sought support to address the issue of faculty retirements on two fronts. First, we would create a limited number of joint appointments to encourage cross-campus coordination of the curriculum in departments and fields most likely

to experience large numbers of retirements. Secondly, we would explore ways for our schools to compete for scholars in a national arena likely to become more competitive as large numbers of faculty retire across the country within the span of a few years.

Joint appointments are not a new model for us, or others. The five campuses have had success with joint appointments in a wide range of fields over 30 years. Some years ago, the faculty in Film Studies felt they had too few hands-on production courses. Teaching film and video production, however, is a costly undertaking for any single institution, and none of our schools was prepared to invest in an expanded program of its own. Instead, the Five Colleges Film Council proposed hiring two joint appointees who would teach on a coordinated schedule at all five campuses and acquiring equipment on a shared basis. By that arrangement, we have avoided costly duplication and managed to create a comprehensive program of film and video study without compromising the discrete nature of the campus programs served by it.

If four specialists in a field are about to retire at four different campuses, do all four have to be replaced?

The key to success in joint faculty appointments is a commitment to joint planning. At their best, these shared positions encourage the development of complementary curriculum with greater depth and range than even a large university might afford in the best of times. This is true for interdisciplinary as well as departmental programs.

In a recent appeal to the faculty to think through demographic issues, we asked them to address some difficult questions. If four specialists in a field are about to retire at four different campuses, do all four have to be replaced? Or could one or two of those positions support instead a new specialty in some emerging field? If a new field must be developed, might the areas to be covered, whether geographic or disciplinary, be spread across two or three or even all five institutions?

Among the departments and programs grappling with these issues are some traditional ones such as Russian and East European Studies, where half the faculty across the five campuses are likely to retire over the next two to three years. Their goal in planning together is to protect the core curriculum by thinking in terms of course offerings and of new hires at all five campuses. In contrast, the Five Colleges program in

Asian/Pacific/American Studies offers an example of a new program created by a small group of faculty who forged a core curriculum from existing offerings and inter-campus consultation in making new appointments. Faculty demographics have even motivated some large departments to meet for the first time to talk about staffing and curriculum.

Joint faculty appointments encourage the development of complementary curriculum with greater depth and range than even a large university might afford in the best of times.

The \$600,000 grant to Five Colleges from the Mellon Foundation will enable us to build on past experience in developing a shared approach to the loss of faculty due to retirements and to the demand for new areas in the curriculum. In the next several years, we will make six joint appointments, either to replace a retiree or add a new specialization. In order to be granted one of these shared positions, faculty in a particular field will have to present a plan for coordinating their programs for both current offerings and new hires.

A small portion of the grant funds will also enable us in the coming year to explore the feasibility of partnering with other institutions within driving distance of our own to address the special needs of the growing pool of dual-career couples. Approximately 40 percent of male faculty members and 35 percent of female faculty members nationwide are married to other academics, according to the *Chronicle*. To position the Five Colleges and other schools throughout the region to better serve—and thereby more effectively recruit—these couples, we plan to explore the creation of a regional clearinghouse of information about appropriate positions available. This Academic Career Network might also help match spouses and partners with professional openings on the campuses, and sponsor opportunities for professional development for those who seek to make a transition from teaching to academic administration.

Once again, and probably not for the last time, economic and curricular realities will move us to cooperate in new ways, encouraging us, we hope, to see a glass half-full.

Lorna M. Peterson is executive director of Five Colleges Inc., the consortium of Amherst, Hampshire, Mount Holyoke and Smith colleges and the University of Massachusetts Amherst.

Join our widening circle of friends ... and help build New England's higher education agenda.

Your generous support helps the New England Board of Higher Education:

- Publish hard-hitting commentary and analysis of higher education issues in CONNECTION: THE JOURNAL OF THE NEW ENGLAND BOARD OF HIGHER EDUCATION and other NEBHE reports and publications.
- Convene leaders in education, government and business to share ideas and forge collaborative strategies.
- Provide New England residents with major tuition savings through its Regional Student Program (RSP).
- Increase access to higher education for underrepresented minority students preparing for careers in science, mathematics, engineering and technology through its Excellence Through Diversity Program.
- Help prepare teachers to teach math, science and technology in cutting-edge fields through its New England Technology Education Partnership (NETEP).



Linda A. Acciardo
Philip G. Benoit
Gail Bessette
Timothy Brennan
Brian Britton
Michael Burns
Patrick M. Callan
Kevin Carleton
Bruce Chandler
Kelly Clark
Kimberly M. Crone
Michael Chmura
Christine H. Daly
Peter K. Davis
J. Alan Day
John L. DeLorey, Jr.
Thomas Dimieri
Rene Drouin
Rosanne Druckman
David Duncan
Bernard Dupuis
Maling Ebrahimpour
David A. Ellis
Matthew K. Eynon
John R. Foran
James W. Fonseca
James E. Gagne
Marilyn Gittell
Ernie Greenslade
Stephen Gressak
Jay A. Halfond
Brent Hall
Patricia Hansbury
John Hazekamp
Patrick J. Healy
Joyce B. Hedlund
Richard F. Herbold
Deborah Hirsch
Paula Hollis
Thomas R. Horgan
Angelina Jacque
Meggan Kring
Michael R. Laliberte
Robert J. Larson
David E. Leveille
Arthur J. Lidsky
Carolyn Locke
Edward C. Marth
Ronald Machtley
William McCarthy
Gary N. McCloskey
T.W. MacDermott
John A. Mattie
Sharon A. McLaughlin
David M. Megquier
Dana Mignogna
Thomas G. Mortenson
Jim Neville
New England Governors' Conference
Elizabeth Newman
Sarah Parrott
Payette Associates
Gregory Perkins
Christopher Perry
Yvonne Raia
Linda M. Ragosta
Rhode Island College
Upward Bound Program
Harry J. Richards
James R. Roach
Jean Robertson
Annette Rogers
Ellen Ronzio
Barbara Rubel
Charles Ruch
Mary R. Scerra
Rick Schmidt
John C. Schneider
Paula Schumann
Andrew M. Scibelli
Ted Scontras
Patricia Sherman
Linda Soderberg
Susan E. Somers
Melinda Spencer
Tim Sullivan
Walter W. Sussenguth
Donald Sweeney
Sandra Thurston
Samuel Tyler
Tom Warren
John W. Wilcox

**For more information on how to become a Friend of NEBHE,
please call us at 617.357.9620 or visit www.nebhe.org/friends.html**



CONNECTION'S TRENDS & INDICATORS IN HIGHER EDUCATION

2003

**For more trends
and indicators, visit
www.nebhe.org/research.html**

An Index of Figures appears
on p. 54.

Trends & Indicators in Higher Education, 2003, was prepared by NEBHE Director of Research Michael Thomas and NEBHE Research Analyst Sue Klemmer. Text by CONNECTION Executive Editor John O. Harney.

With its more than 250 colleges and universities, 825,000-plus college students and 35,000 full-time professors and instructors, New England *is* America's Higher Education Region. But pressure is rising along several fronts. New England's demography is changing profoundly. State budgets have been squeezed by recession. Other regions of the country are catching up to New England in terms of indicators such as degree production and university research and development.

CONNECTION's Trends & Indicators in Higher Education, 2003, features more than 80 charts and tables exploring the condition of New England's higher education enterprise. The data focus on eight broad areas: demography; admissions & enrollment; degrees & educational attainment; student migration; retention & graduation; financing higher education; university research; and faculty.

This wealth of data is collected and analyzed annually by the New England Board of Higher Education's (NEBHE's) Department of Policy and Research. It is drawn from a variety of sources, including the U.S. Department of Education, the National Science Foundation, the College Board and NEBHE's own Annual Survey of New England Colleges and Universities.

In many ways, the data presented here represent the proverbial tip of the iceberg. More comprehensive and detailed figures, and other publications, are available through the NEBHE Department of Policy and Research (www.nebhe.org/research.html).

In addition, the department's newly established New England Data Exchange will function as a central repository of vital information on the past and ongoing performance of the region's public higher education institutions.

CONNECTION and NEBHE's Department of Policy and Research welcome reader comments and suggestions on *Trends & Indicators*.

DEMOGRAPHY

New England is marked by slow population growth.

Fig. 1: Demographic Profile of the New England States and the United States

	Connecticut	Maine	Massachusetts	New Hampshire	Rhode Island	Vermont	United States
POPULATION							
Population, 2001 estimate	3,425,074	1,286,670	6,379,304	1,259,181	1,058,920	613,090	284,796,887
Population, net change, 1990 to 2000	118,449	46,995	332,672	126,534	44,855	46,069	32,630,981
Population, % change, 1990 to 2000	3.6%	3.8%	5.5%	11.4%	4.5%	8.2%	13.1%
AGE & GENDER (2000)							
Under 5 years old, %	6.6%	5.5%	6.3%	6.1%	6.1%	5.6%	6.8%
Under 18 years old, %	24.7%	23.6%	23.6%	25.0%	23.6%	24.2%	25.7%
65 years old and over, %	13.8%	14.4%	13.5%	12.0%	14.5%	12.7%	12.4%
Females, %	51.6%	51.3%	51.8%	50.8%	52.0%	51.0%	50.9%
RACE & ETHNICITY (%), 2000							
White (a)	81.6%	96.9%	84.5%	96.0%	85.0%	96.8%	75.1%
Black or African-American (a)	9.1%	0.5%	5.4%	0.7%	4.5%	0.5%	12.3%
American Indian and Alaska Native (a)	0.3%	0.6%	0.2%	0.2%	0.5%	0.4%	0.9%
Asian (a)	2.4%	0.7%	3.8%	1.3%	2.3%	0.9%	3.6%
Native Hawaiian & Other Pacific Islander (a)	NA	NA	NA	NA	0.1%	NA	0.1%
Persons reporting some other race (a)	4.3%	0.2%	3.7%	0.6%	5.0%	0.2%	5.5%
Persons reporting two or more races	2.2%	1.0%	2.3%	1.1%	2.7%	1.2%	2.4%
Hispanic or Latino origin (b)	9.4%	0.7%	6.8%	1.7%	8.7%	0.9%	12.5%
FOREIGN BIRTH & LANGUAGE (2000)							
Foreign-born	369,967	36,691	772,983	54,154	119,277	23,245	31,107,889
Language other than English spoken at home	18.3%	7.8%	18.7%	8.3%	20.0%	5.9%	17.9%
EDUCATIONAL ATTAINMENT							
High school graduates, % of age 25+	84.0%	85.4%	84.8%	87.4%	78.0%	86.4%	80.4%
Bachelor's degree or higher, % of age 25+	31.4%	22.9%	33.2%	28.7%	25.6%	29.4%	24.4%
Persons with a disability, age 5+	546,813	237,910	1,084,746	193,893	195,806	97,167	49,746,248
ECONOMIC CHARACTERISTICS							
Homeownership rate, 2000 (c)	66.8%	71.6%	61.7%	69.7%	60.0%	70.6%	66.2%
Median household income, 1999	\$53,935	\$37,240	\$50,502	\$49,467	\$42,090	\$40,856	\$41,994
Per-capita income, 1999	\$28,766	\$19,533	\$25,952	\$23,844	\$21,688	\$20,625	\$21,587
Persons below poverty level, %, 1999	7.9%	10.9%	9.3%	6.5%	11.9%	9.4%	12.4%

Notes: (a) Includes persons reporting only one race. (b) Hispanics may be of any race, so also are included in applicable race categories. (c) Homeownership rates reflect the percentage of households who own their homes.

Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

Fig. 2: Population of New England States, 1990-2002

	1990	2000	2002 (Est.)	% Change, 1990-2002
Connecticut	3,289,056	3,405,565	3,460,503	5%
Maine	1,231,296	1,274,923	1,294,464	5%
Massachusetts	6,018,664	6,349,097	6,427,801	7%
New Hampshire	1,111,831	1,235,786	1,275,056	15%
Rhode Island	1,004,649	1,048,319	1,069,725	6%
Vermont	564,526	608,827	616,592	9%
New England	13,220,022	13,922,517	14,144,141	7%

Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

Fig. 3: Birth, Death and Migration Rates per 1,000 Population, 2001-2002

	Birth Rate	Death Rate	Rate of Natural Increase (Births minus Deaths)	Net International Migration Rate	Net Domestic Migration Rate	Net Migration Rate (International + Domestic)
Connecticut	12.4	8.9	3.5	4.7	-0.4	4.3
Maine	10.5	10.0	0.5	0.8	6.5	7.3
Massachusetts	12.7	9.1	3.6	5.0	-4.4	0.7
New Hampshire	11.4	8.0	3.4	1.8	7.2	9.0
Rhode Island	11.5	9.3	2.2	3.7	3.8	7.5
Vermont	10.1	8.8	1.4	1.6	3.0	4.6
United States	14.1	8.5	5.6	5.1	NA	5.1

Note: Domestic migration is migration from one U.S. state, district or territory to another.

Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

Fig. 4: Birth, Death and Migration Rates, U.S. Rank, 2001-2002

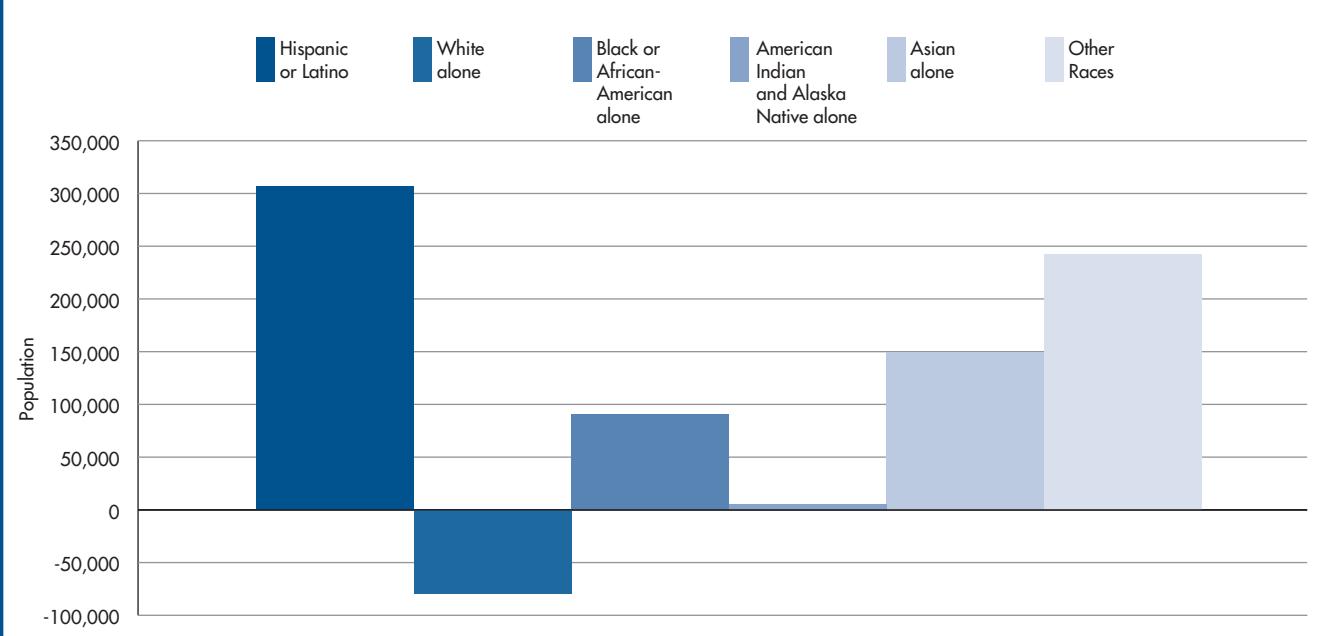
	Birth Rate	Death Rate	Rate of Natural Increase (Births minus Deaths)	Net International Migration Rate	Net Domestic Migration Rate	Net Migration Rate (International + Domestic)
Connecticut	42nd	26th	38th	17th	32nd	26th
Maine	49th	10th	50th	49th	5th	14th
Massachusetts	39th	24th	37th	14th	47th	37th
New Hampshire	48th	37th	41st	39th	4th	7th
Rhode Island	47th	20th	47th	21st	12th	13th
Vermont	51st	31st	48th	41st	14th	22nd

Note: Rates are per 1,000 population and are based on an average of July 1, 2001 and July 1, 2002 populations. Domestic migration is migration from one U.S. state, district or territory to another. The data include the 50 states plus the District of Columbia, Puerto Rico and other U.S. territories.

Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

New England's minority populations are growing much faster than its white population.

Fig. 5: Ethnic Change in New England Population 1990-2000



Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

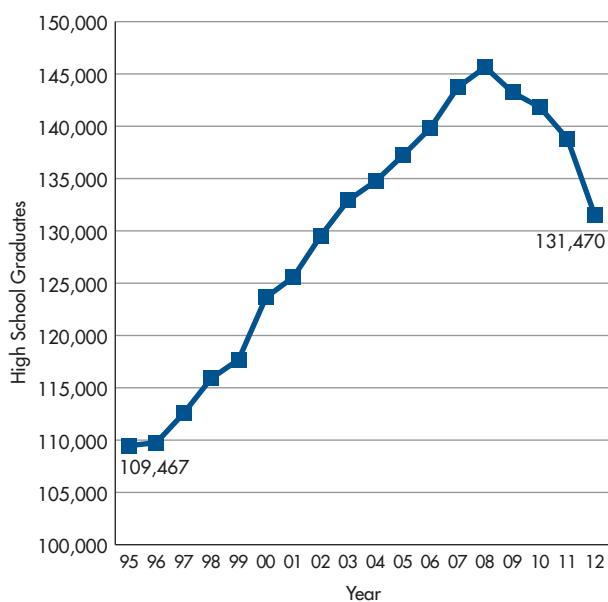
DEMOGRAPHY *continued*

Fig. 6: Educational Attainment by State, 2000

	Conn.	Maine	Mass.	N.H.	R.I.	Vt.	New England (avg.)	U.S.
Population 16 to 19 Years								
% not enrolled in school and not high school graduates	7.4%	6.2%	6.6%	7.3%	8.2%	5.9%	6.9%	9.8%
Population 18 to 24 Years								
% enrolled in college or graduate school	38.3	33	44.1	38.6	47.7	43.1	40.8	34
Population 25 Years and Over								
% with less than a 9th grade education	5.8	5.4	5.8	3.9	8.1	5.1	5.7	7.5
% high school graduate or higher	84	85.4	84.8	87.4	78	86.4	84.3	80.4
% with bachelor's degree or higher	31.4	22.9	33.2	28.7	25.6	29.4	28.5	24.4
Population 25 to 34 Years								
% with bachelor's degree or higher	35.3	22.9	41.4	30.2	29.2	31.2	31.7	27.5

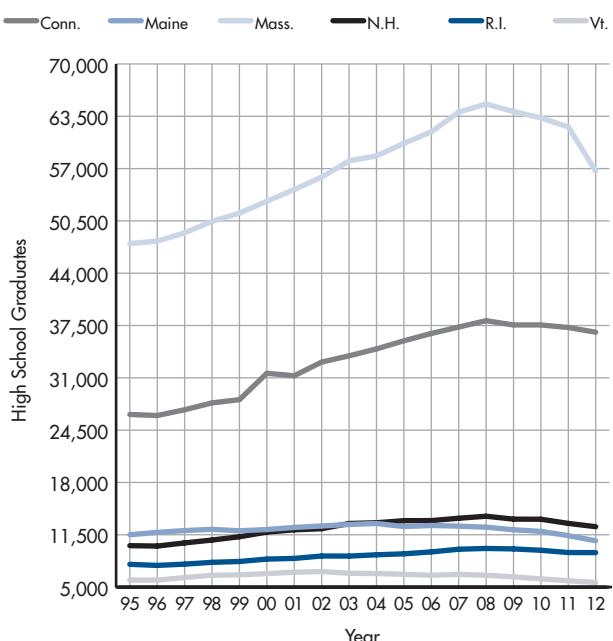
Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

Fig. 7: Public High School Graduates in New England, 1995-2012



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 8: Public High School Graduates, by State, 1995-2012



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Note: Data attributed to the Annual Survey of Colleges of the College Board and Data Base are for undergraduates only.

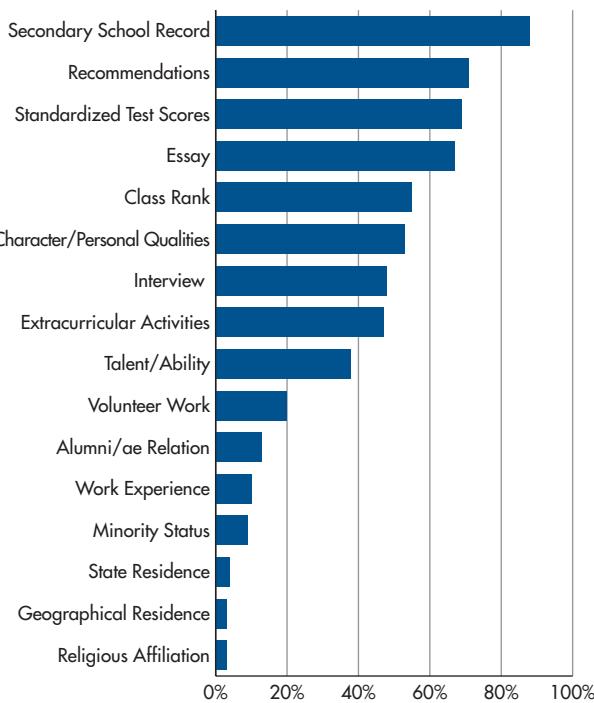
For more trends and indicators, visit www.nебhe.org/research.html

ADMISSIONS & ENROLLMENT

Despite the controversy over affirmative action, few New England college admissions officers report that minority status is an important factor in admissions decisions.

Fig. 9: What Colleges Want

Percent of New England Institutions that Consider the Following Admissions Criteria Important or Very Important, 2002



Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

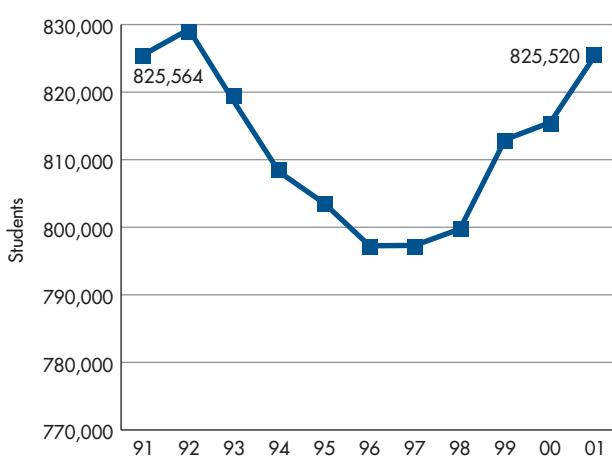
Fig. 10: Institutions Where More than 50 Percent of Freshmen Graduated in Top 10th of High School Class, 2002

Institution	Percentage
Massachusetts Institute of Technology	98%
Yale University	95
Harvard College	90
Brown University	87
Dartmouth College	86
Amherst College	83
Bowdoin College	79
Wesleyan University	72
Middlebury College	72
Boston College	69
Tufts University	66
Brandeis University	65
Wellesley College	65
Colby College	64
College of the Holy Cross	60
Smith College	59
Boston University	58
Bates College	57
Connecticut College	55
Mount Holyoke College	51

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

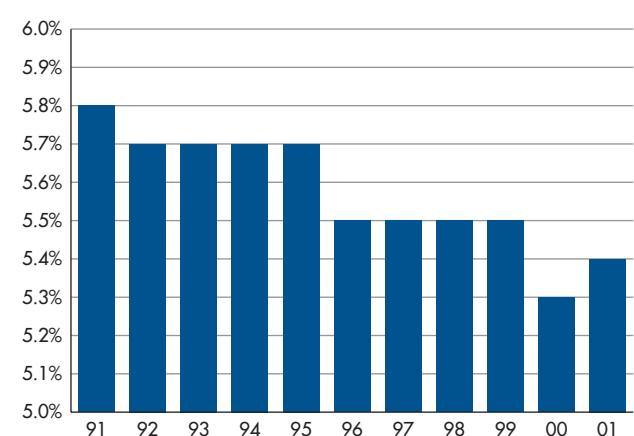
After declining through the mid-1990s, New England's total college enrollment has nearly recovered to its 1992 peak of more than 825,000.

Fig. 11: Total Higher Education Enrollment in New England, 1991-2001



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 12: Higher Education Enrollment in New England as a Share of U.S. Total, 1991-2001



Note: Share for 2001 based on projected U.S. enrollment.

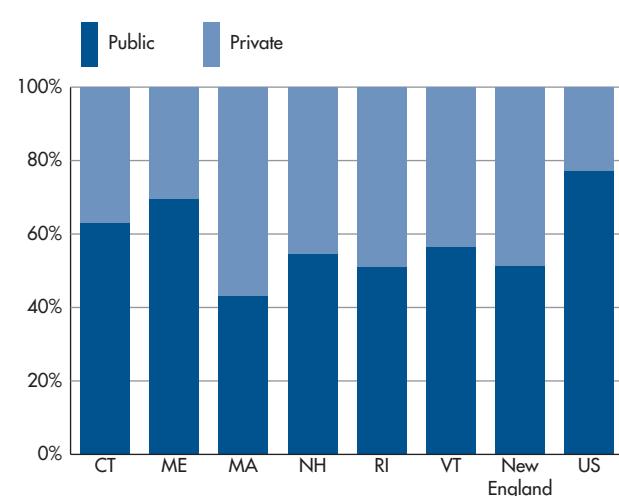
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 13: Higher Education Enrollment in New England by Type of Institution and Full-Time Status, 2001

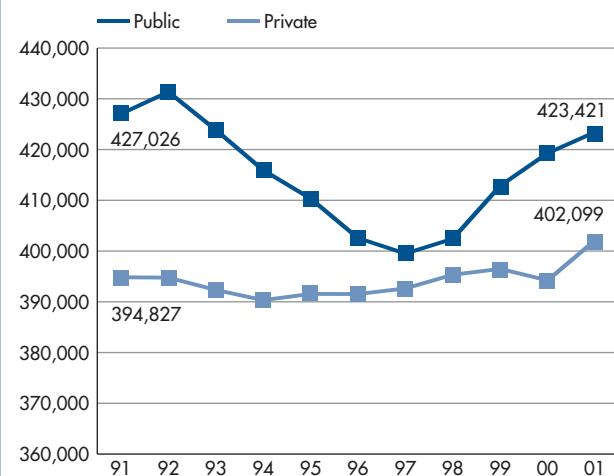
	All Institutions			Public Institutions			Private Institutions		
	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
Connecticut	165,258	97,161	68,097	104,066	52,235	51,831	61,192	44,926	16,266
Maine	61,158	35,614	25,544	42,425	23,350	19,075	18,733	12,264	6,469
Massachusetts	421,502	277,824	143,678	182,172	97,146	85,026	239,330	180,678	58,652
New Hampshire	64,605	42,115	22,490	35,129	21,889	13,240	29,476	20,226	9,250
Rhode Island	76,747	52,225	24,522	39,149	20,756	18,393	37,598	31,469	6,129
Vermont	36,250	25,976	10,274	20,480	13,116	7,364	15,770	12,860	2,910
New England	825,520	530,915	294,605	423,421	228,492	194,929	402,099	302,423	99,676
United States	15,300,000	9,035,000	6,265,000	11,775,000	NA	NA	3,525,000	NA	NA
New England as a % of United States	5.4	5.9	4.7	3.6	NA	NA	11.4	NA	NA

Note: U.S. data for 2001 are projected by the U.S. Department of Education.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Private campuses account for a much larger share of total college enrollment in New England than in any other region.

Fig. 14: Distribution of Higher Education Enrollment, Public vs. Private, 2001

Note: U.S. data for 2001 are projected by the U.S. Department of Education.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 15: Public vs. Private College Enrollment in New England, 1991 to 2001

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

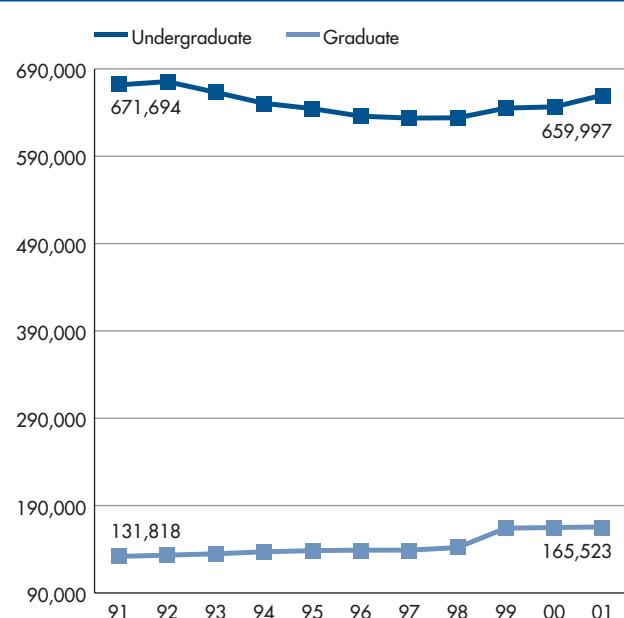
Fig. 16: Selected Enrollment Characteristics of New England Institutions by Type of Institution, 2001

	Number of Institutions	Total Undergraduate Enrollment	% Minority Students	% International Students	% Out-of-State Students	Average Age of Students
Two-Year Public	45	118,739	22%	1%	1%	24
Two-Year Private	11	3,373	24	10	2	23
Two-Year Proprietary	13	7,696	11	5	0	28
Four-Year Public	40	182,503	11	2	3	23
Four-Year Private	119	232,908	18	7	4	22
Four-Year Proprietary	2	880	1	1	0	28
New England Total	230	546,099	15%	4.5%	3%	23

Note: The Annual Survey of Colleges of the College Board and Data Base, 2002-2003 includes 230 higher education institutions in New England.
Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003.
Copyright ©2002 College Entrance Examination Board. All rights reserved.

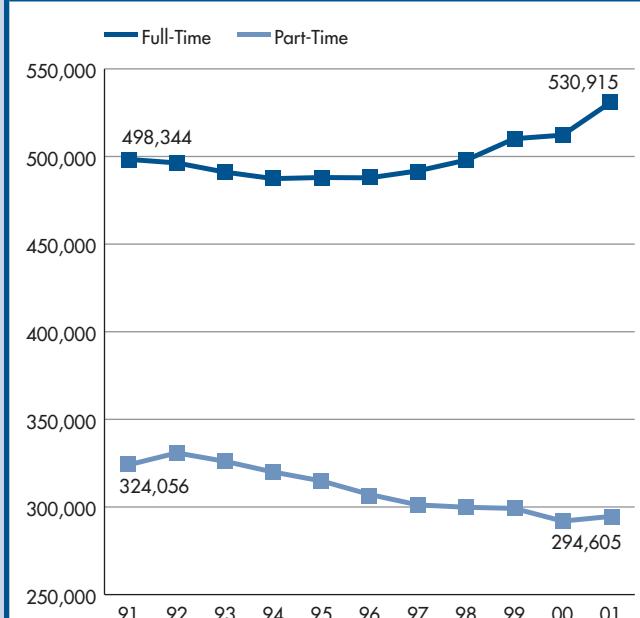
Even after decades of profound change in the higher education marketplace, the typical New England college student is a full-time undergraduate.

Fig. 17: Undergraduate vs. Graduate Enrollment in New England, 1991 to 2001



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 18: Full-Time vs. Part-Time College Enrollment in New England, 1991 to 2001



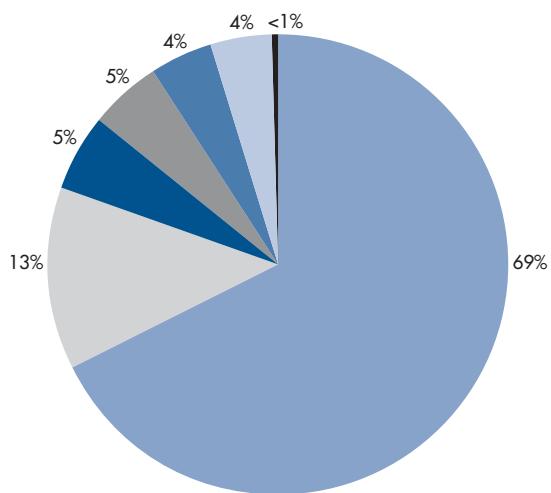
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 19: New England Institutions with the Largest Enrollments, Fall 2001

Institution	Full-time	Part-time	Total
Boston University	22,728	5,028	27,756
Northeastern University	16,609	8,097	24,706
University of Massachusetts Amherst	20,043	4,635	24,678
Harvard University	18,884	5,586	24,470
University of Connecticut	18,302	5,278	23,580
Community College of Rhode Island	5,463	10,760	16,223
University of Rhode Island	10,236	4,028	14,264
Boston College	11,132	2,915	14,047
University of New Hampshire	11,014	2,636	13,650
University of Massachusetts Boston	6,632	6,716	13,348
University of Massachusetts Lowell	6,313	6,084	12,397
Central Connecticut State University	7,133	5,235	12,368
Southern Connecticut State University	7,059	5,195	12,254
Yale University	11,009	127	11,136
University of Southern Maine	5,374	5,592	10,966
University of Maine	7,841	2,857	10,698
Massachusetts Institute of Technology	9,786	418	10,204
University of Vermont	8,086	1,995	10,081
Johnson & Wales University	7,968	1,224	9,192
Bridgewater State College	5,842	3,196	9,038

Source: New England Board of Higher Education Annual Survey of New England Colleges and Universities, summer 2002.

Fig. 20: Enrollment at New England Colleges and Universities by Race and Ethnicity, 2001



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

New England's minority enrollments have grown significantly over the past decade, while white enrollments have declined.

Fig. 21: Minority Enrollment by State and Race/Ethnicity, 1991 and 2001
(Percentages indicate share of all enrolled students.)

		As % of 18-to 24-Year-Old Population		% Change in Enrollment 1991-2001	As % of 18-to 24-Year-Old Population		% Change in Enrollment 1991-2001
		1991	2001		1991	2001	
Connecticut							
African-American	10,168 6.0%	14,405 8.7%		12% 42%	African-American	2,778 3.2%	3,769 4.9% 6% 36%
Asian-American	4,563 2.7%	6,077 3.7%		3% 33%	Asian-American	2,037 2.4%	2,808 3.7% 4% 38%
Hispanic	5,979 3.5%	10,541 6.4%		15% 76%	Hispanic	1,986 2.3%	3,797 4.9% 12% 91%
Native American	392 0.2%	601 0.4%		1% 53%	Native American	257 0.3%	288 0.4% 1% 12%
White	140,503 83.3%	114,685 69.4%		63% -18%	White	69,268 80.7%	53,467 69.7% 71% -23%
Race Unknown	5,400 3.2%	11,927 7.2%	NA	121%	Race Unknown	6,258 7.3%	9,720 12.7% NA 55%
Maine							
African-American	393 0.6%	623 1.0%		1% 59%	African-American	400 1.0%	507 1.4% 1% 27%
Asian-American	494 0.8%	745 1.2%		1% 51%	Asian-American	554 1.4%	644 1.8% 1% 16%
Hispanic	263 0.4%	540 0.9%		1% 105%	Hispanic	400 1.0%	684 1.9% 2% 71%
Native American	422 0.7%	733 1.2%		1% 74%	Native American	113 0.3%	180 0.5% 1% 59%
White	55,033 89.7%	51,534 84.3%		95% -6%	White	35,226 90.2%	31,189 87.9% 95% -11%
Race Unknown	4,856 7.9%	5,627 9.2%	NA	16%	Race Unknown	1,632 4.2%	2,184 6.2% NA 34%
Massachusetts							
African-American	19,325 4.1%	24,168 5.7%		7% 25%	African-American	34,017 4.2%	44,409 5.4% 7% 31%
Asian-American	18,532 3.9%	24,112 5.7%		6% 30%	Asian-American	27,053 3.3%	35,540 4.3% 4% 31%
Hispanic	13,688 2.9%	19,630 4.7%		10% 43%	Hispanic	23,130 2.8%	36,285 4.4% 10% 57%
Native American	1,496 0.3%	1,589 0.4%		0.3% 6%	Native American	2,928 0.4%	3,665 0.4% 0.4% 25%
White	344,484 72.6%	258,835 61.4%		71% -25%	White	704,139 86.0%	558,105 67.6% 74% -21%
Race Unknown	49,726 10.5%	65,213 15.5%	NA	31%	Race Unknown	75,953 9.3%	105,793 12.8% NA 39%
New Hampshire							
African-American	953 1.4%	937 1.5%		1% -2%	African-American	1,335,388 10.2%	1,726,907 11.0% 12% 29%
Asian-American	873 1.2%	1,154 1.8%		2% 32%	Asian-American	637,151 4.9%	922,445 5.9% 4% 45%
Hispanic	814 1.2%	1,093 1.7%		1% 34%	Hispanic	866,572 6.6%	1,436,317 9.1% 15% 66%
Native American	248 0.4%	274 0.4%		1% 10%	Native American	113,713 0.9%	147,178 0.9% 1% 29%
White	59,625 84.8%	48,395 74.9%		93% -19%	White	10,989,776 84.3%	10,086,012 64.2% 68% -8%
Race Unknown	8,081 11.5%	11,122 17.2%	NA	38%			
<i>Note: Table does not include enrollment at military academies. African-American, Asian-American, Native American and White totals reflect non-Hispanic population. Does not include the category of non-resident alien.</i>							
<i>Source: New England Board of Higher Education analysis of U.S. Department of Education data.</i>							

Fig. 22: New England Institutions with the Largest African-American Enrollments as a Percent of Total, 2001

Institution	Total	Total African-American	% African-American
Roxbury Community College	2,712	1,465	54%
Capital Community College	3,129	1,115	36
Atlantic Union College	715	234	33
Urban College of Boston	637	208	33
Cambridge College	2,863	843	29
Housatonic Community College	4,247	1,122	26
Gibbs College	535	120	22
Springfield College	5,007	1,105	22
Gateway Community College	4,724	1,040	22
Bunker Hill Community College	6,914	1,515	22
Albertus Magnus College	2,269	405	18
Norwalk Community College	5,569	986	18
American International College	1,515	267	18
Teikyo Post University	1,350	217	16
Briarwood College	511	75	15
Total of these 15 institutions	42,697	10,717	
Total of all New England institutions	825,520	44,409	5%
These 15 institutions as a share of all New England institutions		5%	24%

Note: Includes only institutions with 500 or more students.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 23: New England Institutions with the Largest Hispanic Enrollments as a Percent of Total, 2001

Institution	Total	Total Hispanic	% Hispanic
Urban College of Boston	637	264	41%
Capital Community College	3,129	687	22
Housatonic Community College	4,247	925	22
Northern Essex Community College	6,372	1,319	21
Norwalk Community College	5,569	892	16
Atlantic Union College	715	113	16
Bunker Hill Community College	6,914	1,090	16
Roxbury Community College	2,712	402	15
Gibbs College	535	73	14
Gateway Community College	4,724	594	13
Briarwood College	511	59	12
North Shore Community College	6,100	637	10
University of Connecticut at Stamford	1,133	117	10
Holyoke Community College	5,998	616	10
Quinsigamond Community College	6,197	599	10
Total of these 15 institutions	49,296	7,788	
Total of all New England institutions	825,520	36,285	4%
These 15 institutions as a share of all New England institutions		6%	21%

Note: Includes only institutions with 500 or more students.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 24: New England Institutions with the Largest Asian-American Enrollments as a Percent of Total, 2001

Institution	Total	Total Asian-American	% Asian-American
Massachusetts College of Pharmacy and Health Science	1,907	618	32%
Wellesley College	2,273	567	25
Massachusetts Institute of Technology	10,197	1,764	17
Bunker Hill Community College	6,914	994	14
The Boston Conservatory	510	71	14
Tufts University	9,082	1,215	13
Brown University	7,774	1,020	13
Urban College of Boston	637	82	13
Amherst College	1,640	183	11
Harvard University	24,474	2,728	11
Yale University	11,136	1,229	11
Rhode Island School of Design	2,119	224	11
Boston University	27,756	2,874	10
Mount Holyoke College	2,038	197	10
Dartmouth College	5,495	527	10
Total of these 15 institutions	113,952	14,293	
Total of all New England institutions	825,520	35,540	4%
These 15 institutions as a share of all New England institutions		14%	40%

Note: Includes institutions with 500 or more students.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 25: New England Institutions with the Largest Native American Enrollments as a Percent of Total, 2001

Institution	Total	Total Native American Enrollment	% Native American
Mitchell College	708	36	5%
University of Maine at Machias	1,017	37	4
University of Maine at Presque Isle	1,367	44	3
Northern Maine Technical College	883	26	3
University of Maine at Augusta	5,575	158	3
Dartmouth College	5,495	116	2
Boston Architectural Center	584	11	2
Johnson State College	1,590	27	2
University of Maine	10,698	176	2
Eastern Maine Technical College	1,596	24	2
Champlain College	2,539	35	1
Three Rivers Community College	3,472	46	1
College for Lifelong Learning	2,095	24	1
Central Maine Technical College	1,435	16	1
Southern Maine Technical College	2,471	27	1
Total of these 15 institutions	41,525	803	
Total of all New England institutions	825,520	3,665	0.4%
These 15 institutions as a share of all New England institutions		5.0%	21.9%

Note: Includes institutions with 500 or more students.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

More than 46,000 foreign students are studying on New England's college campuses. Much smaller numbers of New England college students study abroad.

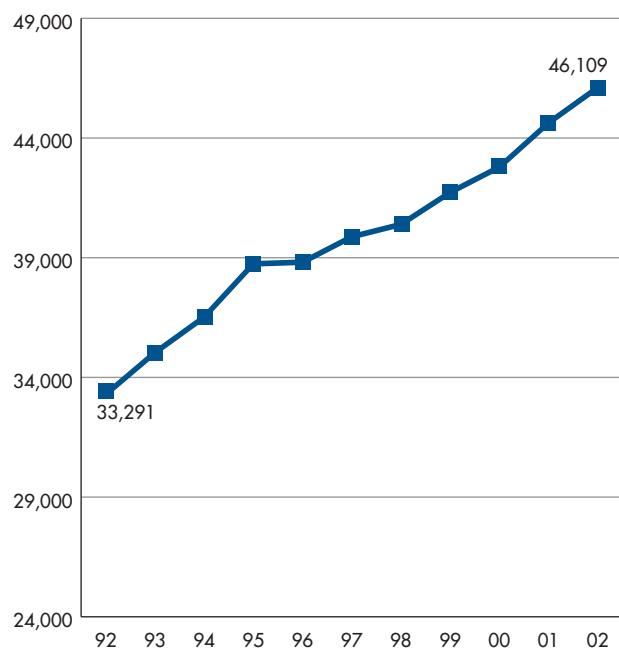
Fig. 26: Foreign Enrollment in New England by State, 1992 to 2002

State	1992	1997	2001	2002	1-Year % Change	5-Year % Change	10-Year % Change
Connecticut	5,219	6,444	7,358	8,050	9%	25%	54%
Maine	1,123	1,219	1,256	1,357	8	11	21
Massachusetts	22,639	26,568	29,395	29,988	2	13	32
New Hampshire	1,469	1,869	2,301	2,436	6	30	66
Rhode Island	1,944	3,128	3,375	3,370	0	8	73
Vermont	897	647	949	908	-4	40	1
New England	33,291	39,875	44,634	46,109	3%	16%	39%
United States	419,585	457,984	547,867	582,996	6	27	39
New England as a % of United States	7.9%	8.7%	8.1%	7.9%			

Source: New England Board of Higher Education analysis of Institute of International Education data.

Just 11 of New England's 270-plus colleges account for half of the region's foreign enrollment.

Fig. 27: Foreign Enrollment in New England, 1992-2002



Source: New England Board of Higher Education analysis of Institute of International Education data.

Fig. 28: New England Institutions Enrolling More Than 1,000 Foreign Students, 2002

Institution	Foreign Students	Total Enrollment	Foreign Students as a % of Total Enrollment
Boston University	4,412	27,767	16%
Harvard University	3,448	18,308	19
Massachusetts Institute of Technology	2,734	10,698	26
Northeastern University	2,729	24,706	11
Yale University	1,967	11,126	18
University of Massachusetts Amherst	1,823	23,600	8
University of Bridgeport	1,594	3,313	48
University of Connecticut	1,555	23,580	7
Johnson & Wales University	1,161	13,932	8
Brown University	1,135	7,309	16
Berklee College of Music	1,030	3,415	30
Total of above institutions	23,588	167,754	14%
Total of all New England institutions	46,109	825,520	6
Above institutions as a share of all New England institutions	51%	20%	

Source: New England Board of Higher Education analysis of Institute of International Education data.

Employers and economists worry that too few of the best and the brightest students pursue science and engineering fields to fuel the region's technology-based economy.

Fig. 29: New England Institutions with More Than 150 Students Abroad, 2002

Institution	Students Abroad	Students Abroad as a % of Total Enrollment
Boston University	951	3%
Boston College	854	6
University of Massachusetts Amherst	798	3
Dartmouth College	625	11
Tufts University	526	6
Brown University	524	7
University of New Hampshire	453	3
University of Vermont	451	4
Middlebury College	402	17
Wesleyan University	374	12
Colby College	365	20
Bates College	362	20
Suffolk University	360	5
Smith College	358	12
Wellesley College	342	15
Northeastern University	302	1
Worcester Polytechnic Institute	291	8
University of Rhode Island	273	2
Bentley College	270	5
Babson College	248	7
University of Connecticut	243	1
Brandeis University	233	5
Williams College	208	10
Trinity College	206	9
Bowdoin College	204	12
Johnson & Wales University	204	2
Quinnipiac University	187	3
Keene State College	186	4
Amherst College	176	11
Harvard University	171	1
Saint Michael's College	157	6
Emerson College	157	4

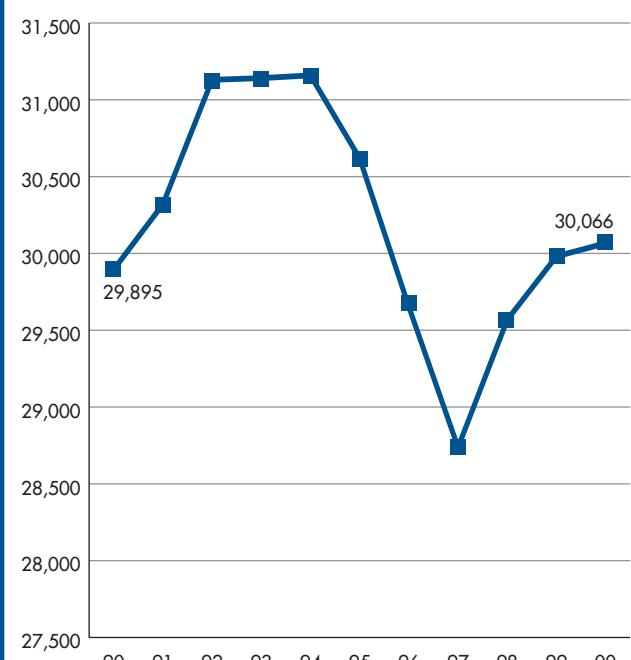
Source: New England Board of Higher Education analysis of Institute of International Education data.

Fig. 30: Graduate Science and Engineering Enrollment in New England, 1995, 1997 and 2000

	1995	1997	2000	3-Year % Change	5-Year % Change
Connecticut	6,129	5,569	6,266	13%	2%
Maine	737	584	588	1	-20
Massachusetts	20,018	19,274	19,536	1	-2
New Hampshire	1,110	1,192	1,340	12	21
Rhode Island	1,901	1,554	1,709	10	-10
Vermont	734	569	627	10	-15
New England	30,629	28,742	30,066	5%	-2%
United States	422,533	407,656	414,570	2	-2
New England as a % of United States	7.2%	7.1%	7.3%		

Source: New England Board of Higher Education analysis of National Science Foundation data.

Fig. 31: Graduate Science and Engineering Enrollment in New England, 1990 to 2000



Source: New England Board of Higher Education analysis of National Science Foundation data.

For more trends and indicators, visit www.nебе.org/research.html

DEGREES & EDUCATIONAL ATTAINMENT

New England historically granted a disproportionately large share of U.S. college degrees, but its edge has eroded.

Fig. 32: Degrees Conferred by Level of Study, 1999 and 2001

	Associate	Bachelor's	Master's	First-Professional	Doctoral	Total Degrees Conferred
Connecticut						
2001	5,205	14,080	7,607	962	607	28,461
1999	4,545	13,975	7,370	886	588	27,364
% Change	14.5	0.8	3.2	8.6	3.2	4.0
Maine						
2001	2,164	5,429	1,189	212	41	9,035
1999	2,137	5,581	1,158	193	38	9,107
% Change	1.3	-2.7	2.7	9.8	7.9	-0.8
Massachusetts						
2001	9,040	42,731	25,393	3,803	2,234	83,201
1999	10,868	41,241	24,030	3,801	2,281	82,221
% Change	-16.8	3.6	5.7	0.1	-2.1	1.2
New Hampshire						
2001	2,975	7,254	2,387	183	126	12,925
1999	2,913	7,453	2,414	208	140	13,128
% Change	2.1	-2.7	-1.1	-12.0	-10.0	-1.5
Rhode Island						
2001	3,582	8,222	1,915	250	250	14,219
1999	3,591	8,396	1,942	225	256	14,410
% Change	-0.3	-2.1	-1.4	11.1	-2.3	-1.3
Vermont						
2001	1,484	4,697	1,357	263	62	7,863
1999	1,546	4,763	1,401	255	52	8,017
% Change	-4.0	-1.4	-3.1	3.1	19.2	-1.9
New England						
2001	24,450	82,413	39,848	5,673	3,320	155,704
1999	25,600	81,409	38,315	5,568	3,355	154,247
% Change	-4.5	1.2	4.0	1.9	-1.0	0.9
United States						
2001	615,000	1,268,000	475,000	80,100	44,900	2,483,000
1999	559,954	1,200,303	439,986	78,439	44,077	2,322,759
% Change	9.8	5.6	8.0	2.1	1.9	6.9

Note: U.S. data for 2001 are projected by the U.S. Department of Education.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Women earn more degrees than men at all levels except the doctorate.
Foreign students earn more degrees than native-born minority students.

Fig. 33: Associate Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001

	Total	Men	Women	Foreign	African-American	Native American	Asian	Hispanic	White	Race Unknown
Connecticut	5,205	1,839	3,366	66	540	24	161	342	3,891	181
Maine	2,164	769	1,395	8	10	27	20	15	1,942	142
Massachusetts	9,040	3,494	5,546	146	828	37	271	433	6,687	638
New Hampshire	2,975	1,070	1,905	5	40	7	9	32	2,109	773
Rhode Island	3,582	1,750	1,832	161	284	27	91	169	2,719	131
Vermont	1,484	693	791	7	8	15	17	7	1,349	81
New England	24,450	9,615	14,835	393	1,710	137	569	998	18,697	1,946
% of New England Associate Degrees	39%	61%		2%	7%	1%	2%	4%	76%	8%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 34: Bachelor's Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001

Total	Men	Women	Foreign	African-American	Native American	Asian	Hispanic	White	Race Unknown
Connecticut 14,080	6,028	8,052	487	828	56	600	599	11,027	483
Maine 5,429	2,244	3,185	343	48	58	120	50	4,682	128
Massachusetts 42,731	18,342	24,389	2,503	2,003	171	3,067	1,667	29,597	3,723
New Hampshire 7,254	2,993	4,261	130	107	36	201	120	5,987	673
Rhode Island 8,222	3,746	4,476	422	316	21	407	317	6,365	374
Vermont 4,697	2,105	2,592	118	47	19	70	59	3,946	438
New England 82,413	35,458	46,955	4,003	3,349	361	4,465	2,812	61,604	5,819
% of New England Bachelor's Degrees	43%	57%	5%	4%	0.4%	5%	3%	75%	7%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 35: Master's Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001

Total	Men	Women	Foreign	African-American	Native American	Asian	Hispanic	White	Race Unknown
Connecticut 7,607	3,083	4,524	968	256	16	300	215	5,040	812
Maine 1,189	368	821	51	10	11	12	8	1,070	27
Massachusetts 25,393	10,141	15,252	4,078	1,154	84	1,084	709	14,137	4,147
New Hampshire 2,387	1,009	1,378	325	22	6	44	20	1,573	397
Rhode Island 1,915	845	1,070	353	34	2	47	31	1,292	156
Vermont 1,357	916	441	91	13	10	24	27	1,004	188
New England 39,848	16,362	23,486	5,866	1,489	129	1,511	1,010	24,116	5,727
% of New England Master's Degrees	41%	59%	15%	4%	0.3%	4%	3%	61%	14%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 36: First-Professional Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001

Total	Men	Women	Foreign	African-American	Native American	Asian	Hispanic	White	Race Unknown
Connecticut 962	499	463	14	64	5	93	51	701	34
Maine 212	118	94	1	1	1	10	7	190	2
Massachusetts 3,803	1,967	1,836	151	190	16	472	165	2,561	248
New Hampshire 183	95	88	6	4	1	8	13	146	5
Rhode Island 250	110	140	8	14	0	36	9	173	10
Vermont 263	140	123	3	3	2	20	4	231	0
New England 5,673	2,929	2,744	183	276	25	639	249	4,002	299
% of New England First-Professional Degrees	52%	48%	3%	5%	0.4%	11%	4%	71%	5%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

For more trends and indicators, visit www.nabhe.org/research.html

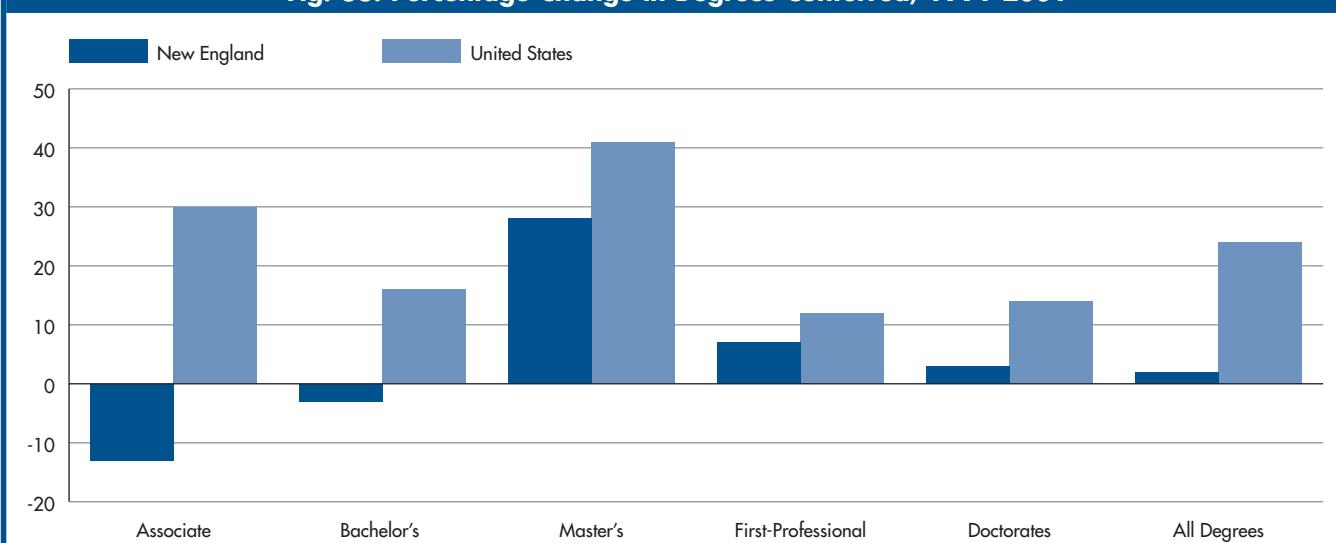
DEGREES & EDUCATIONAL ATTAINMENT *continued*

Fig. 37: Doctorates Conferred on Men, Women, Minorities and Foreign Students, 2001

	Total	Men	Women	Foreign	African-American	Native American	Asian	Hispanic	White	Race Unknown
Connecticut	607	329	278	186	20	7	27	126	201	40
Maine	41	23	18	10	0	0	1	0	30	0
Massachusetts	2,234	1,338	896	700	58	6	119	54	1,000	297
New Hampshire	126	70	56	21	1	0	4	3	93	4
Rhode Island	250	135	115	86	9	0	7	6	135	7
Vermont	62	27	35	12	5	0	1	1	41	2
New England	3,320	1,922	1,398	1,015	93	13	159	190	1,500	350
% of New England Doctorate Degrees		58%	42%	31%	3%	0.4%	5%	6%	45%	11%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

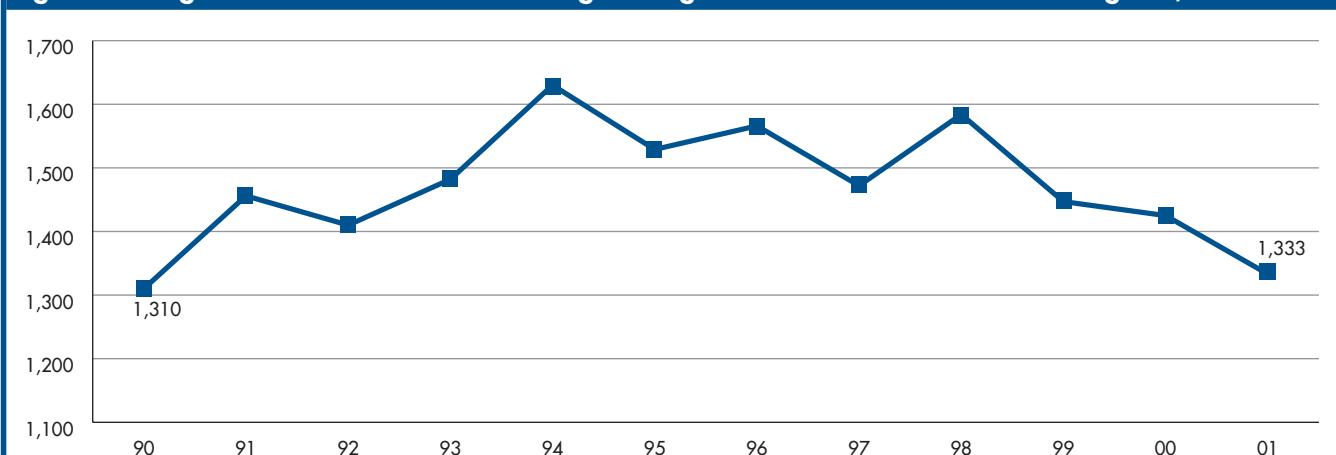
Fig. 38: Percentage Change in Degrees Conferred, 1991-2001



Note: U.S. data for 2001 are projected by the U.S. Department of Education.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

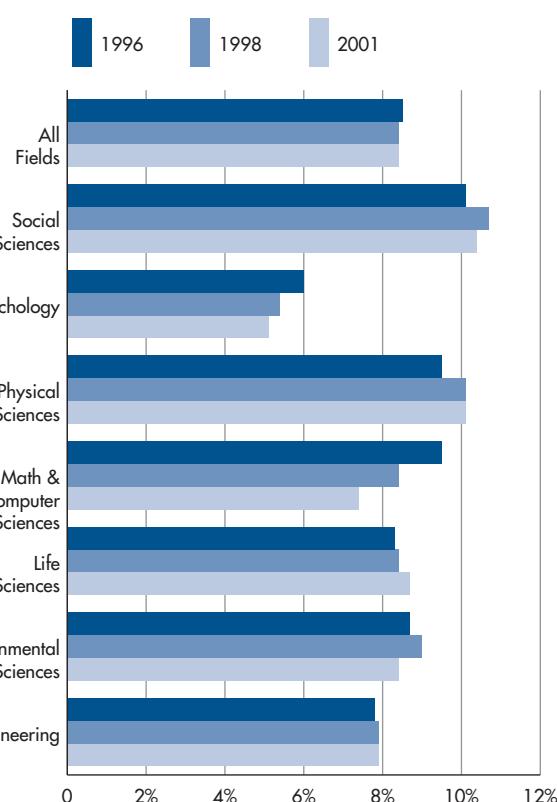
Fig. 39: Change in Number of Science and Engineering Doctorates Conferred in New England, 1990-2001



Note: Does not include doctorates awarded in psychology, social science or law.

Source: New England Board of Higher Education analysis of National Science Foundation data.

Fig. 40: New England's Share of Science and Engineering Doctorates Conferred by U.S. Institutions, by Field, 1996, 1998 and 2001



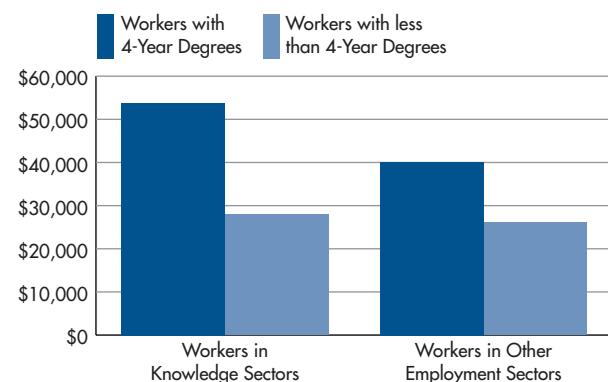
Source: New England Board of Higher Education analysis of National Science Foundation data.

Fig. 41: Percentage of Population 25 Years or Older with Bachelor's Degree or Higher, by Race, 2000

	White Alone	Black or African-American Alone	American Indian and Alaskan Native Alone	Asian Alone	Hispanic or Latino Alone
Conn.	33%	14%	16%	58%	11%
Maine	23%	22%	12%	33%	22%
Mass.	34%	20%	19%	50%	14%
N.H.	28%	28%	17%	55%	23%
R.I.	27%	17%	14%	36%	9%
Vt.	29%	35%	18%	47%	37%
New England	32%	17%	16%	51%	13%
United States	26%	14%	11%	44%	10%

Source: New England Board of Higher Education analysis of 2000 U.S. Census Bureau data.

Fig. 42: Median Annual Earnings by Sector and Education Level, Average of 1999, 2000 and 2001



Note: Figures include members of the labor force ages 25 to 62.

Source: University of Massachusetts Public Service Professor Ralph Whitehead and Research Associate Robert J. Lacey's analysis of Current Population Surveys for March 1999, 2000 and 2001.

Fig. 43: Educational Attainment of the Population 25 Years and Older, by Gender & Degree Level, 2000

United States	Male	%	Female	%	Total	%
Total Population, 25 and older	87,077,686		95,133,953		182,211,639	
Associate	5,058,006	5.8%	6,454,827	6.8%	11,512,833	6.3%
Bachelor's	14,029,287	16.1%	14,288,505	15.0%	28,317,792	15.5%
Master's	5,248,166	6.0%	5,522,781	5.8%	10,770,947	5.9%
Professional	2,245,107	2.6%	1,374,428	1.4%	3,619,535	2.0%
Doctorate	1,202,565	1.4%	551,766	0.6%	1,754,331	1.0%

New England	Male	%	Female	%	Total	%
Total Population, 25 and older	4,410,477		4,951,091		9,361,568	
Associate	272,523	6.2%	401,925	8.1%	674,448	7.2%
Bachelor's	835,624	18.9%	883,846	17.9%	1,719,470	18.4%
Master's	376,816	8.5%	422,306	8.5%	799,122	8.5%
Professional	133,345	3.0%	89,682	1.8%	223,027	2.4%
Doctorate	86,264	2.0%	43,312	0.9%	129,576	1.4%

Source: New England Board of Higher Education analysis of U.S. Census Bureau data.

STUDENT MIGRATION

One in four freshmen on New England campuses come from outside the six states to attend college—a higher percentage than in any other region. But net migration varies considerably from state to state.

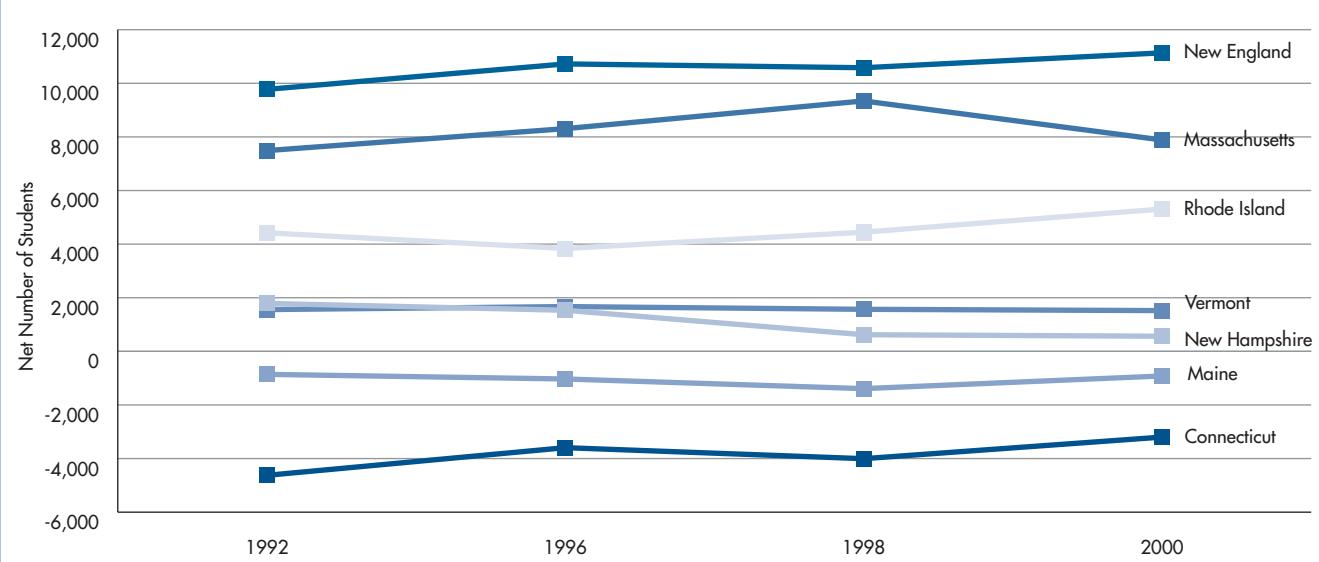
Fig. 44: Net Migration of Freshmen, 1992 and 2000

	1992 Into	1992 Out of	Net	2000 Into	2000 Out of	Net
Connecticut	5,601	10,226	(4,625)	7,789	10,988	(3,199)
Maine	2,069	2,928	(859)	2,351	3,296	(945)
Massachusetts	19,354	11,864	7,490	21,404	13,518	7,886
New Hampshire	4,791	3,003	1,788	4,853	4,289	564
Rhode Island	6,442	2,020	4,422	7,717	2,407	5,310
Vermont	3,141	1,583	1,558	3,666	2,146	1,520
New England	41,398	31,624	9,774	47,780	36,644	11,136

Note: The most current residence and migration data are for 2000.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 45: Change in Net Migration of Freshmen, 1992 to 2000



Note: The most current residence and migration data are for 2000.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

For more trends and indicators, visit www.nебе.org/research.html

Fig. 46: Migration of First-time Freshmen from New England States, by Destination and Type of Institution, 2000

State of Origin	Destination	Total Migrating	# Migrating to Public Institutions	# Migrating to Private Institutions
Conn.	Massachusetts	2,775	321	2,454
	New York	2,087	185	1,902
	Rhode Island	1,067	240	827
	Pennsylvania	919	147	772
	New Hampshire	588	345	243
	Virginia	395	254	141
	Vermont	384	203	181
	Washington D.C.	255	0	255
	Maine	216	73	143
Maine	Massachusetts	904	66	838
	New York	486	29	457
	New Hampshire	435	240	195
	Vermont	229	105	124
	Rhode Island	159	21	138
	Connecticut	130	25	105
Mass.	New York	2,310	136	2,174
	Rhode Island	2,289	532	1,757
	New Hampshire	1,747	875	872
	Connecticut	1,464	261	1,203
	Vermont	800	380	420
	Pennsylvania	768	121	647
	Maine	666	191	475
	Washington D.C.	405	0	405
	Florida	370	84	286
	Virginia	312	205	107
N.H.	Massachusetts	1,518	341	1,177
	New York	571	48	523
	Vermont	322	160	162
	Maine	300	116	184
	Rhode Island	249	48	201
	Connecticut	241	66	175
R.I.	Massachusetts	879	165	714
	Connecticut	284	98	186
	New Hampshire	183	102	81
	Vermont	87	58	29
	Maine	56	18	38
Vt.	New York	510	75	435
	Massachusetts	482	74	408
	New Hampshire	239	144	95
	Maine	136	69	67
	Connecticut	96	26	70
	Rhode Island	92	22	70

Note: Figures include first-time freshmen who graduated from high school in the previous 12 months and enrolled in degree-granting institutions in fall 2000. Destinations include all New England states and other states to which 250 or more students migrated.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 47: New England Public Institutions with the Highest Percentage of Out-of-State Students, 2002

Institution	Percentage
United States Coast Guard Academy	93%
University of Vermont	61
Keene State College	53
Plymouth State College	44
Lyndon State College	44
University of New Hampshire	41
Maine Maritime Academy	40
Johnson State College	39
University of Rhode Island	38
Castleton State College	35
University of Maine at Fort Kent	31
Charter Oak State College	30
N.H. Community Technical College-Laconia	25
N.H. Community Technical College-Claremont	25
University of Connecticut	23
University of Massachusetts Amherst	23
Massachusetts College of Art	22
University of Maine at Farmington	17
Massachusetts College of Liberal Arts	17
University of Maine at Machias	16
N.H. Community Technical College-Stratham	16
Vermont Technical College	16

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

Fig. 48: New England Private Institutions with the Highest Percentage of Out-of-State Students, 2002

Institution	Percentage
Dartmouth College	97%
Brown University	96
Bennington College	93
Middlebury College	93
Yale University	92
Massachusetts Institute of Technology	90
Bates College	89
Green Mountain College	89
Marlboro College	89
Harvard College	87
Goddard College	87
Franklin Pierce College	86
Bowdoin College	85
Simon's Rock College of Bard	85
Wellesley College	85
Wesleyan University	84
Amherst College	84
New England Conservatory of Music	82
Sterling College	82
Hampshire College	81
Trinity College	80
Salve Regina University	80

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

RETENTION & GRADUATION

Nearly half of all four-year college students do not graduate within six years of starting college.

Fig. 49: New England Private Institutions with the Highest Graduation Rates, 2000

Institution	Percentage
Harvard University	96%
Amherst College	96
Williams College	95
Yale University	95
Brown University	94
College of the Holy Cross	93
Dartmouth College	92
Massachusetts Institute of Technology	92
Bowdoin College	91
Wellesley College	90
Tufts University	89
Wesleyan University	88
Colby College	88
Middlebury College	87
Rhode Island School of Design	87
Boston College	86
Bates College	84
Babson College	84
Trinity College	84
Providence College	84
Smith College	81
Connecticut College	81
Saint Michael's College	80
Mount Holyoke College	79
Fairfield University	78

*Note: The graduation rate is the percentage of students who complete an associate degree in three years or less or a bachelor's degree in six years or less.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.*

Fig. 50: New England Public Institutions with the Highest Graduation Rates, 2000

Institution	Percentage
Massachusetts Maritime Academy	70%
University of New Hampshire	70
University of Connecticut	67
University of Vermont	66
Maine Maritime Academy	64
University of Massachusetts Amherst	60
University of Maine	57
University of Rhode Island	57
Lyndon State College	54
University of Maine at Farmington	51
Keene State College	50
Westfield State College	48
Bridgewater State College	46
Plymouth State College	46
University of Maine at Fort Kent	45
University of Massachusetts Dartmouth	43
Castleton State College	43
Fitchburg State College	42
University of Connecticut Tri-Campus	42
Rhode Island College	41
Central Connecticut State University	41
Massachusetts College of Art	41
Western Connecticut State University	40
Framingham State College	40
Eastern Connecticut State University	37

*Note: The graduation rate is the percentage of students who complete an associate degree in three years or less or a bachelor's degree in six years or less.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.*

Fig. 51: Graduation Rates, by State and Type of Institution, 2000

	Public Two-Year	Public Four-Year	Private All Institutions
Connecticut	12%	41%	59%
Maine	51	41	62
Massachusetts	19	42	64
New Hampshire	46	50	57
Rhode Island	11	49	73
Vermont	42	49	52
New England	28%	39%	51%

*Note: The graduation rate is the percentage of students who complete an associate degree in three years or less or a bachelor's degree in six years or less.
The percentages above show the average of the graduation rates of the reporting institutions within a category.
Source: New England Board of Higher Education analysis of U.S. Department of Education data.*

Fig. 52: Percentage of Freshmen Who Return for Sophomore Year, Best and Worst Performers, 2002

Top 25 Institutions	Percentage
Yale University	98%
Massachusetts Institute of Technology	97
Amherst College	97
Williams College	97
Mount Holyoke College	97
Dartmouth College	97
Middlebury College	97
Tufts University	96
Harvard College	96
Wellesley College	96
Brown University	96
Wesleyan University	95
College of the Holy Cross	95
Boston College	95
Albertus Magnus College	94
Bowdoin College	94
Colby College	94
Connecticut College	93
Bates College	93
Brandeis University	93
Bentley College	93
Worcester Polytechnic Institute	92
Providence College	92
Trinity College	91
Smith College	91
Bottom 25 Institutions	Percentage
College of St. Joseph (Vt.)	55%
Boston Architectural Center	56
Goddard College	57
Green Mountain College	57
Paier College of Art	58
University of Maine at Fort Kent	60
Pine Manor College	60
Johnson State College	62
University of Maine at Presque Isle	64
Franklin Pierce College	64
Southern Vermont College	64
Benjamin Franklin Institute	65
Daniel Webster College	65
Vermont Technical College	65
Nichols College	66
Salem State College	67
Curry College	67
Endicott College	67
Bay Path College	67
New England College	67
Wentworth Institute of Technology	68
Suffolk University	69
University of Massachusetts Boston	69
Maine College of Art	70
Castleton State College	70

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

Fig. 53: New England Two-Year Colleges Reporting that 50 Percent or More of Graduates Move on to Four-Year Programs, 2002

Institution	Percentage
Dean College	90%
Fisher College	90
Landmark College	90
Quinebaug Valley Community College	80
Massasoit Community College	75
Middlesex Community College (Conn.)	70
North Shore Community College	70
Cape Cod Community College	65
Mount Wachusett Community College	61
Northwestern Connecticut Community College	60
Bunker Hill Community College	57
Three Rivers Community College	55
Middlesex Community College (Mass.)	55
Naugatuck Valley Community College	50

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

Fig. 54: New England Institutions Sending the Largest Percentages of Graduates on to MBA Programs, Law or Medical School, 2002

10% or More of Graduates Entered MBA Programs	Percentage
Albertus Magnus College	40%
Champlain College	20
University of Bridgeport	15
Rivier College	13
American International College	10
New England College	10
7% or More of Graduates Entered Law School	
Albertus Magnus College	18%
Mount Holyoke College	12
Brown University	10
College of the Holy Cross	8
Connecticut College	7
Harvard College	7
Boston College	7
5% or More of Graduates Entered Medical School	
Harvard College	12%
Mount Holyoke College	11
Brown University	9
Yale University	8
Sacred Heart University	7
Amherst College	7
Rivier College	6
Fairfield University	5

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

FINANCING HIGHER EDUCATION

New England's colleges, both public and private, are America's most expensive.

Fig. 55: Average Student Expenses, New England vs. United States, Academic Year 2002-03

	In-State Tuition & Fees	Out-of-State Tuition	Books & Supplies	RESIDENT			COMMUTER		
				Room & Board	Trans.	Other	Room & Board	Trans.	Other
New England									
Two-year public	\$2,643	\$4,657	\$703	NA	NA	NA	\$5,418	\$1,093	\$1,632
Two-year private	16,390		709	8,089	480	763	NA	578	1,870
Four-year public	5,484	6,684	709	6,063	519	1,294	5,736	828	1,516
Four-year private	23,289		786	8,134	529	1,122	7,191	863	1,090
United States									
Two-year public	\$1,735	\$3,630	\$727	NA	NA	NA	\$5,430	\$1,104	\$1,462
Two-year private	9,890		766	5,327	633	1,221	NA	1,086	1,478
Four-year public	4,081	6,347	786	5,582	749	1,643	5,730	1,013	1,853
Four-year private	18,273		807	6,779	645	1,173	6,239	957	1,419

Note: Room and board costs for commuter students are average estimated living expenses for students living off-campus but not with parents.

Source: Table 4, Average Student Expenses, by College Board Region, 2002-2003 (Enrollment-Weighted). *Trends in College Pricing 2002*, (2002); 7. Copyright © 2002 College Entrance Examination Board. Reprinted with permission. All rights reserved.

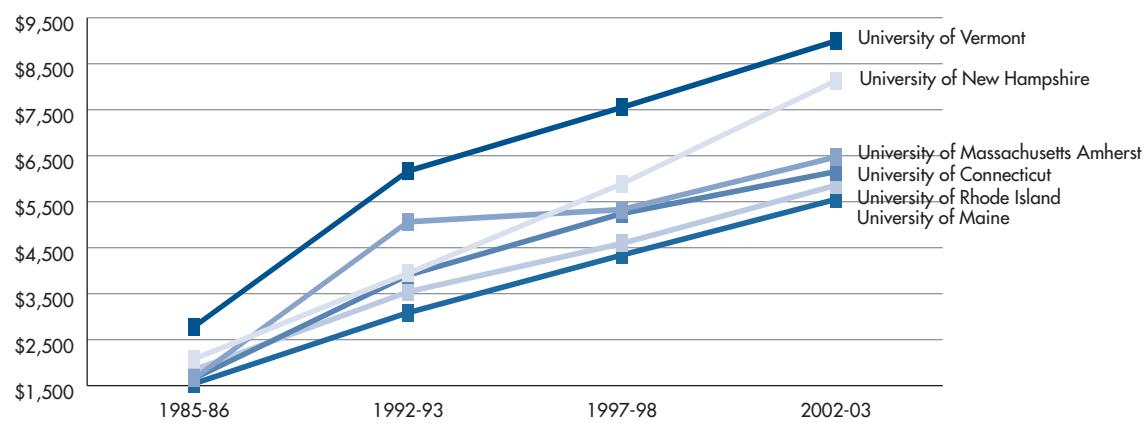
Fig. 56: Tuition & Mandatory Fees, New England vs. United States, Academic Years 1992-93 to 2002-03

	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03
New England											
Two-year public	\$1,865	\$2,113	\$2,204	\$2,212	\$2,299	\$2,357	\$2,302	\$2,170	\$2,150	\$2,281	\$2,643
Two-year private	8,209	9,000	10,086	10,372	11,893	11,708	12,237	14,527	14,854	15,064	16,390
Four-year public	3,631	3,949	4,094	4,237	4,315	4,526	4,635	4,677	4,748	4,890	5,484
Four-year private	14,039	14,755	15,539	16,318	17,219	18,418	19,211	20,281	21,215	22,106	23,289
United States											
Two-year public	1,116	1,245	1,310	1,330	1,465	1,567	1,554	1,649	1,642	1,608	1,735
Two-year private	5,754	6,228	6,128	6,339	6,613	7,079	6,940	6,968	7,539	9,200	9,890
Four-year public	2,334	2,535	2,705	2,811	2,975	3,111	3,247	3,362	3,487	3,725	4,081
Four-year private	10,448	11,007	11,719	12,216	12,994	13,785	14,709	15,518	16,233	17,272	18,273

Note: Figures for public institutions show in-state rates. All data are enrollment-weighted averages, intended to reflect the average costs that students face in various types of institutions.

Source: Table 6, Tuition and Fees by Region and Institution Type, in Current Dollars, 1992-1993 to 2002-2003. *Trends in College Pricing 2002*, (2002); 10. Copyright © 2002 College Entrance Examination Board. Reprinted with permission. All rights reserved.

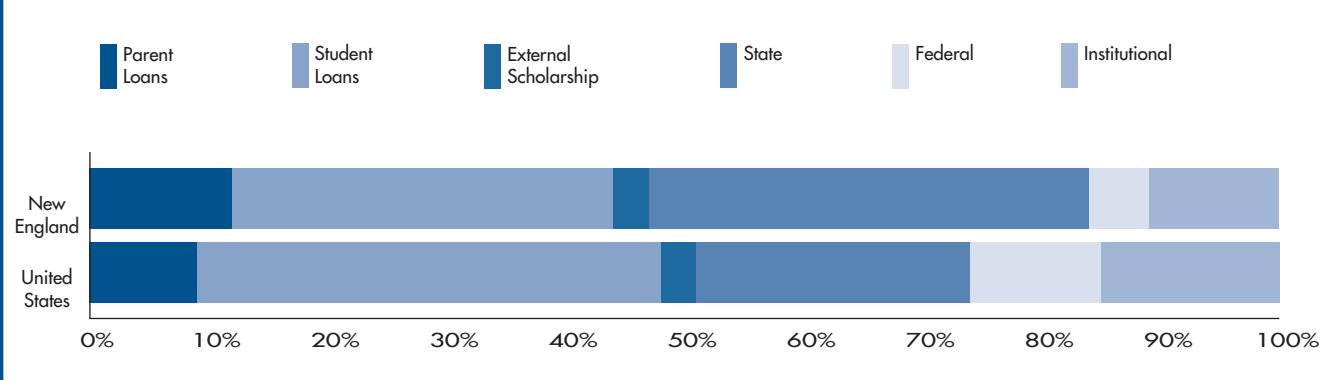
Fig. 57: In-State Undergraduate Tuition & Mandatory Fees at Public Land-Grant Universities, 1985-2002



Source: New England Board of Higher Education analysis of data from state public higher education system offices and the U.S. Department of Education.

Student aid programs have not kept pace with rising tuition.

Fig. 58: Sources of Undergraduate Financial Aid, New England vs. United States, 2001



Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003.
Copyright © 2002 College Entrance Examination Board. All rights reserved.

Fig. 59: Pell Grant Expenditures, Recipients and Average Awards by Type of Institution, Academic Year 2000-01

	PUBLIC		PRIVATE		PROPRIETARY		ALL COLLEGES		
	Total Expenditures	Total Recipients	Total Expenditures	Total Recipients	Total Expenditures	Total Recipients	Total Expenditure	Total Recipients	Average Award
Conn.	\$26,812,693	14,971	\$12,852,297	6,509	\$8,113,572	4,702	\$47,778,562	26,182	\$1,825
Maine	23,837,206	11,823	7,832,681	3,832	2,846,618	1,636	34,516,505	17,291	1,996
Mass.	67,153,338	35,271	38,215,319	18,803	10,723,851	5,984	116,092,508	60,058	1,933
N.H.	10,221,408	5,660	5,847,981	3,157	3,201,069	1,903	19,270,458	10,720	1,798
R.I.	12,826,231	6,680	6,099,878	3,047	2,722,406	1,488	21,648,515	11,215	1,930
Vt.	8,934,469	4,957	5,041,658	2,558	443,327	236	14,419,454	7,751	1,860
New England	\$149,785,345	79,362	\$75,889,814	37,906	\$28,050,843	15,949	\$253,726,002	133,217	\$1,905
United States	5,412,886,963	2,668,305	1,459,846,858	674,277	1,083,570,363	556,851	7,956,304,184	3,899,433	2,040
New England as a % of United States	3%	3%	5%	6%	3%	3%	3%	3%	3%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

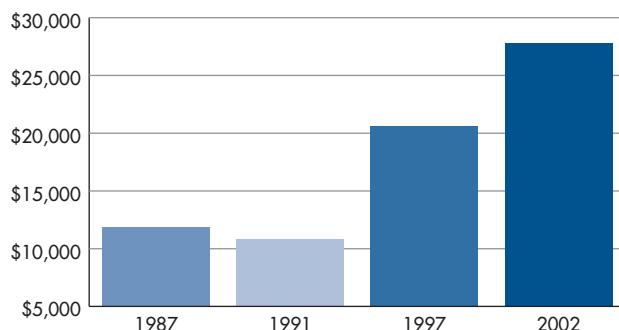
Fig. 60: Federal Campus-Based Student Financial Aid Program Allocations and Number of Recipients

	College Work-Study		Perkins Loans		Supplemental Educational Opportunity Grant	
	2002-03 Allocations	2001 Total Recipients	2002-03 Allocations	2001 Total Recipients	2002-03 Allocations	2001 Total Recipients
Connecticut	\$12,515,469	9,632	\$990,035	9,736	\$8,141,081	10,556
Maine	8,016,614	6,782	905,009	7,190	6,780,365	9,996
Massachusetts	46,037,931	37,341	4,867,388	31,595	29,247,655	35,052
New Hampshire	6,967,428	6,353	773,954	5,894	5,279,117	6,885
Rhode Island	8,323,221	6,952	809,736	9,032	7,313,276	10,495
Vermont	5,911,722	5,529	652,107	6,269	5,381,495	5,577
New England	\$87,772,385	72,589	\$8,998,229	69,716	\$62,142,989	78,561
United States	1,005,716,308	827,398	99,848,900	639,484	724,707,957	1,174,249
New England as a % of United States	8.7%	8.8%	9.0%	10.9%	8.6%	6.7%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

The federal government's student aid portfolio has shifted from mostly grants to mostly loans. Institution-provided student aid is based increasingly on merit, rather than financial need. Both trends have hurt low-income families.

Fig. 61: Average Student Loan Debt Burden, 1987 to 2002



Note: Figures are in 2002 Dollars. Average student loan debt includes undergraduate and graduate debt.

Source: 2002 Nellie Mae National Student Loan Survey.

Fig. 62: State Grant Aid Awarded, 1991-2001

State	1991	1996	2001	5-Year	10-Year
				% Change	% Change
Conn.	\$36,167,000	\$20,415,000	\$44,763,000	119%	24%
Maine	5,100,000	8,262,000	12,351,000	49	142
Mass.	71,967,000	54,646,000	116,892,000	114	62
N.H.	1,479,000	773,000	1,497,000	94	1
R.I.	10,615,000	5,741,000	6,164,000	7	-42
Vt.	11,177,000	12,022,000	14,625,000	22	31
N.E.	136,505,000	101,859,000	196,292,000	93	44
U.S.	2,151,032,000	2,933,055,000	4,680,831,000	60	118

Note: Figures may exclude aid funds provided through entities other than the principal state student aid agency.

Source: New England Board of Higher Education analysis of National Association of State Student Grant and Aid Programs (NASSGAP) 32nd Annual Survey Report.

Fig. 63: New England Institutions with the Most Freshmen Seeking Financial Aid, 2001

	Number of enrolled freshmen who applied for aid	% of freshmen with need offered some aid	% of need met for freshmen who received need-based aid	% of freshmen offered full amount needed
Public Institutions				
University of Massachusetts Amherst	2,968	95%	84%	27%
University of Connecticut	2,491	96	76	28
University of Rhode Island	2,029	94	92	6
University of New Hampshire	1,850	98	84	23
University of Maine	1,355	97	75	34
University of Vermont	1,122	100	97	62
University of Massachusetts Dartmouth	1,014	98	88	83
Bridgewater State College	856	99	75	50
University of Southern Maine	805	97	80	22
Central Connecticut State University	784	99	72	23
Keene State College	776	98	82	28
Westfield State College	773	100	81	38
University of Massachusetts Lowell	729	98	97	87
Plymouth State College	729	100	85	18
Private Institutions				
Northeastern University	2,306	100%	77%	13%
Boston University	2,274	99	93	6
Boston College	1,525	100	100	10
University of Hartford	974	100	78	0
Harvard College	950	100	100	100
Quinnipiac University	910	100	68	12
Yale University	800	100	100	100
Massachusetts Institute of Technology	752	100	100	100
Brown University	747	100	100	100
Providence College	682	100	75	12
Wentworth Institute of Technology	679	41	45	0
Sacred Heart University	670	100	70	26
Dartmouth College	665	100	100	100
Tufts University	631	100	100	100

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003. Copyright © 2002 College Entrance Examination Board. All rights reserved.

Fig. 64: New England Institutional Financial Aid, Need-Based vs. Non-Need-Based, 2002

	Total Aid Awarded	Total Need-Based Aid	Total Non-Need Based Aid	Non-Need Based Aid as a % of Total
Two-Year Public	\$57,801,163	\$54,064,597	\$3,736,566	6%
Two-Year Private	12,755,094	10,198,111	2,556,983	20%
Two-Year Proprietary	8,999,332	8,999,332	0	0%
Four-Year Public	752,518,742	509,840,424	242,678,318	32%
Four-Year Private	2,353,033,701	1,779,353,249	573,680,452	24%
Four-Year Proprietary	1,033,404	887,901	145,503	14%
New England Total	\$3,186,141,436	\$2,363,343,614	\$822,797,822	26%

Note: Non-need-based aid may include awards based on academic merit, athletics, artistic or other talents, race or ethnicity, alumni affiliation or religious affiliation. Many institutions use two or more criteria to award non-need-based aid.

Source: New England Board of Higher Education analysis of data from the Annual Survey of Colleges of the College Board and Data Base, 2002-2003.

Copyright © 2002 College Entrance Examination Board. All rights reserved.

Nationally, state budgets grew more slowly in fiscal 2002 and 2003 than in any two-year period since the recession of the early 1980s.

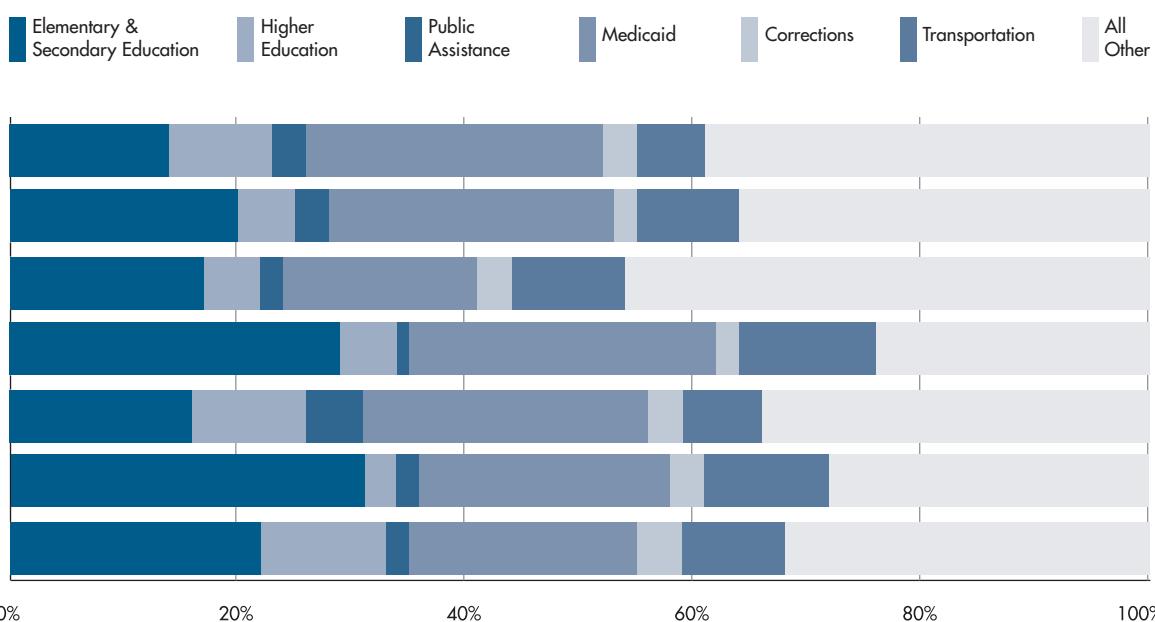
Fig. 65: Appropriations of State Tax Funds for Higher Education Operating Expenses, Fiscal 2003

	Appropriations	1-Year % Change	2-Year % Change	10-Year % Change	Per-Capita Appropriations	National Rank 2002	Appropriations Per \$1,000 of Personal Income	National Rank 2002
Connecticut	762,600,000	1%	8%	76%	\$222.65	27th	\$5.25	46th
Maine	242,082,000	1	6	41	185.75	40th	7.04	35th
Massachusetts	989,019,000	-3	-8	52	159.51	48th	3.98	49th
New Hampshire	111,135,000	3	10	50	85.43	50th	2.59	50th
Rhode Island	169,438,000	-3	4	56	164.77	46th	5.30	43rd
Vermont	75,455,000	6	11	36	116.38	49th	4.30	48th
New England	2,349,729,000	-1%	0	57%	\$168.56		\$4.51	
United States	63,648,456,000	1	5	60	220.88		7.33	

Note: 2001 population figures were used to calculate per-capita appropriations. 2001 personal income information was used to calculate appropriations per \$1,000 of personal income.

Source: New England Board of Higher Education analysis of data from Illinois State University Center for Higher Education and Educational Finance.

Fig. 66: State Spending by Function as a Share of Total State Expenditures, 2001



Source: New England Board of Higher Education Analysis of National Association of State Budget Officers data.

Fig. 67: New England's 30 Largest College Endowments, Fiscal 2002

U.S. Rank	New England Rank	Institution	Market Value at End of Fiscal 2002	% Change from Fiscal 2001
1	1	Harvard University	\$17,169,757,000	-4.4%
2	2	Yale University	10,523,600,000	-1.9%
6	3	Massachusetts Institute of Technology	5,359,423,000	-12.6%
20	4	Dartmouth College	2,186,610,000	-9.4%
25	5	Brown University	1,414,285,000	-1.4%
37	6	Williams College	1,060,043,000	-12.2%
38	7	Wellesley College	1,032,465,000	-9.1%
41	8	Boston College	964,313,000	-3.9%
50	9	Amherst College	860,189,000	-3.4%
51	10	Smith College	851,253,000	-7.2%
68	11	Tufts University	651,808,000	18.7%
77	12	Boston University	578,473,000	-13.0%
79	13	Middlebury College	563,124,000	-10.2%
85	14	Wesleyan University	484,289,000	-7.0%
96	15	Bowdoin College	430,623,000	-0.6%
98	16	Northeastern University	422,920,000	-14.4%
108	17	Brandeis University	384,335,000	-3.2%
116	18	Mount Holyoke College	355,915,000	-8.4%
121	19	College of the Holy Cross	336,614,000	-7.1%
122	20	Trinity College	336,232,000	-2.0%
130	21	Colby College	322,559,000	-8.7%
148	22	Worcester Polytechnic Institute	262,198,000	-12.5%
168	23	Rhode Island School of Design	220,613,000	-1.8%
185	24	University of Vermont	191,833,000	-5.0%
206	25	University of Massachusetts & Foundation	161,350,000	0.3%
210	26	University of Connecticut Foundation	156,976,000	-5.0%
211	27	Johnson & Wales University	156,733,000	-10.3%
212	28	Bates College	156,696,000	-9.5%
215	29	Clark University	154,709,000	0.9%
220	30	Babson College	151,600,000	-16.4%

Source: New England Board of Higher Education analysis of 2002 National Association of College and University Business Officers (NACUBO) Endowment Study.

New England college and university revenues have been battered during the recent market downturn.

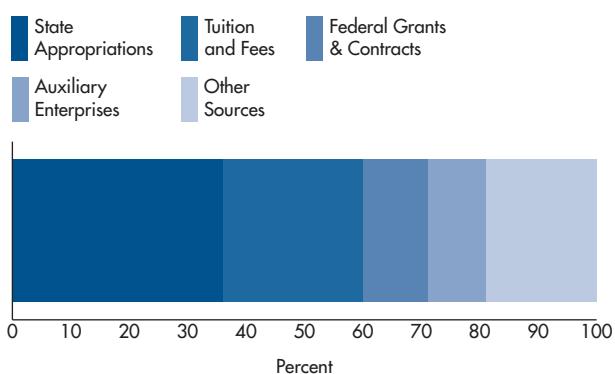
Fig. 68: Total Current Fund Revenues and Expenditures at New England Colleges and Universities, 2001

	Revenues		Expenditures	
	1-Year % Change	6-Year % Change	1-Year % Change	6-Year % Change
Connecticut	\$4,929,983,163	-28%	74%	\$3,996,232,345
Maine	941,489,464	-16%	39%	993,980,184
Massachusetts	9,415,913,620	-54%	14%	10,962,056,194
New Hampshire	1,185,389,173	-40%	29%	1,199,646,317
Rhode Island	1,409,303,751	-15%	30%	1,355,529,583
Vermont	814,831,473	-11%	28%	823,325,681
New England	\$18,696,910,644	-43%	30%	\$19,330,770,304

Note: Revenues include tuition and fees; federal, state and local appropriations; grants and contracts; private gifts; endowment income; sales and service of educational activity; auxiliary enterprises; hospital revenue; independent operations; and all other sources of income. Expenditures include expenses for instruction; research; public service; academic and institutional support; student services; auxiliary enterprises; hospital services; financial aid; plant operation and maintenance; transfers; and all other expenses. Investment returns at New England private colleges and universities totaled \$14,877,050,639 in 2000. In 2001, investment returns posted a \$555,314,854 loss. A six-year period was used to avoid misleading comparisons due to accounting methodology changes in 1996.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

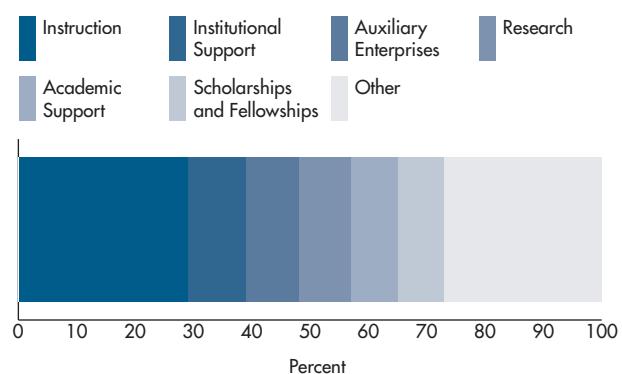
Fig. 69: Revenues at New England's Public Colleges and Universities by Source, 2001



Note: "Other" category includes endowment income; sales and services of educational activities; independent operations; state and local grants and contracts; federal and local appropriations; private gifts; and hospital revenues.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

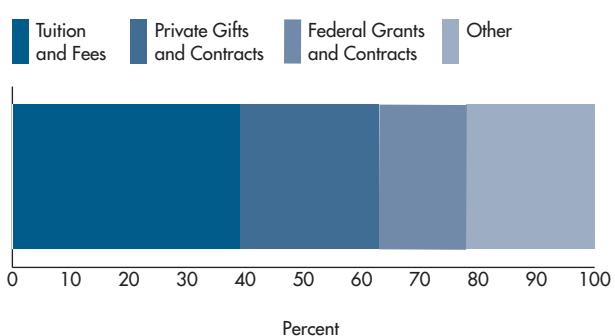
Fig. 70: Expenditures at New England's Public Colleges and Universities by Category, 2001



Note: "Other" category includes independent operations; mandatory and non-mandatory transfers; operation and maintenance of plant; student services; hospital operations; and public service.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

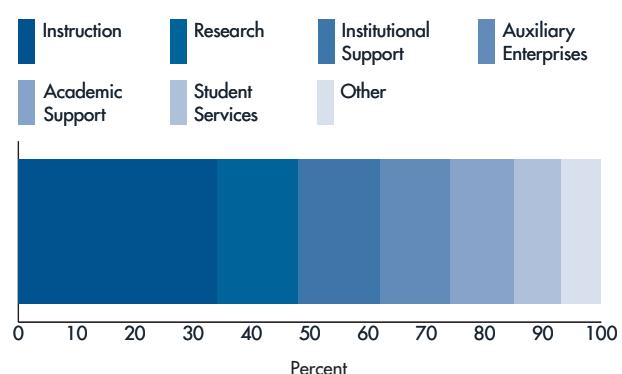
Fig. 71: Revenues at New England's Private Colleges and Universities by Source, 2001



Note: "Other" category includes federal, state, and local appropriations; state and local contracts; affiliated entities; sales and services of educational activities; sales and services of auxiliary enterprises; hospital revenues; and independent operations. Investment returns at New England private colleges and universities totaled \$14,877,050,639 in 2000. In 2001, investment returns posted a \$555,314,854 loss.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

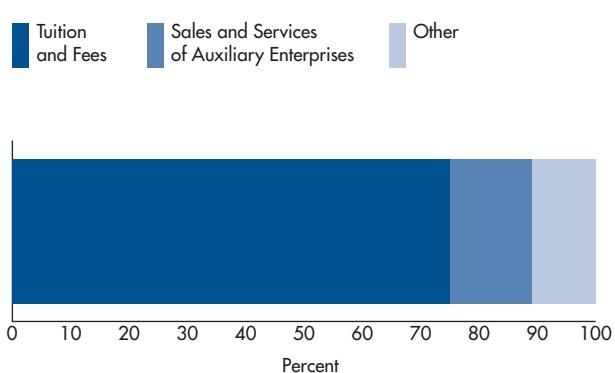
Fig. 72: Expenditures at New England's Private Colleges and Universities by Category, 2001



Note: "Other" category includes financial aid; hospital services; public services; and independent operations.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

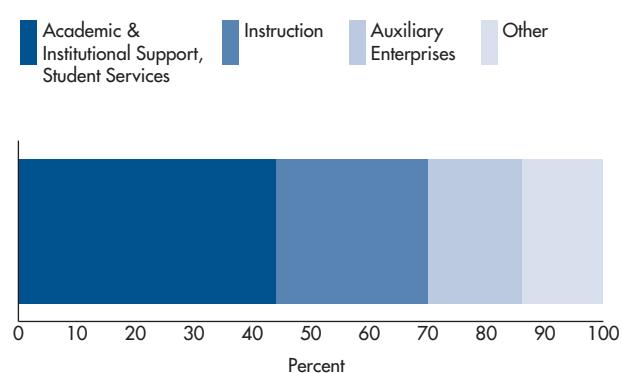
Fig. 73: Revenues at New England's Proprietary Colleges and Universities by Source, 2001



Note: "Other" category includes sales and services of educational activities, investment income; private grants and contracts; federal, state and local appropriations; grants and contracts; and all other sources of revenue.

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 74: Expenditures at New England's Proprietary Colleges and Universities by Category, 2001



Note: "Other" category includes financial aid; research and public service; and all other expenses.

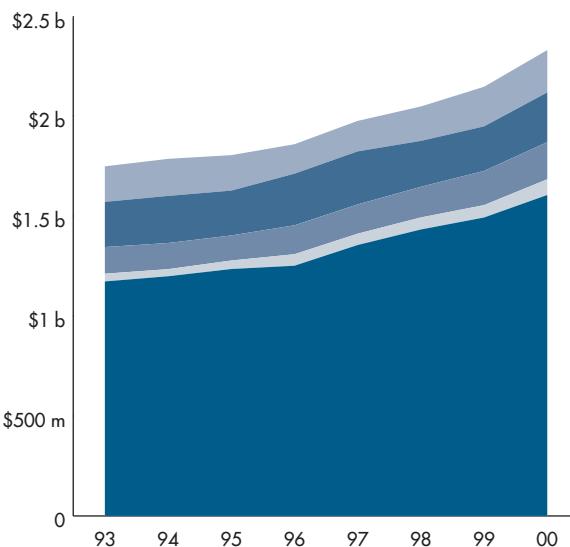
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

UNIVERSITY RESEARCH

New England's share of all U.S. university research & development expenditures shrank from over 10 percent in 1983 to under 8 percent today.

Fig. 75: New England Research and Development Expenditures at Doctorate-Granting Institutions, by Source of Funds, 1993 to 2000

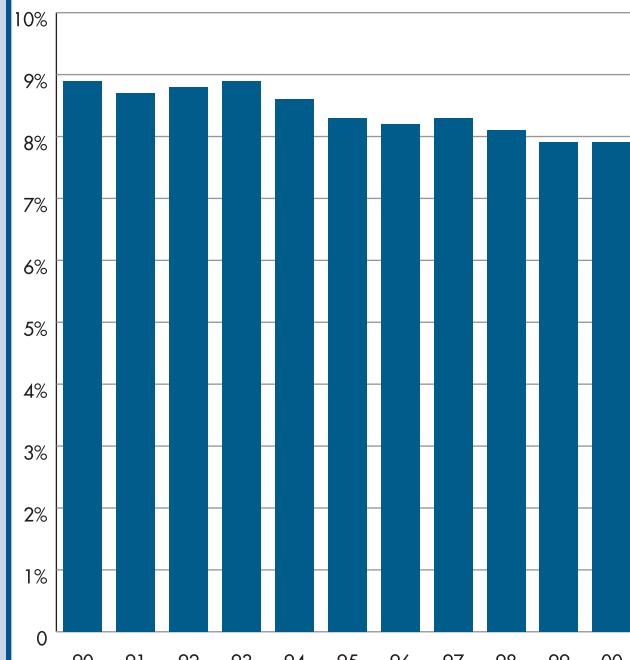
Federal State and Local Industry Institutional Other Sources



Note: "Other Sources" include awards from non-profit foundations, voluntary health agencies or other sources not elsewhere classified.

Source: New England Board of Higher Education analysis of National Science Foundation data.

Fig. 76: New England's Share of Research and Development Expenditures at U.S. Doctorate-Granting Institutions, 1990 to 2000



Source: New England Board of Higher Education analysis of National Science Foundation data.

Fig. 77: Regional Comparison of R&D Expenditures at Doctorate-Granting Institutions, 1995 and 2000

	Total Expenditures		3-Year % Change	5-Year % Change	Per-Capita Expenditures		Per-Capita U.S. Rank 1995	Per-Capita U.S. Rank 2000
	1995	2000			1995	2000		
East North Central	\$3,076,543,000	\$4,214,128,000	22.9	37.0	\$70.75	\$93.33	8	7
East South Central	883,136,000	1,289,819,000	31.5	46.0	55.04	75.77	9	9
Middle Atlantic	3,315,031,000	4,344,524,000	24.7	31.1	86.90	109.51	4	3
Mountain	1,459,758,000	1,862,854,000	21.6	27.6	92.67	102.51	2	6
New England	1,806,255,000	2,332,485,000	17.9	29.1	135.97	167.53	1	1
Outlying Areas	69,636,000	74,529,000	-2.5	7.0	NA	NA	NA	NA
Pacific	3,493,109,000	5,201,607,000	28.8	48.9	83.33	115.53	5	2
South Atlantic	4,131,463,000	5,515,978,000	21.0	33.5	87.98	106.55	3	4
West North Central	1,477,904,000	1,996,661,000	23.2	35.1	80.52	103.79	6	5
West South Central	2,079,216,000	2,764,050,000	24.0	32.9	72.15	87.90	7	8
United States	\$21,792,051,000	\$29,596,635,000	23.7	35.8	82.93	105.17		

Source: New England Board of Higher Education analysis of National Science Foundation data.

FACULTY PROFILES

New England's college faculties remain overwhelmingly white and mostly male.

Fig. 78: Total Full-Time and Tenured Faculty Members in New England, by Gender, 2001

	Total Full-Time Faculty		Tenured Full-Time Faculty	
	Male	Female	Male	Female
Connecticut	5,080	2,701	2,622	967
Maine	1,310	880	755	354
Massachusetts	11,779	6,631	6,338	2,532
New Hampshire	1,554	845	845	372
Rhode Island	1,765	1,036	1,057	458
Vermont	1,284	754	660	256
New England	22,772	12,847	12,277	4,939

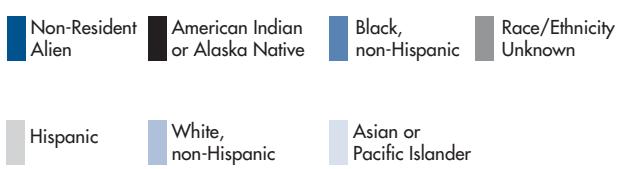
Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Fig. 79: Total Full-Time and Tenured Faculty Members in New England, by Race & Gender, 2001

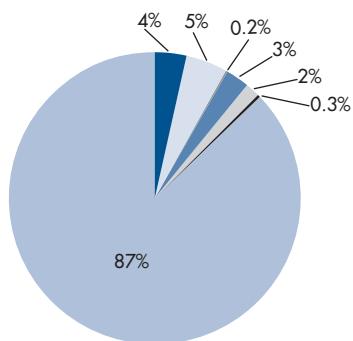
New England	Total Full-Time Faculty		Tenured Full-Time Faculty	
	Male	Female	Male	Female
Non-Resident Alien	1,276	636	133	44
Black non-Hispanic	577	401	291	141
American Indian or Alaska Native	34	33	19	7
Asian or Pacific Islander	1,294	620	668	188
Hispanic	413	308	182	97
White, non-Hispanic	18,795	10,562	10,924	4,431
Race/Ethnicity Unknown	383	287	60	31
Total	22,772	12,847	12,277	4,939

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

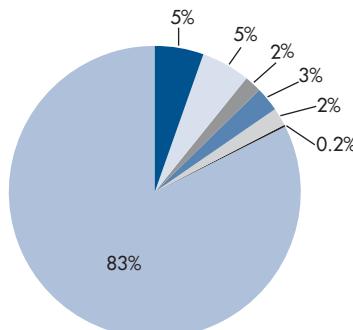
Fig. 80: New England College and University Full-time Faculty, by Race and Ethnicity, 1995 and 2001



1995

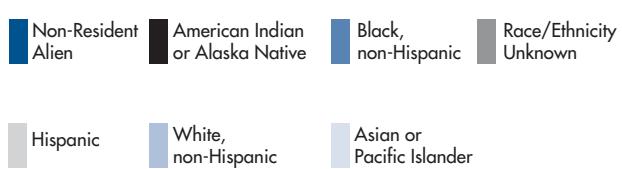


2001

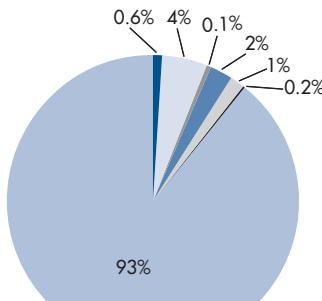


Source: New England Board of Higher Education analysis of U.S. Department of Education data.

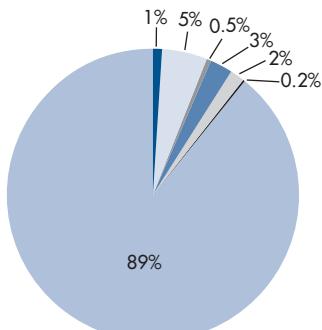
Fig. 81: Tenured Faculty at New England Colleges and Universities, by Race and Ethnicity, 1995 and 2001



1995



2001



Source: New England Board of Higher Education analysis of U.S. Department of Education data.

INDEX OF FIGURES

Demography

- Fig. 1: Demographic Profile of the New England States and the United States
Fig. 2: Population of New England States, 1990-2002
Fig. 3: Birth, Death and Migration Rates per 1,000 Population, 2001-2002
Fig. 4: Birth, Death and Migration Rates, U.S. Rank, 2001-2002
Fig. 5: Ethnic Change in New England Population, 1990-2000
Fig. 6: Educational Attainment by State, 2000
Fig. 7: Public High School Graduates in New England, 1995-2012
Fig. 8: Public High School Graduates by State, 1995-2012

Admissions & Enrollment

- Fig. 9: What Colleges Want: Admissions Criteria
Fig. 10: Institutions Where More than 50 Percent of Freshmen Graduated in Top 10th of High School Class, 2002
Fig. 11: Total Higher Education Enrollment in New England, 1991-2001
Fig. 12: Higher Education Enrollment in New England as a Share of U.S. Total, 1991-2001
Fig. 13: Higher Education Enrollment in New England by Type of Institution and Full-Time Status, 2001
Fig. 14: Distribution of Higher Education Enrollment, Public vs. Private, 2001
Fig. 15: Public vs. Private College Enrollment in New England, 1991-2001
Fig. 16: Selected Enrollment Characteristics of New England Institutions by Type of Institution, 2001
Fig. 17: Undergraduate vs. Graduate Enrollment in New England, 1991 to 2001
Fig. 18: Full-Time vs. Part-Time College Enrollment in New England, 1991 to 2001
Fig. 19: New England Institutions with the Largest Enrollments, Fall 2001
Fig. 20: Enrollment at New England Colleges and Universities by Race and Ethnicity, 2001
Fig. 21: Minority Enrollment by State and Race/Ethnicity, 1991 and 2001
Fig. 22: New England Institutions with the Largest African-American Enrollments as a Percent of Total, 2001
Fig. 23: New England Institutions with the Largest Hispanic Enrollments as a Percent of Total, 2001
Fig. 24: New England Institutions with the Largest Asian-American Enrollments as a Percent of Total, 2001
Fig. 25: New England Institutions with the Largest Native American Enrollments as a Percent of Total, 2001
Fig. 26: Foreign Enrollment in New England by State, 1992 to 2002
Fig. 27: Foreign Enrollment in New England, 1992 to 2002
Fig. 28: New England Institutions Enrolling More Than 1,000 Foreign Students, 2002
Fig. 29: New England Institutions with More Than 150 Students Abroad, 2002
Fig. 30: Graduate Science and Engineering Enrollment in New England, 1995, 1997 and 2000
Fig. 31: Graduate Science and Engineering Enrollment in New England, 1990 to 2000

Degrees & Educational Attainment

- Fig. 32: Degrees Conferred by Level of Study, 1999 and 2001
Fig. 33: Associate Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001
Fig. 34: Bachelor's Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001
Fig. 35: Master's Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001
Fig. 36: First-Professional Degrees Conferred on Men, Women, Minorities and Foreign Students, 2001
Fig. 37: Doctorates Conferred on Men, Women, Minorities and Foreign Students, 2001
Fig. 38: Percentage Change in Degrees Conferred, 1991-2001
Fig. 39: Change in Number of Science and Engineering Doctorates Conferred in New England, 1990-2001
Fig. 40: New England's Share of Science and Engineering Doctorates Conferred by U.S. Institutions, by Field, 1996, 1998 and 2001
Fig. 41: Percentage of Population 25 Years or Older with Bachelor's Degree or Higher by Race, 2000
Fig. 42: Median Annual Earnings by Sector and Education Level, Average of 1999, 2000 and 2001
Fig. 43: Educational Attainment of the Population 25 Years and Older, by Gender and Degree Level, 2000

Student Migration

- Fig. 44: Net Migration of Freshmen, 1992 and 2000
Fig. 45: Change in Net Migration of Freshmen, 1992 to 2000
Fig. 46: Migration of First-Time Freshmen from New England States, by Destination and Type of Institution, 2000
Fig. 47: New England Public Institutions with the Highest Percentage of Out-of-

State Students, 2002

Fig. 48: New England Private Institutions with the Highest Percentage of Out-of-State Students, 2002

Retention & Graduation

- Fig. 49: New England Private Institutions with the Highest Graduation Rates, 2000
Fig. 50: New England Public Institutions with the Highest Graduation Rates, 2000
Fig. 51: Graduation Rates, by State and Type of Institution, 2000
Fig. 52: Percentage of Freshmen Who Return for Sophomore Year, Best and Worst Performers, 2002
Fig. 53: New England Two-Year Colleges Reporting that 50 Percent or More of Graduates Move on to Four-Year Programs, 2002
Fig. 54: New England Institutions Sending the Largest Percentages of Graduates on to MBA Programs, Law or Medical School, 2002

Financing Higher Education

- Fig. 55: Average Student Expenses, New England vs. United States, Academic Year 2002-03
Fig. 56: Tuition & Mandatory Fees, New England vs. United States, Academic Years 1992-93 to 2002-03
Fig. 57: In-State Undergraduate Tuition & Mandatory Fees at Public Land-Grant Universities, 1985-2002
Fig. 58: Sources of Undergraduate Financial Aid, New England vs. United States, 2001
Fig. 59: Pell Grant Expenditures, Recipients and Average Awards by Type of Institution, Academic Year 2000-01
Fig. 60: Federal Campus-Based Student Financial Aid Program Allocations and Number of Recipients
Fig. 61: Average Student Loan Debt Burden, 1987 to 2002
Fig. 62: State Grant Aid Awarded, 1991-2001
Fig. 63: New England Institutions with the Most Freshmen Seeking Financial Aid, 2001
Fig. 64: New England Institutional Financial Aid, Need-Based vs. Non-Need-Based, 2002
Fig. 65: Appropriations of State Tax Funds for Higher Education Operating Expenses, Fiscal 2003
Fig. 66: State Spending by Function as a Share of Total State Expenditures, 2001
Fig. 67: New England's 30 Largest College Endowments, Fiscal 2002
Fig. 68: Total Current Fund Revenues and Expenditures at New England Colleges and Universities, 2001
Fig. 69: Revenues at New England's Public Colleges and Universities by Source, 2001
Fig. 70: Expenditures at New England's Public Colleges and Universities by Category, 2001
Fig. 71: Revenues at New England's Private Colleges and Universities by Source, 2001
Fig. 72: Expenditures at New England's Private Colleges and Universities by Category, 2001
Fig. 73: Revenues at New England's Proprietary Colleges and Universities by Source, 2001
Fig. 74: Expenditures at New England's Proprietary Colleges and Universities by Category, 2001

University Research

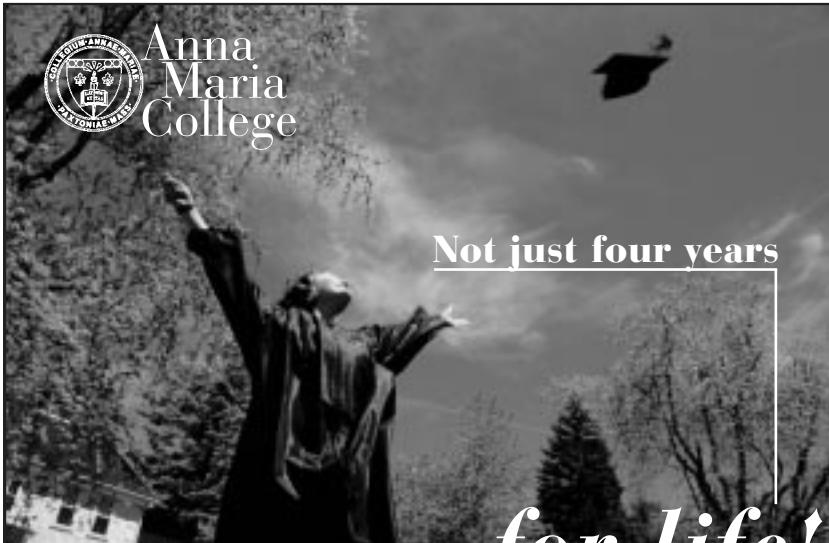
- Fig. 75: New England Research and Development Expenditures at Doctorate-Granting Institutions, by Source of Funds, 1993-2000
Fig. 76: New England's Share of Research and Development Expenditures at U.S. Doctorate-Granting Institutions 1990-2000
Fig. 77: Regional Comparison of R&D Expenditures at Doctorate-Granting Institutions, 1995 and 2000

Faculty Profiles

- Fig. 78: Total Full-Time and Tenured Faculty Members in New England, by Gender, 2001
Fig. 79: Total Full-Time and Tenured Faculty Members in New England, by Race and Gender, 2001
Fig. 80: New England College and University Full-Time Faculty, by Race and Ethnicity, 1995 and 2001
Fig. 81: Tenured Faculty at New England Colleges and Universities, by Race and Ethnicity, 1995 and 2001



Anna
Maria
College



Not just four years

• • • *for life!*

Art/Art Education/Art and Business
Art Therapy
Biology
Business Administration
Catholic Studies
Chemistry
Computer Information Systems

Criminal Justice
Economics
Education (Teacher Licensure Prep)
English/English—Language Arts
English as a Foreign Language
Environmental Science
Fire Science

Graphic Design
History
Humanities
International Studies
Legal Studies/Paralegal
Management
Information Systems
Mathematics
Modern Languages
Music/Music Education

Music Therapy
Philosophy
Psychology
Physics
Political Science
Pre-Medicine Studies
Public Policy
Social Work
Theater
Theology/Religious Studies

Sunset Lane/Paxton, MA 01612-1198 • 800-344-4586 x360 • admission@annamaria.edu • www.annamaria.edu



NEW ENGLAND
DOLLARS *for*
SCHOLARS

Hope for
Every Student

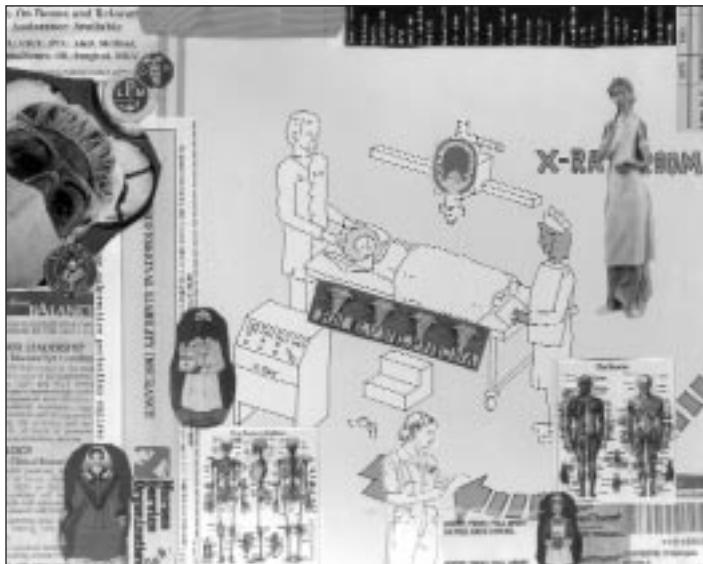


Support your local Dollars for Scholars chapter, or start a new chapter in your community.

- 165 chapters serving 300 cities and towns – and growing.
- \$9.1 million awarded by New England chapters.
- 7,219 student scholarships in 2001.

For more information,
please call 1-800-335-4360,
or visit
www.dollarsforscholarsne.org

Dollars for Scholars is a program of Citizens' Scholarship Foundation of America, Inc., a national nonprofit educational support and student aid management organization.



A Critical Condition

Solving New England's Health Care Workforce Crisis

RICHARD M. FREELAND AND PAUL E. HARRINGTON

**Over five years,
40 percent of
health care pro-
fessionals left
health occupa-
tions to pursue
alternative career
and life options.**

Over the past several years, health executives and educators have become increasingly concerned about the growing labor supply problems facing New England's health care delivery system. Recent studies of health professions labor markets in Connecticut, Maine and Massachusetts, as well as nationally, reveal severe labor supply problems among registered nurses (RNs), licensed practical nurses (LPNs) and other health science professions. These labor shortages persisted even as the number of unemployed New Englanders rose by 77 percent between early 2001 and the end of 2002—a more dramatic rise than in any other region of the United States.

In most types of firms, high job vacancy rates of skilled professionals mean lost output and sales. But the consequences of unfilled jobs in the health care delivery system are far more grave. Short staffing leads to declines in the quality of care that can ultimately contribute to patient illness and even death, according to research published in the *Journal of the American Medical Association* and elsewhere.

Assessing the shortage

The health professions labor shortage is most severe among RNs. New estimates of current and future labor supply and demand levels for each of the New England states prepared by the statistical staff at the U.S. Department of Health and Human Services (HHS) reveal the

extraordinary magnitude of the challenge today and over the coming decade. In 2000, the HHS study found, the New England region had 11 percent fewer RNs than it needed. That is, health organizations on average were unable to fill about 11 percent of their nursing jobs during that year.

Local surveys conducted around that time, including one prepared in 2001 by the Northeastern University Center for Labor Market Studies for the Metro South/West Regional Workforce Board, also found job vacancy rates for RNs in the 11 percent range, with similarly high vacancy rates in many related professional and technical health specialties in Greater Boston. More recent press accounts underscore the still high demand for professionals, especially in the high-end health care fields.

The HHS projections of supply and demand in the health professions also suggest that the shortage will worsen in the coming years. This will not be due to growth in labor demand: HHS projects that the need for more nurses will increase by just 1.3 percent annually through 2010, a rate of growth equal to expected total employment gains in the New England economy. But at the same time, the supply of nurses is projected to grow annually by just 0.6 percent per year. By 2010, then, we can expect a 16 percent shortfall in the number of nurses in the region—a gap that will be most severe in Connecticut and Rhode Island. Moreover, the imbalance between supply and

demand will extend beyond nursing into other health fields. The National Conference of State Legislatures, for example, projects that pharmacy and speech therapy professions, among others, will be hit hard as well.

How did we get here?

The health care workforce crisis is the result of the boom-bust cycle that began with the health care industry's considerable expansion in the late 1980s, followed by contraction in the first half of the 1990s. The hospital mergers and the closing of community hospitals in the 1990s bedeviled the health care professions, resulting in substantial layoffs and, for those who remained employed, heightened fears of job loss. With the size of the incumbent health care workforce shrinking, many of the savvy professionals in nursing and other health care fields found plentiful employment options outside health care in the rapidly growing and skills-hungry regional economy of the period.

While consolidations and layoffs explain why some health care workers left the field and why we see such large shortages today, another factor is the evolving nature of the health care professions themselves. It appears that skilled and caring professionals are growing increasingly dissatisfied with their jobs. A recent Northeastern University report shows that, over five years, 40 percent of health care professionals left health occupations to pursue alternative career and life options—an exit rate much higher than in other professions. Additionally, though the primary reason for exit from most professional fields is pay, health professionals are substantially more likely to leave health care work behind because it no longer provides them with the opportunity to work in a career characterized by altruism and caring, according to the report. Rising patient-to-staff ratios combined with an increase in critically ill patients in need of more care and pressure to restrict hospital stays have led to a sharp deterioration of working conditions for health care workers, particularly those who provide direct health care. According to nursing scholars, it

is these values—not money—that initially attracted these individuals into the health fields as young adults seeking a fulfilling career.

Third, and perhaps most ominously, looking forward, today's health care labor shortages are partly due to a significant decline in the number of young people who have chosen to enroll in postsecondary programs to prepare for careers in health care. Between 1995 and 2000, the number of undergraduate degrees and certificates in the health professions awarded by New England's colleges and universities fell by nearly one-fifth—from 12,000 to 10,000.

The age of people receiving health-related degrees, meanwhile, is rising. In 1980, the average age of students earning associate degrees in nursing was 28. By 2000, it was 33. During the same period, the proportion of SAT test-takers who intended to major in one of the health professions dropped by nearly one-third. Moreover, as labor shortages intensified in the health care field in the second half of the 1990s, the proportion of SAT test-takers who intended to major in one of the health professions declined. In

Massachusetts, SAT test-takers with intentions to major in health care declined by one-third between 1996 and 2001. The potential supply of health professionals continued to decline even as demand increased sharply in 1998-1999 and thereafter.

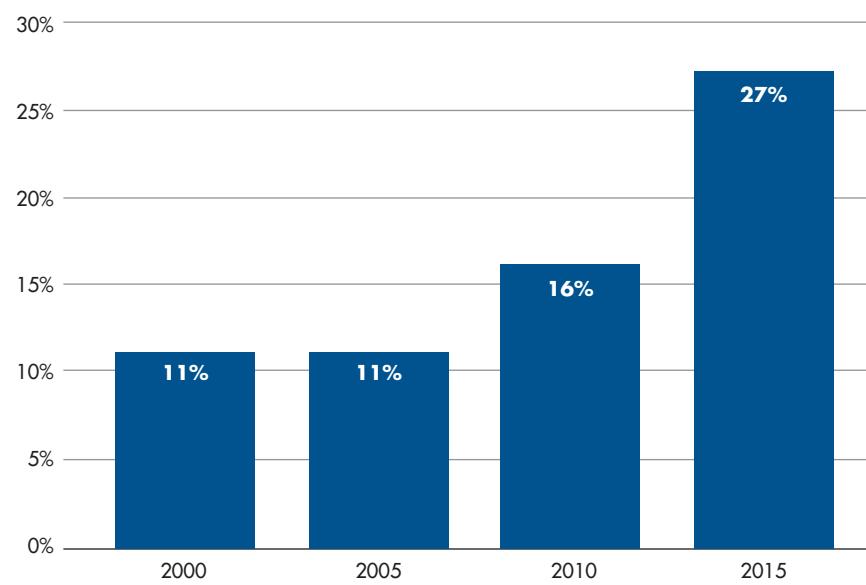
Even as jobs in the health professions go begging, New England's best and brightest high school seniors are deterred from pursuing health careers by the dislocation and dissatisfaction they see among incumbent workers in the field.

Where will we go from here?

The health professions labor market is in disarray. Severe labor supply constraints are inhibiting the ability of New England's health care system to meet the growing demand for services from an aging population. This is an untenable development for a region that boasts several world-class centers of excellence in health care research, education and care. Failure to grow health care labor supply threatens not only New England's stature, but also its economy and the personal health of its citizens.

Addressing the health care worker

Current and Projected Labor Supply Deficits of Registered Nurses in New England, 2000 to 2015



Source: National Center for Health Workforce Analysis, U.S. Department of Health and Human Services.

shortage, which will only intensify over the next 10 to 15 years, must move to the center of the New England agenda. Local, regional and national leaders must recognize that unlike other industries, where labor shortages have meant locating plants in other parts of the nation and even the world, we cannot relocate the region's health care delivery system. We must instead educate and import more health care professionals here.

We must also recognize that the rapid pace of technological change in the health arena means that the days of substituting less skilled and less costly non-professional staff for skilled health professionals must come to an end. The gains of technology are closely tied to the skills of the staff that employ new medical procedures, medicines and devices in the delivery of health care services. Health care staffing must reflect the changes that have occurred in health care technology, not act as a constraint on its implementation. This means increased training of existing staff and efforts to create opportunities for career advancement tied to skill enhancement both through formal classroom

instruction as well as clinical learning. Boston Mayor Thomas Menino recently announced a \$5 million skills training initiative in cooperation with Boston's medical institutions. This initiative builds on incumbent training programs in the health fields organized by the Boston Private Industry Council that combines formal classroom training with clinical learning.

Higher education must play a critical role in addressing this crisis. Recently, there has been some evidence that undergraduates are finally beginning to respond to the growth in demand for health care. The American Association of Colleges of Nursing reports that enrollment in four-year nursing programs rose by 8 percent in 2002, with the highest increases in the Northeast. At Northeastern, the number of students who applied to the Bouvé College of Health Sciences this past fall was 35 percent higher than the year before. But higher education alone cannot resolve this problem. The health industry and elected officials must form new health supply partnerships to respond to the challenge.

The boom-bust cycle that has bat-

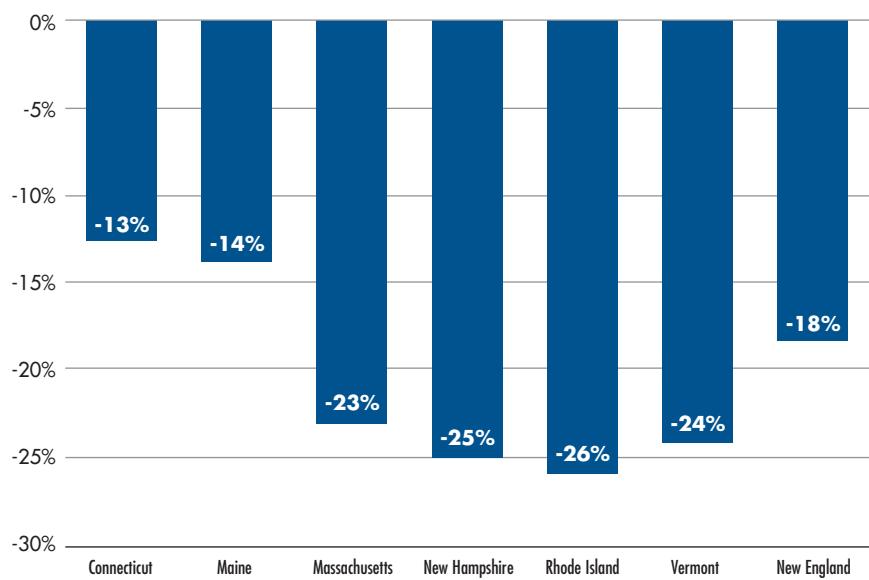
tered the health care industry must be broken. Medicaid and Medicare programs must provide a steady and reliable income stream to health care service providers and eliminate funding swings driven by political and economic winds. Moreover, payments made by these programs currently do not cover the full cost of service, including education and training. Reimbursement for these training costs is crucial to medical advances and improved care.

The health sector must develop new human resource and staffing policies that permit health professionals to utilize not only their professional knowledge to its fullest degree but that also encourage the development of these skills as new technologies and procedures are developed in the future. The industry must work with colleges and credentialing organizations to create new ladders of upward mobility for health care professions that recognize the importance of skills development through both classroom and clinical learning.

Perhaps most importantly, we must restore to the health professions the ability to practice the values of selflessness, altruism and caring that have long characterized what's best about medicine in New England. Attracting new health professionals and retaining those who already possess the needed skills certainly requires a human resource system that provides employment stability, decent pay and benefits and the chance for upward mobility that all workers desire. Yet it also requires something more: it means that we must organize the delivery of patient services in a way that honors the basic personal values that have motivated so many dedicated staff to the service of those ill and in need of care.

Richard M. Freeland is president of Northeastern University. **Paul E. Harrington** is associate director of Northeastern's Center for Labor Market Studies.

Percent Change in Number of Undergraduate Degrees in Health Fields Granted by New England Colleges, 1995-96 to 2000-01



Source: U.S. Department of Education.



Beyond High Standards and High Stakes, We Need Higher Expectations

BLENDY J. WILSON AND JAY SHERWIN

While some students of color are driven to succeed, in order to do so, they must transcend a peer culture that can be overtly hostile to learning.

The results from the latest MCAS exam offer the reassuring news that most Massachusetts high school seniors have passed the Math and English portions of the high-stakes exam in time to graduate in June. Unfortunately, the results also show that 6,000 students will not graduate with their classmates, and a disproportionate number of them are students of color. Statewide, 30 percent of Latino students and 25 percent of African-American students in the Class of 2003 have not passed the exam, compared with 6 percent of white students.

Why are so many students of color struggling to meet the academic requirements that are essential to their futures, and how can we help them succeed?

The high failure rate for minority students on the MCAS (Massachusetts Comprehensive Assessment System) exam is just one example of the “minority achievement gap,” a complex national problem that defies easy explanations and resists easy solutions. Despite the Bay State’s decade-long investment in education reform, most minority students attend schools that still struggle with insufficient resources, outdated textbooks and inadequately trained teachers. Those students need intensive academic support to pass the exam and, to their credit, many school districts and community-based programs are scrambling to provide it.

Extra help for students who are failing is

important, but we must not stop there. A deeper and more insidious problem affects minority students who *are* passing MCAS but still aren’t reaching their true potential. Call it the problem of mediocre expectations. In too many classrooms and too many homes, minority students simply aren’t expected to achieve at the highest levels. Their teachers don’t expect it, their parents don’t expect it, their classmates don’t expect it and, most disturbingly, they don’t expect it of themselves.

While most educators work hard to help their students achieve, research suggests that many teachers underestimate the academic potential of minority students or accept mediocrity as the norm. While all parents want what’s best for their kids, some minority parents fail to reinforce the connection between academic excellence and future success or feel powerless to demand high-quality teaching within a rigorous curriculum. And while some students of color are driven to succeed, in order to do so, they must transcend a peer culture that can be overtly hostile to learning.

If we want all students to achieve at high academic levels, we must have high expectations for all of them. And minority students, in turn, must have higher expectations for themselves. When students demand more from themselves and the adults in their lives, those adults usually respond.

The good news is that high expectations aren’t high cost. The Education Trust, a

Washington-based education advocacy organization, has documented examples of schools in poor minority and recent immigrant communities around the country that are relentless in their high expectations of students—with impressive results. Here in New England, the Nellie Mae Education

"When mom has homework to do, too, it creates an atmosphere that helps her kids do theirs."

Foundation supports a variety of education programs at the middle school and high school levels that demand academic excellence from minority students and offer mentoring, tutoring and other supports to help those students meet the challenge. These are programs that confront mediocre expectations at school, at home and in the minds of young people.

For an example of how a school can rethink its expectations of students, consider Boston's John D. O'Bryant School of Mathematics and

Science, an urban public school serving a largely minority student population. Only a few years ago, O'Bryant offered an Advanced Placement Calculus course to just a handful of students, none of whom received a score of 3 or higher on the AP exam. With leadership from its headmaster, the school pursued a partnership with Northeastern University's Mathematics Department and School of Education. Northeastern and O'Bryant faculty members are now working together to create a demanding math curriculum that includes algebra for all eighth-grade students, teacher coaching, student tutoring and an intensive summer calculus preparation program on the Northeastern campus. Last year, 29 O'Bryant students took the AP Calculus exam and most of them scored 3 or higher. This year, 39 students are enrolled in Advanced Placement Calculus at O'Bryant.

A second program supported by the foundation underscores the important role of parents in establishing

high expectations for themselves, their children and their schools. In Hartford, the Connecticut College Awareness Program (ConnCAP) at Capital Community College offers an academic support and mentoring program for more than 100 minority and low-income students from four communities. A key component of the program helps parents complete their own high school, college and professional studies. As ConnCAP Director Steve Perry explains, "When mom has homework to do, too, it creates an atmosphere that helps her kids do theirs." In addition, ConnCAP has hired and trained a group of Parent Advisors to help other parents impose stronger academic demands on their children.

At the Boston Learning Center in Dorchester, the BIFF Project is designed to help students expect more from themselves. The center recognizes that many minority students—young men in particular—are bright, capable young people who underachieve because of a peer culture that devalues academic success. By creating a fictional role model who is both smart and "cool," the program applies positive social pressure on minority students and raises their expectations of what they can achieve. After students complete a nine-week introductory course, the program offers regular activities to maintain a sense of community and shared purpose. Currently offered at four Boston middle and high schools, the BIFF Project understands that academic success begins with student motivation.

It shouldn't surprise anyone that minority students who have endured years of low expectations at school and home are now struggling to pass the MCAS exam. Those who do pass will send us a powerful reminder of what they can accomplish when we believe in them and they believe in themselves. But most minority students are capable of much more than just passing the test. We need to show them that we expect much more.

Blenda J. Wilson is president and CEO of the Nellie Mae Education Foundation. **Jay Sherwin** manages the foundation's Minority High Achievement Initiative.

**"Be ashamed to die until you have
won some victory for humanity."**

—Horace Mann, President of Antioch, 1853–1859

**JOIN US AT
ANTIOCH NEW ENGLAND
GRADUATE SCHOOL**

MASTER'S AND DOCTORAL PROGRAMS IN
ENVIRONMENTAL STUDIES, PSYCHOLOGY,
EDUCATION, AND MANAGEMENT

Keene, New Hampshire 603.357.6265 www.antiochne.edu



Community Repositories of Knowledge

A Tool to Make Sure Research Pays Off for University Partners

LINDA SILKA

**Universities,
not communities,
increasingly
retain the
knowledge
gained from
collaborative
research.**

How are we to solve the significant problems that face communities during these hard economic times? There are now abundant calls for universities to work more closely with communities, to bring different disciplines together to do so and to close the gap between research and application so problems can be addressed more quickly. Many federal programs are now being directed at this partnership process. The U.S. Department of Housing and Urban Development (HUD) Office of University Partnerships funds collaborations between communities and universities. The National Institutes of Health promotes community-based participatory research in order to reduce health disparities in communities. The Centers for Disease Control are focusing on prevention partnerships as ways to bring researchers and communities together in new types of problem-solving relationships. And the U.S. Environmental Protection Agency is highlighting innovative ways that university-community partnerships can enhance smart growth. A new phrase has been coined—*translational research*—to emphasize the need for research that closes the gap between studying a problem and identifying hands-on solutions.

As state governments seek to use resources more efficiently, they have begun to wonder whether universities might be encouraged to play a more substantive role in collaborating with local communities to address

problems. As universities strive to better serve their regions, they are reassessing the ways in which they put their knowledge to work. How then can state government officials tap into this activity and encourage it in ways that will benefit communities during challenging economic times?

If universities and communities are to work well together, both sides of the partnership need to have full access to the knowledge that results. Therein lies the problem. Universities, not communities, increasingly retain the knowledge gained from collaborative research. A university might work with a local community to study economic development strategies or homelessness. But when the work is done, the research findings end up buried in university archives. This arrangement clearly does not lend itself to solving community problems.

Journal –ism

Universities are experts at accumulating knowledge. Indeed, this is arguably what universities do best. Although collaborations between universities and communities are intended to benefit the community, much of the knowledge winds up in academic journals, which for all their admirable characteristics, are peculiarly ill-suited to this new role of accumulating community knowledge.

For academic purposes, journals function well as repositories for knowledge. They preserve the past and look to the future. With

regard to the past, journal articles review previous research and set the stage for subsequent research. Past steps are not lost, but rather reported as part of the context for assimilating current research. By perusing past volumes, journal readers can gain an understanding of the entire history of work on a particular issue. And journals speak to the future as well. Articles often end by framing the direction that future research should take. Thus, a central function of universities is to accumulate knowledge—knowledge, that is, of a particular, abstract, academic sort—mostly through journals.

Nothing comparable exists for most communities. Suppose one wanted to know what research has been done in a particular community: who has been studied, what has been found, what interventions have been tried and what outcomes ensued. How would one do this? This is no idle question for community-university partnerships that are attempting to show progress and avoid redundancy. Communities in existing partnerships have few ways of accumulating information about the work done by universities in their settings, and therefore few opportunities to learn lessons about how universities can better serve their needs.

One sad consequence of this absence of community repositories is that universities keep starting from scratch, asking the same questions and reinventing the wheel. The continued study of community problems often has little consequence. The intervention stage is never quite reached in the wake of numerous isolated studies. Translational research never quite translates into benefits for the community.

In Lowell, Mass., for example, concerns are increasingly raised about whether the community is benefiting from the growing array of research partnerships with universities. Many researchers, for example, have shown interest in the trauma experienced by Cambodians and other refugees from war-torn countries attempting to resettle in a country vastly different from their own. Researchers arrive in

The Lowell Model

The University of Massachusetts Lowell and its community partners have attempted to bolster community repositories for research knowledge by:

- Recognizing grant proposals from throughout the city as neglected goldmines that, when housed together in a public place, become rich sources of history, needs analysis and visions for solving community problems;
- Involving immigrant and refugee leaders in building a visual and written repository of best practice ideas that they bring to the United States on community issues such as open space, housing and transportation;
- Re-creating a Southeast Asian Water Festival in Lowell as a way to prompt past memories and build a retrievable record of how partners overcame obstacles to organize the festival;
- Attempting to enhance a repository by using geographic information systems to create maps that show the work of partnerships in the community; and
- Creating a community repository of “Questions and Answers,” bringing together questions people are asking about a given problem such as affordable housing and information about tools to address the problem.

Lowell—home to the second largest Cambodian community in the United States—and ask questions designed to probe the most troubling aspects of Cambodian history such as family loss or the prevalence of post traumatic stress disorder. The first wave of researchers then disappears, perhaps to publish the results in an academic journal, but often simply to satisfy some graduate research requirement. Soon thereafter, another wave of researchers from a different university arrives to ask the refugees essentially the same probing questions. And this continues, with one team of researchers following another, often oblivious or indifferent to the duplication of effort. As one community leader in Lowell lamented, “Another dissertation student has achieved the Ph.D., but how has the community benefited?”

Lowell’s Cambodians are not the only subjects of endless data-gathering in which the same ground is covered and little is done to address the problems that drew researchers’ interest in the first place. Any identifiable entity that can easily be located by researchers is likely to be inundated with requests to participate in research.

The University of Massachusetts Lowell’s Center for Family, Work, and Community can now be found in vari-

ous national databases, such as HUD’s listing of groups experienced in building community-university partnerships. As a result, I receive frequent requests to fill out surveys about our experiences in partnership-building. Each new group of researchers presents its questions as if they were novel. But they are the same questions asked by earlier scholars. Finally out of frustration at the time lost to such repetitive requests, I started asking the researchers whether they realized they were the latest among many to ask such questions. I also asked whether they had a plan in place to share their results with those of us who participated and whether they would use the results to make recommendations for improving partnerships. In other words, was there any way for the knowledge to accumulate for the community of partnership builders? I have yet to receive any reports on the findings.

Holding knowledge

Communities of all sorts are beginning to discover that they need repositories that provide information about current and past studies. This need goes well beyond having ready access to census data or other demographic facts. Communities are realizing that they need ways to track what is being

asked, what has been tried in the way of interventions and what is being learned. I was struck by the absence of this information recently when I was contacted by an official in Lewiston, Maine, who was struggling with questions of how to make the city a more hospitable home to its new Somali immigrants. The official wanted to learn from Lowell's experience in using community-university partnerships to address a multitude of similar problems. The official said he could see that Lowell had solved certain problems and was at a different point than Lewiston, but he did not see how that transformation had been achieved. There was no repository of information that captured this process.

Such losses of information are familiar. We have all heard of reports that gather dust on some shelf, never to see the light of day. Or of studies that are carried out by graduate classes, the results of which never find their way back to communities. Or of faculty members who conduct research projects but never implement the findings. Information simply dis-

appears from sight. And there is no repository that can be checked to see if research now being planned has already been undertaken.

The problem is that little attention is paid to designing community vehicles for knowledge accumulation. Such vehicles could help communities instruct researchers about which stud-

Communities once rich in information-preserving customs may have lost these customs with the advent of new technologies or the departure of key personnel.

ies have already been undertaken in their community, what these studies have uncovered and how these projects and their findings might be better aligned with the community's goals of ameliorating problems and achieving benefits. These vehicles could also make communities less dependent on the forms of knowledge accumulation owned by scientists. Communities would be less reliant on information that is organized in terms of scientists' frameworks and more empowered to

organize knowledge in terms of their own problem-solving needs.

As we set about the task of designing community repositories, we need to remind ourselves of what it is about journals—indeed, about academic ways of accumulating knowledge in general—that makes them so problematic for shared knowledge-building. For one, although journals serve to accumulate knowledge, the pace at which they operate is usually too slow to help communities avoid the “same study” syndrome. Moreover, the characteristics that make journals good for communication among specialists are the same features that make them poor for communication among non-specialists; journals are reliable and predictable precisely because they are stylized, formulaic and self-consciously esoteric.

Other problems arise from the well-known gatekeeping function of journals, by which only a few of the studies that are done survive the quality-control process to reach the stage of publication. This process makes journals ill-suited to meeting the community's need for information about

Faculty will learn how to...

- develop or adapt courses for online delivery
- enhance existing online courses
- develop hybrid courses
- incorporate advanced online instructional and assessment strategies

Academic Administrators will learn how to...

- initiate an online program
- support and manage online learning
- plan for strategic growth

Date:
Sunday – Thursday
June 8 - 12, 2003

Location:
Middlesex Cyber Café
Lowell, Massachusetts

Institute Fee:
\$950



MIDDLESEX COMMUNITY COLLEGE

You've heard of online learning

Now you can learn how to TEACH ONLINE!

for faculty & administrators

MIDDLESEX COMMUNITY COLLEGE

Teaching online

summer institute

■ Faculty will learn how to adapt courses for delivery online and enhance existing courses.

■ Administrators will learn strategies for managing and expanding online instruction.

This intensive summer institute includes...

- four days of individualized on-site instruction
- and
- two weeks of online follow-up consultation

The Institute will be led by experienced distance learning specialists and faculty of Middlesex Interactive



Make Online Teaching a Part of Your Future!

**For more information, please call 1-781-280-3570,
email: TeachOnline@middlesex.cc.ma.us or,
visit our website at www.middlesex.cc.ma.us/TeachOnline**

the full range of activities that take place between scientists and community members, including whatever false starts and dead ends have been encountered. (Communities need to know why earlier partnerships have foundered or thrived.) Finally, journals are intended to leave out as much as they leave in. Though they may excel at accumulating information in the form of explicit testable knowledge, they tend to exclude the sort of tacit knowledge that often underlies successful social interventions, including such informal but crucial skills as rapport-building among community groups. What is left out may be especially germane to communities as they seek to understand the various strategies that have been tried for addressing problems.

What is urgently needed are innovations that creatively integrate the multiple ways in which different communities gather, keep track of and share information. Innovations are needed to help communities harness existing vehicles to tasks like tracking

interactions with scientists and capturing activities mid-stream, long before they are ready to be codified in journal form.

University faculty are at their best when they have puzzles to solve, and designing community repositories as a joint project stands as a tantalizing puzzle of the first order.

If repositories are to help community-university partnerships truly address the problems communities face, there are many difficulties to be overcome. In some cases, communities once rich in information-preserving customs may have lost these customs with the advent of new technologies or the departure of key personnel. (This is why it's critical for a departing leader to brief successors on, say, the informal connection to a local historian who held the lore and institutional knowledge about what had happened when this or that was tried.)

In other cases, the degree of centralization required for knowledge-accumulation may be unavailable to communities with no centralized authority or coordinated governance. In still other cases, scientists from diverse disciplines and institutions need to know about one another's work with a particular community but are thwarted by disciplinary barriers that seal them into non-communicating factions.

While addressing such challenges, it may be useful to juxtapose existing community approaches against the tradition of research journals so that we can continually examine what makes one or the other work in different circumstances. Such comparisons could help reveal ways to draw the best from approaches that scientists use in relying on journals to accumulate knowledge. For example, journals depend on users knowing of their existence and knowing how to use them; students are trained in their use, scholars routinely turn to them. Community repositories will not work unless the disparate people engaging in community-university partnerships know to turn to these resources.

If university-community partnerships are to advance beyond the stage of wheel-spinning, this central issue of knowledge accumulation must be given high priority. University faculty are at their best when they have puzzles to solve, and designing community repositories as a joint project between communities and universities stands as a tantalizing puzzle of the first order.

So, what can state leaders reasonably expect of their universities? They can ask not only that universities become involved but also that they seize the opportunity to explore new forms of knowledge accumulation that have the potential to transform their working relationships with communities.

Linda Silka is co-director of the Center for Family, Work, and Community and University Professor in the Department of Regional Economic and Social Development at the University of Massachusetts Lowell.



New Building. Innovative Building. CHARACTER BUILDING.

On the outside, the George E. Bello Center for Information and Technology is a magnificent architectural accomplishment.

But what happens on the inside is even more inspiring. Advanced technology built into the George E. Bello Center at Bryant College connects each of our students to the information and resources they need to pursue knowledge, strengthen character, and achieve success.

Bryant College is an accredited, four-year institution offering programs in applied psychology, business administration, communication, information technology, and liberal studies.



BRYANT COLLEGE
The Character of Success

BRYANT COLLEGE ■ 1150 DOUGLAS PIKE ■ SMITHFIELD, R. I. 02917 ■ (401) 232-6100
(800) 622-7001 ■ E-MAIL ADMISSION@BRYANT.EDU ■ WWW.BRYANT.EDU



dream learn grow

Because time is precious...

Nelnet minimizes the time it takes to fund an education by streamlining financial aid delivery. From loan award to disbursement, our technology and expertise make the financial aid process easier for schools, lenders, guarantors, and most importantly, students. Through our simplified solutions, your students have more time to focus on their education.

Please visit our Web site at www.nelnet.net where online "tours" of our products demonstrate the substantial benefits of our software.



"Education can be a reality."

INNOVATION. SECURITY. CONVENIENCE.

Banknorth student loans

- Flexible loan processing & delivery options
- More than 300 branches in New England
- 24-hour online customer service
- Borrower benefit programs that can save students thousands

3% interest rate reduction after 36 initial on-time payments

1/4% interest rate reduction using KwikPay electronic payments



Contact a Banknorth Education representative today.



Banknorth Education Loan Program

Lender ID: 833832
800-660-1982

Presidential Material

Joseph M. Cronin

Provoking Thought, Leland Miles,
Phoenix Publishing, 2001, \$30

By his worldly wit and wisdom, Leland Miles survived the strife-torn years of the 1960s and 70s, first as president of Alfred University in New York, then of the University of Bridgeport, to which he added a law school.

But while Miles spices his *Provoking Thought* with anecdotes from commencement exercises, visiting celebrities and student encounters, the book is much more than a presidential memoir. Nor is it still another sturdy defense of the Great Books, which he taught on Kentucky public television and at the Aspen Institute for idea-thirsty executives.

During his rich career, Miles also took a turn as president of the International Association of University Presidents, a multinational group committed to visiting other nations. His ideas were clearly shaped by these sojourns, and he rails against the destructive toxic waste of two large nations, the United States and the former USSR.

Perhaps the most provocative prescription is Miles's answer to a query he attributes to Dartmouth President John Kemeny: "What curriculum would you ask your college to offer to someone who would become a future president of the United States?"

Miles would require study in economics (rival systems), religion, history (especially of diplomacy), a critique of technology, political geography. ... Many of his required courses would be cross-cultural, multidisciplinary, issue-based and team-taught. He would also require intense and immersed foreign language study in either Spanish, Chinese or Arabic—the other languages of the future. He calls for at least one semester abroad, preferably in Latin America, Africa or China. The college would require a capstone course on interdependence. And each student would take an internship with a non-governmental organization such

as Greenpeace, an arms control group or a United Nations affiliate.

Miles doubts that faculty would support this vision because, although many are individual non-conformists, they travel together as a herd, loyal to what they studied years ago. Moreover, Miles challenges us all to develop a course of study not only for the next president, but for the followers who will elect and constrain the leaders.

Leland Miles is a maverick, even after 50 years in the classroom and the boardroom. In *Provoking Thought*, he takes a whack at curricular conformity, rigid nursing accreditation rules and mindless ratings of "Best Colleges." Of popular "leadership" programs, Miles observes: "It is ironic that some college faculty are showing interest in teaching leadership at the very time when trustees are leaning towards 'managers' rather than leaders

to head their institutions."

Each chapter of this delightful book brings the reader closer to the realization that here is an undaunted visionary. Early in his adult life, Miles served as a navigator for Chennault's "Flying Tigers" over China, which clearly toughened him, even as he adopted Plato and St. Thomas More as his intellectual mentors. At Bridgeport, he founded university centers on Aging and on Venture Management. He served on the board of Save the Children and became a staunch advocate for disarmament.

One hopes that those deans and faculty committees challenged to re-evaluate and rebuild the undergraduate curriculum will look to Miles for *Provoking Thought*.

Joseph M. Cronin is president of Advisors and former Massachusetts secretary of educational affairs.

Ingenuity

Alan R. Earls

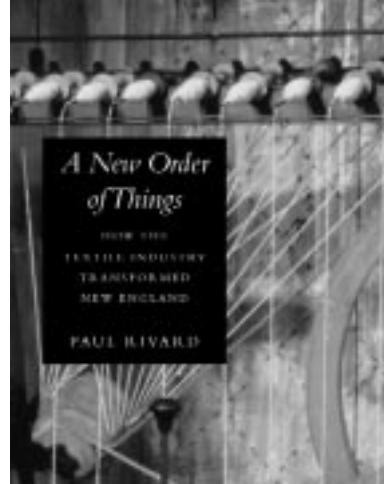
Spy Capitalism: Itek and the CIA,
Jonathan E. Lewis, Yale University
Press, 2002, \$29.95

A New Order of Things: How the Textile Industry Transformed New England, Paul E. Rivard, University Press of New England, 2002, \$24.95

The Belles of New England, William Moran, Thomas Dunne Books (St. Martin's Press), 2002, \$25.95

Engines of Enterprise: An Economic History of New England, Peter Temin, Ed., Harvard University Press, 2002 (hardcover originally published in 2000), \$18.95

Books on the New England economy are relatively few in number. So the past year's arrival of two complementary perspectives on the region's once-dominant textile industry along with the little-known, cloak and dagger story of a high-tech company called Itek and



the paperback edition of Peter Temin's economic history qualifies as a bounty.

The potboiler of the lot is *Spy Capitalism*, Jonathan Lewis's amazing story of Itek—once a major employer along Greater Boston's Route 128 beltway. The company, which had roots in area academic institutions such as MIT and Boston University, had the primary purpose of putting Uncle Sam in the spy satellite business—the CIA's Project CORONA.

As a member of the Business Executives for National Security

(BENS) Independent Panel on the Central Intelligence Agency In-Q-Tel Venture, the author brings a special perspective to this unusual, covert public-private partnership. A latter-day echo of Itek, In-Q-Tel is a private, independent, enterprise funded by the CIA. Launched in 1999, In-Q-Tel's mission is to identify and invest in companies developing cutting-edge information technologies that serve U.S. national security interests.

In Itek's case, the CIA's investments in the Boston area leveraged the capabilities of nearby universities, electronics companies and optical and photographic firms, including Polaroid, to develop spy satellites. Ultimately, the success of the satellites helped lay to rest some of the paranoia regarding Soviet intentions and capabilities.

Stepping back deeper in time, *Belles of New England* and *A New Order of Things* put New England's traditional textile industry in the spotlight. William Moran's *Belles* is particularly compelling, thanks to its fascinating exposition of the lives of the early, mostly female, mill workers. In the first decades of industrialization, we find women, mostly from settled New England families, operating in a new world of opportunity and challenge. Many found education and self-improvement available to counterbalance the drudgery and danger of their regimented lives. Soon, their lives ceased to revolve around merely reading the classics and pining for future opportunities as teachers and small business people, and instead focused on taking organized steps to protect and enhance their rights as factory workers. *Belles* provides a wealth of anecdotes from these early years along with analysis of what happened to the world of mill work (for both men and women) as competition grew more fierce, mill owners more heartless and labor more ethnically diverse. Moran clearly has a feel for his subject and the region. In addition to spending 25 years as a writer, editor and producer at CBS, he covered New England for the Associated Press and worked as a producer at Vermont Public Television.

Paul E. Rivard's *New Order*, meanwhile is strengthened by ample and

superlative illustrations, many in color, of mill workers, machinery and even the cloth they produced. Rivard was director and later curator of technology at the American Textile History Museum in Lowell, Mass., and has also been director of the Maine State



Museum and Slater Mill Historic Site in Rhode Island. Without ignoring the social side of mill life, Rivard's book focuses on the technical elements of the industry and its complex evolution over more than a century.

The fourth book, *Engines of Enterprise*, grew out of the Federal Reserve Bank of Boston's stalled initiative to create a New England economic history museum.

Engines of Enterprise is entertaining and eye-opening—no surprise considering the stellar cast of contributors assembled by Peter Temin, the Elisha Gray II Professor of Economics at MIT. The contributors include MIT's Paul Krugman and Merritt Roe Smith, Harvard's Bernard Bailyn, Margaret Ellen Newell of Ohio State University, Joshua L. Rosenbloom of the University of Kansas, Lynn E. Brown and Steven Sass of the Boston Fed and Winifred Barr Rothenberg of Tufts. (Temin also contributes one chapter of his own.) Together, they paint a fascinating portrait of New England since the arrival of the first English settlers.

Those settlers were equipped with a fabled Protestant work ethic that not only promoted hard work but also included a reformist, even experimental, nature that tended to favor newer

and potentially more productive ways of buying and selling, organizing communities and promoting economic development. This cultural baggage was of paramount importance in allowing settlers who had arrived with nothing—sometimes nearly starved—to rapidly re-create much of what they had left behind in the old country. In many cases, they did better. So, New Englanders became adept at simultaneously fostering individual initiative and harnessing government and community powers to common goals.

One result, the authors point out, is that for many of the decades prior to the American Revolution, New Englanders managed to live much longer than was typical of their forbears or contemporaries in old England. Indeed, for much of this period, men and women were living nearly as long as they do today.

The authors shed light on many other facets of the New England story, including the process of industrialization and the postwar deindustrialization of the region. In 1940, according to the authors, 40 percent of New England's employment was in manufacturing, compared with 25 percent of the nation's. By 1996, New England and the nation both had 13 percent of their workforce in manufacturing.

Throughout the story runs the thread of education. Always a differentiator (adult literacy was already very high in New England prior to the American Revolution), education appears as either an additional factor for success or as the enabler of many of the transformations New England has seen. As Krugman notes in a concluding essay, "Most people in Greater Boston are not brilliant, but the core of brilliant people give it a special competence in the knowledge industries."

Engines of Enterprise offers by far the greatest breadth of the books. The four together provide a particularly insightful view of how New Englanders have gotten their daily bread through changing times.

Alan R. Earls is a freelance writer based in Franklin, Mass.



LOANS AND BONDS. EXPERIENCE AND SOLUTIONS.

MassDevelopment has the right combination for you. We offer loans and guarantees to help companies grow their operations. And, our bond financing programs provide a cost-effective method for financing capital projects.

MassDevelopment specializes in financing complex projects that require experience and innovative thinking. Our lower rates and flexible terms keep Massachusetts companies competitive. To learn more, call 800-445-8030 or visit massdevelopment.com.

FINANCING | DEVELOPMENT SERVICES | REAL ESTATE

The team that gets it done.



MASSDEVELOPMENT
75 Federal Street, Boston, MA 02110

(Image: Smith College, Northampton, Massachusetts.)

STORRS, CONN.—The University of Connecticut's School of Engineering received an anonymous \$500,000 gift from an alumnus to support women and minorities in engineering. The state will add \$250,000 to the grant under its endowment matching program. More than half the grant will fund a Learning Mentorship Program designed to reduce attrition among undergraduate engineering students. Roughly half of all freshmen in U.S. engineering programs fail to continue in the field through their second year. At UConn, 80 percent of freshmen stay in engineering as sophomores, but only 55 percent ultimately graduate with engineering degrees. The grant to UConn will also support undergraduate engineering scholarships, some earmarked to students enrolled in the school's BRIDGE program, an intensive five-week, residential summer readiness program for traditionally underrepresented populations.

CAMBRIDGE, MASS.—Harvard Law School received a \$3 million gift from the Oneida Indian Nation of central New York state to endow a chair in American Indian studies. The endowment will support the appointment of visiting law professors committed to creating better understanding of the complex legal issues arising from the legal and political relationship between the United States and Indian tribes. Contemporary issues include tribal treaty and property rights, congressional plenary power in Indian affairs, the federal government's trust responsibility to tribes, and the scope of tribal sovereignty and self-governing powers on Indian reservations.

BURLINGTON, VT.—The University of Vermont was awarded a three-year \$438,000 Grant from the U.S.-Japan Foundation to enhance the study of Japan in Vermont elementary and secondary schools. The grant will support opportunities for Vermont K-12 teachers to study Japanese culture in Japan and expand the staff of UVM's Asian Studies Outreach Program, which has organized programs in China, Japan and Thailand for Vermont teachers and students. UVM also was awarded

\$216,000 by the Freeman Foundation to create an educational game that promotes learning about China. The game, to be targeted to junior high school students and adults, will be distributed worldwide by a family business in Warren, Vt., called Mamopalire Inc.

KEENE, N.H.—Antioch New England Graduate School and Keene State College began working with two local school districts on a school choice initiative funded by a five-year, \$11 million grant from the U.S. Department of Education. The grant to the Monadnock Regional School District and partners is funded through the Voluntary Public School Choice program established by the No Child Left Behind Act of 2001. Other partners include the Keene School District, the New Hampshire Center for Public Policy Studies and the state Department of Education.

WEST HAVEN, CONN.—The University of New Haven was awarded \$2 million by the U.S. Department of Justice to establish the nation's only academic center for crime scene training. Using advanced technology and real-life situations, the center will train law enforcement officials, including police investigators, laboratory scientists and prosecutors, in handling crime scene material from discovery through presentation as evidence in court. University officials noted that many cases are not solved because of problems related to crime scene evidence.

ORONO, MAINE—A University of Maine marine researcher was awarded \$25,000 by the National Oceanic and Atmospheric Administration to work with fishermen in studying sea cucumbers. Long ignored by fishermen, this relative of the sea urchin is increasingly harvested for Asian markets. In Maine, average landings of sea cucumbers rose from 1 million pounds in the mid-1990s to more than 9 million in 2000. Working with the Maine Department of Marine Resources, Yong Chen and other researchers will develop ways to mark sea cucumbers and monitor growth and reproduction in areas set aside from the commercial fishery.

DURHAM, N.H.—The University of New Hampshire's Institute on Disability was awarded a four-year, \$700,000 grant from the U.S. Department of Education to increase inclusion in New Hampshire schools for students with significant disabilities. The institute will develop a model allowing parents, teachers and others to work together to ensure that students with mental retardation, autism or other severe disabilities succeed in the classroom.

CAMBRIDGE, MASS.—Harvard Business School received \$25 million from 1951 graduate and venture capitalist Arthur Rock to create a center for entrepreneurship. The gift—the largest received for a specific academic program since the B-school's founding in 1908—will support faculty projects, provide fellowships for M.B.A. and doctoral students, fund conferences and support new publications and web sites. As a venture capitalist, Rock helped form companies such as Intel Corp. and Apple Computer.

BOSTON, MASS.—The Massachusetts College of Pharmacy and Health Sciences broke ground on a \$30 million academic and student center. The 93,000-square-foot facility, slated to be completed in August 2004, will house a professional pharmacy practice lab, pharmaceuticals lab and multi-purpose chemistry lab and library. The top four floors will be apartment-style residences accommodating 250 students. In recent years, the college has acquired the nearby Forsyth School of Dental Hygiene as well as the graduate program in physician assistant studies from the defunct Notre Dame College of Manchester, N.H.

PROVIDENCE, R.I.—Brown University received a donation of papers and artifacts from Irving A. Fradkin, a Fall River, Mass., optometrist who founded the Citizens' Scholarship Foundation of America. The papers, documenting the founding and growth of the nation's largest private-sector scholarship organization, will be housed at Brown's John Hay Library.

BOSTON, MASS.—A Boston College business professor was awarded \$107,913 by the Office for Naval Research to study social network analysis. Organization Studies professor Stephen Borgatti has devised a set of computer algorithms known as KeyPlayer to identify which individuals in an organization's social network are critical to its success and whose removal would be most disruptive. Theoretically, a KeyPlayer computer program could identify where an organization is vulnerable to turnover or predatory hiring practices, which people in a criminal network to arrest to best disrupt its operations or even which people in a town to immunize or quarantine to maximally disrupt the spread of an epidemic.

HAVERHILL, MASS.—Northern Essex Community College and Merrimack College launched a collaborative program enabling students to earn both an associate degree in registered nursing

and a bachelor's degree in health sciences in four years. Under the dual degree program, Merrimack health science majors who are in their junior year and have completed certain prerequisites can enroll in the registered nursing program at Northern Essex in the evening while completing their Merrimack coursework during the day.

ORONO, MAINE—The University of Maine and two partners were awarded a five-year, \$2.6 million grant from the National Science Foundation to establish an interdisciplinary doctoral program in functional genomics. UMaine's partners are the Jackson Laboratory and Maine Medical Center Research Institute.

CAMBRIDGE, MASS.—Harvard University unveiled new financial aid programs to ease the burden on graduate students who plan to go into relatively low-paying public service or academic research jobs after they earn their degrees. The Presidential Scholars pro-

gram provides \$14 million in grants over three years for top master's and doctoral students in public service and academic fields. Through a partnership with Citibank, Harvard will also offer all graduate students low-interest, no-fee, loans. And the university will encourage alumni to give to a new aid fund for students pursuing public service.

NEW HAVEN, CONN.—Yale University researchers tested a new college admissions exam that measures creative and practical skills as well as memory and analytical ability. Prof. Robert Sternberg announced that the revised exam better predicts college success than the current SAT and high school grade point averages, while reducing differences among groups. The test is based on Sternberg's theory that there are several types of intelligence. Researchers have administered the test to more than 1,000 students at high schools, community colleges and four-year colleges across the country.

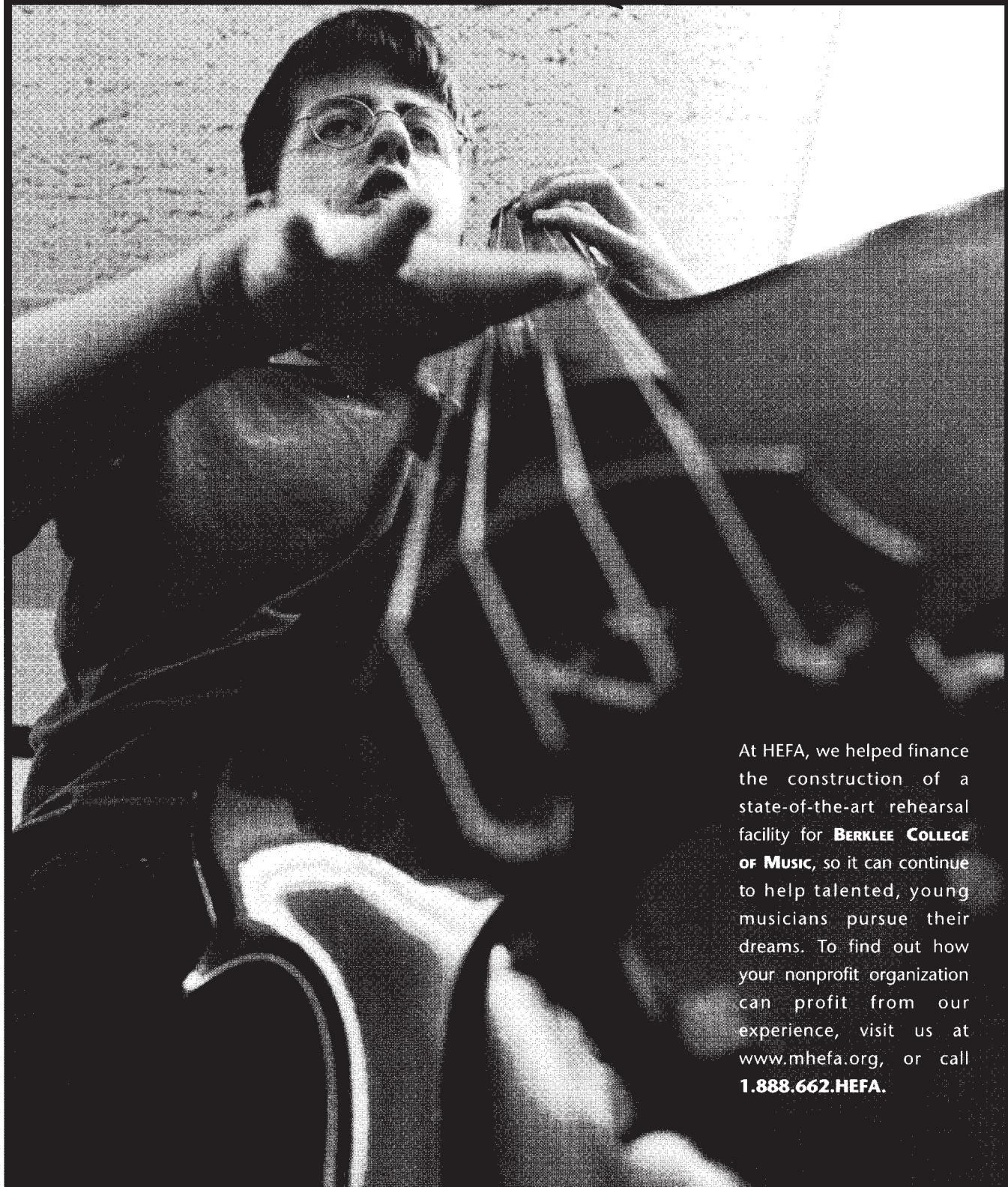
CHESLA Connecticut Higher Education Supplemental Loan Authority

"Celebrating 20 years of helping students and their families finance a college education through the Connecticut Family Education Loan Program (CT FELP)"

- Low Fixed Interest Rate (contact us today)
- Loans from \$2,000 to the full cost of education (Less other financial aid)
- Interest only payments while in school and during the 6 month grace period after graduation (Capitalized interest option available to graduate/professional students)

For additional information concerning CT FELP
and for the new low loan rate, contact:

**CHESLA
342 North Main Street, Suite 202
West Hartford, Connecticut 06117**
www.chesla.org (800) 252-3357 within CT (860) 236-1400 outside CT



At HEFA, we helped finance the construction of a state-of-the-art rehearsal facility for **BERKLEE COLLEGE OF MUSIC**, so it can continue to help talented, young musicians pursue their dreams. To find out how your nonprofit organization can profit from our experience, visit us at www.mhefa.org, or call **1.888.662.HEFA**.

Helping you win the battles
worth fighting for.

THE FINANCIAL ADVOCATE FOR NONPROFITS



DATA CONNECTION

- Percentage of 18- to 25-year-olds in southern Maine who think their communities encourage young people to attend college: **55%**
- Percentage of 18- to 25-year-olds in central and western Maine who think so: **33%**
- Average age of white and African-American children when their parents first receive information about college financial aid: **15**
- Average age of Hispanic children when their parents do: **17**
- Number of hours a student would have to work every week at minimum wage to pay the full cost of attending an average-priced four-year public university: **55**
- Number of hours a student would have to work every week at minimum wage to pay the full cost of attending an average-priced four-year private university: **136**
- Percentage of U.S. public high school students who graduate with credits in visual arts: **51%**
- Percentage of private high school students who do: **61%**
- Number of students who have been expelled from the Hamden, Conn., public schools over the past three years because they are not Hamden residents: **200**
- Number of Massachusetts deaths related to use of heroin, OxyContin, codeine or Demerol in 1990: **94**
- Number in 2000: **363**
- Number of U.S. states that have only one telephone area code: **12**
- Number of those that are in New England: **3**
- Number of U.S. states that have only one congressional district: **7**
- Number of those that are in New England: **1**
- Number of U.S. colleges with below investment grade "junk bond" status as of February 2003: **17**
- Number of those that are in New England: **7**
- Chance that one of the 25 largest employers in Massachusetts is a college or hospital: **1 in 3**
- Number of Greater Boston workers who work in nonprofit education, health and social service jobs: **233,592**
- Their share of all Greater Boston workers: **26%**
- Change between 1992 and 2000 in the number of top scorers on the Graduate Record Examination who planned to pursue graduate study in engineering: **-25%**
- Change in number who planned to pursue graduate study in mathematics: **-19%**
- Change in number who planned to pursue graduate study in non-science and engineering fields: **+7%**
- Maximum number of vehicles expected to travel daily along New Hampshire stretch of Interstate 93 when it was built in the 1960s: **70,000**
- Approximate number of vehicles that travel daily on Interstate 93 in Salem, N.H. today: **110,000**
- Cost of building Harvard Stadium, 1903: **\$175,000**
- Cost of building University of Connecticut's Rentschler Stadium, 2003: **\$90,000,000**
- Projected annual savings to Fairfield University from elimination next year of varsity football and men's ice hockey: **\$570,000**

Sources: 1,2 Mitchell Institute and Critical Insights Inc.; 3,4 The Sallie Mae Fund; 5,6 Postsecondary Education Opportunity; 7,8 National Art Education Association; 9 New Haven Register; 10,11 Massachusetts Department of Public Health; 12,13,14,15 The Rural School and Community Trust (Maine, New Hampshire and Vermont each have only one area code. Vermont has only one congressional district.); 16,17 Chronicle of Higher Education; 18 CONNECTION analysis of Boston Business Journal data; 19,20 Eureka-Boston; 21,22,23 University of Washington Professor William Zumeta and Ph.D. candidate Joyce S. Raveling; 24,25 The Josiah Bartlett Center for Public Policy; 26 Harvard University; 27 University of Connecticut; 28 Fairfield University

Funds in 5 days or less and low interest rates too!



Day 1

Apply conveniently by web or phone.

Pre-approval email sent within minutes.



Day 2

Print, sign and fax the promissory note.

School certifies online or by fax.



Day 3

Final document review.



Day 4

Disbursement scheduled with lender.



Day 5

Loan disbursed to school.

(who says your students can't have it all)

TERI, the largest company dedicated solely to private education finance, offers loan funds in **5 days or less** and we have great rates, as low as Prime minus .50%. Since 1985, TERI has satisfied thousands of schools and nearly one million students. With all of those satisfied customers it's no wonder TERI has a loan product for any school, from part-time education to advanced graduate studies—we even have a loan for elementary and secondary education.

Visit TERI on the web at www.TERILOANS.com or call **(800) TERI-FAO** for additional information and quality service.

TERI
Education
Loans

Note: not all lenders participate in fax back acceptance.

Made Possible by MEFA



Your solution to financing higher education.



Massachusetts Educational
Financing Authority

- **The MEFA Loan** assists families of undergraduate and graduate students from all states attending Massachusetts colleges and universities, as well as Massachusetts residents attending college anywhere in the country.
- **The Massachusetts Solution** provides federally guaranteed Stafford Loans and Parent Loans for Undergraduate Students (PLUS) at participating colleges and universities through the Federal Family Education Loan Program (FFELP).
- **The U.Fund College Investing Plan** allows families to invest for qualified higher education expenses through a selected portfolio of professionally managed mutual funds in partnership with Fidelity Investments.
- **The U.Plan Prepaid Tuition Program** enables families to lock in tomorrow's tuition at today's rates at 82 Massachusetts colleges and universities.
- **The Public Service Outreach Initiative** provides parents and students across Massachusetts with free educational seminars about saving for and financing a higher education.

1-800-842-1531 or visit our web site: www.mefa.org

CONNECTION

THE JOURNAL OF THE NEW ENGLAND BOARD OF HIGHER EDUCATION

New England Board of Higher Education
45 Temple Place, Boston, MA 02111-1305



Non-Profit
Organization
U.S. Postage
PAID
Boston, MA
Permit No. 161